ACE NERR Water Quality Metadata
January – December 2022
Latest Update: 02/26/2024

I. Data Set and Research Descriptors

1) Principal investigator(s) and contact persons – Addresses:

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2) Entry verification –

Deployment data are uploaded from the YSI data logger to a personal computer with Windows 7 or newer operating system. Files are exported from EcoWatch in a comma-delimited format (.CDF), EcoWatch Lite in a comma separated file (CSV) or KOR Software in a comma separated file (CSV) and uploaded to the CDMO where they undergo automated primary QAQC; automated Depth/Level corrections for changes in barometric pressure (cDepth or cLevel parameters); and become part of the CDMO's online provisional database. All pre- and post-deployment data are removed from the file prior to upload. During primary QAQC, data are flagged if they are missing or out of sensor range. The edited file is then returned to the reserve for secondary QAQC where it is opened in Microsoft Excel and processed using the CDMO's NERRQAQC Excel macro. The macro inserts station codes, creates metadata worksheets for flagged data and summary statistics, and graphs the data for review. It allows the user to apply QAQC flags and codes to the data, remove any overlapping deployment data, append files, and export the resulting data file for upload to the CDMO. Upload after secondary QAQC results in ingestion into the database as provisional plus data, recalculation of cDepth or cLevel parameters, and finally tertiary QAQC by the CDMO and assimilation into the CDMO's authoritative online database. Where deployment overlap occurs between files, the data produced by the newly calibrated sonde is generally accepted as being the most accurate. For more information on QAQC flags and codes, see Sections 11 and 12., Saundra Upchurch, Denise Sanger, and Rachel Bonafilia were responsible for these tasks.

3) Research objectives –

Long-term water quality monitoring in the ACE Basin provides a unique opportunity to increase understanding of how various environmental factors influence estuarine processes. Based on discussions with local Coastal Zone Management (CZM) personnel and ACE Basin NERR staff knowledge of land use within the Reserve, the South Edisto River drainage basin was selected because it is well suited for studying contrasting hydrographic conditions and land use patterns.

The two major objectives of the ACE Basin monitoring program are to: 1) compare water quality conditions in shallow creeks along a salinity gradient and at different levels of development in the South Edisto River watershed and 2) track changes to the saltwater demarcation line in the South Edisto River as a result of prolonged drought, extraction of river water, and sea level rise.

The program began on March 3, 1995 in two tributaries of the South Edisto River, Big Bay Creek and St. Pierre Creek; in October 2002, monitoring stations were established in Fishing Creek and Mosquito Creek, tributaries of the South Edisto River. In 2014, two secondary stations were established in the South Edisto River proper at Jehossee Island and Grove Plantation.

Four primary monitoring stations (Edisto Island [replacement for Big Bay], Fishing Creek, Mosquito Creek and St. Pierre Creek) are used to study contrasting land use patterns in the reserve. The two "treatment" sites are Edisto Island and Mosquito Creek, where boat traffic is moderate to heavy and residential and commercial development is moderate. St. Pierre Creek and Fishing Creek, where boat traffic is light and development is sparse, are designated as "control" sites. The four sites are located along a salinity gradient ranging from the polyhaline (Edisto Island & St. Pierre Creek) to mesohaline (Mosquito Creek) to oligohaline (Fishing Creek). See *Section 5 – Site Location and Character* for detailed descriptions of the sites.

The secondary stations at Jehossee Island and Grove Plantation are used to track changes in the saltwater demarcation line. These two stations extend our coverage of the salinity gradient in the South Edisto River. The Jehossee Island station is in the mesohaline zone, and the Grove Plantation station is in the oligohaline to freshwater zone, approximately 0.16 km (0.1 nautical miles) downstream of the legal saltwater demarcation line. See *Section 5 – Site Location and Character* for detailed descriptions of the sites.

In July 2020, a station at the SCDNR Marine Resources Division campus was established, named Fort Johnson, in Charleston Harbor, which is approximately 53 km from St. Helena Sound estuary. This project strengthens the NERRS and IOOS collaborations and efforts to integrate long term monitoring data between the two programs. Funding for this station was provided by the SouthEast Coastal and Ocean Regional Association (SECOORA) through its' IOOS grant. The establishment of a station in Charleston Harbor provides a multitude of benefits to a variety of stakeholders, including recreational and commercial boating interests, scientists, and managers. The deepening of Charleston Harbor Estuary to accommodate larger vessels will begin in early 2018, which may alter salinity regimes and circulation patterns within the harbor, and water quality data before and after this project will be of great value in assessing the project impacts.

YSI electronic data loggers are deployed to monitor the water temperature, specific conductance, dissolved oxygen, water level, pH and turbidity conditions, approximately 0.5 meters (1.64 ft) from the sediment. Turbidity monitoring was added to the program on April 11, 1996. Chlorophyll was added to the program with the Fort Johnson site. Initially the loggers measured the parameters at fifteen-minute intervals; on August 11, 1995, the sampling interval was changed to 30 minutes; and on December 12, 2007, the sampling interval was changed back to 15 minutes.

4) Research methods –

A single YSI sonde is attached to a deployment mount at each monitoring station in order to ensure that the sensors are positioned approximately 0.5 m (1.64 ft) from the creek bottom during a deployment. The deployment mount consists of a PVC pipe that is attached vertically to a stable structure. To facilitate water flow across the sensors, approximately two-inch diameter holes are drilled into the PVC pipes. In 2017-2018, additional holes were drilled into the new or refurbished tubes before they were swapped with existing tube on deployment mount. (See Section 14 for more details on the history of deployment mounts at the monitoring stations.)

From 1995 to 2013, YSI 6600 series sondes were deployed at all monitoring stations. In 2019, YSI 6600 sondes were only deployed at Grove Plantation (replaced with EXO2 in December) and Jehossee Island; YSI EXO2 were deployed at the other four stations (Edisto Island, Fishing Creek, Mosquito Creek, and St. Pierre). We started to migrate to EXO2 sondes in 2014 when Edisto Island station came on online; Fishing Creek site was switched to an EXO2 sonde in 2016, St. Pierre Creek station in 2017, Mosquito

Creek station in 2018, and Grove Plantation station in December 2019. Starting with January 12th, 2022 deployment, Jehossee Island (secondary site) site was switched to EXO sondes.

In 2018, ACE Basin Reserve started replacing the rapid pulse DO sensors with optical DO (ODO) sensors. The other stations were switched to ODO sensors during the following years: Fishing Creek station in 2016; Grove Plantation, Mosquito Creek, and St. Pierre stations in 2017; and Jehossee Island station in 2018. ODO sensor was always installed at the Edisto Island monitoring station.

On December 7, 2023, the reserve switched to vented sondes at the Edisto Island station. The differential depth transducer is exposed to the atmosphere via a cable as well as to the water column, so real-time atmosphere, as well as water, barometric pressure is used to calculate depth.

A Sutron Sat-Link2 transmitter was installed at the St. Pierre station on 06/28/2006 and transmits data to the NOAA GOES satellite, NESDIS ID #3B02F20A; in 2017, the Sat-Link2 was replaced with a Storm3 transmitter. A Sutron Sat-Link2 transmitter was installed at the Fishing Creek station from 02/20/2013 to 08/31/2015 and transmitted to the NOAA GOES satellite, NESDIS ID #3B04B1CE. On June 8, 2018, Fishing Creek Sutron Sat-Link2 transmitter was installed at the Grove Plantation station and began transmitting data on 06/15/2016 to the NOAA GOES satellite, NESDIS ID #3B04B1CE; on 12/10/2019, the Sat-Link2 was replaced with a Storm3 transmitter in December 2019. On August 14, 2020, a telemetry unit was installed on the Fort Johnson site on and began transmitting data to the NOAA GOES satellite, NESDIS ID #3B008FBC. On December 7, 2022, the telemetry unit installed at the Edisto Island site began transmitting data on 12/12/2022 to the NOAA GOES satellite, NESDIS ID #3B011824.

Telemetry transmissions from all stations are scheduled hourly and contain four (4) data sets reflecting fifteen-minute data sampling intervals. Upon receipt by the CDMO, the data undergoes the same automated primary QAQC process detailed in Section 2 above. The "real-time" telemetry data become part of the provisional dataset until undergoing secondary and tertiary QAQC and assimilation in the CDMO's authoritative online database. Provisional and authoritative data are available at http://cdmo.baruch.sc.edu.

The Fort Johnson station also monitors chlorophyll fluorescence. Water samples taken near the sonde during a reading serves as the in-situ chlorophyll check. The samples are processed as follows:

> The samples are filtered by ACE NERR staff within four hours of collection. While wearing gloves, 25 mm filters are placed on a clean manifold using clean forceps to prevent contamination, and the manifold is assembled. The sample bottle is gently agitated by 10 inversions to suspend the particulates and 40 mLs of agitated sample water is poured into a tube on the manifold. This process is repeated for all samples, rinsing the graduated cylinder with deionized water and sample water between bottles. The samples are then vacuum filtered and placed into scintillation vials, pigment filter side up. One mL of MgCO3 is added to each scintillation vial. Filters are stored in a -20°C freezer until analysis. The ACE uses a modification of EPA Method 445.0 (EPA/600/R-92/121) to analyze the samples. Chlorophylls are analyzed using a Turner Trilogy Fluorometer with a non-acidification module. Thirty-six to 48 hours before analyzing the samples, 9 mL of acetone are added to each vial. The samples are vortexed and returned to the freezer. After 24 hours, the samples are removed from the freezer and vortexed again. Samples are analyzed 36-48 hours after initial acetone extraction.

Before the data loggers are deployed, the sondes are calibrated and programmed in accordance with guidelines set by CDMO and ACE Basin Reserve. The water depth sensor is zeroed in air by applying a depth offset during calibration that is calculated using the barometric pressure measured with a YSI handheld. A station offset (elevation relative to MSL) is also applied during calculation of depth sensor on the level sonde. The ROX DO sensors on the sondes are calibrated by the air saturated water method,

and the barometric pressure (mmHg) reading is measured with a YSI handheld. In prior years, the rapid pulse DO sensors on the YSI 6600 sondes were calibrated by the water saturated air method, and a DO membrane integrity test was performed on rapid pulse sensors to determine if the membrane was installed properly or was damaged during calibration. The pH sensor is calibrated by the two-point method (pH 7 and 10), and the turbidity sensor by the two-point method (0 standard and 124/126 NTU/FNU standard). In addition, a series of diagnostic values, including dissolved oxygen charge (rapid pulse only), dissolved oxygen gain, and pH millivolt value at pH 7 and at pH 10, and pH slope also are recorded during calibration process.

To minimize fouling (i.e., settlement of barnacles and sponges) of data loggers, sensors are wrapped in nonconductive copper tape. The inside of the PVC tube is brushed after every deployment to remove fouling organisms. The PVC tube is replaced with new or refurbished tube approximately once per year. In 2019, portions of the tubes that are always submerged were painted with copper-based anti-fouling paint (approximately 1 m from the bottom of the tube), and the fouling organisms growing on the outside of the tubes were scrapped off as needed. In 2019, we stopped wrapping a plastic mesh around the sensor guard and started using copper guards.

The data loggers are deployed for one to two weeks during the summer months (April – September), and the sampling period is extended up to one month during the cooler months (October – March). A data logger is retrieved and replaced with a newly calibrated data logger prior to a 15-minute reading to prevent interruption of data collection. In-situ readings (water temperature, specific conductivity, salinity, and dissolved oxygen [% air sat and mg/L]) are measured with a hand-held YSI unit during the last 15-minute reading of the deployment to determine how much drift in the readings occurred during the deployment. Ambient conditions (i.e., precipitation and cloud cover) also are recorded.

When the data loggers are retrieved, they are taken to the laboratory for cleaning, post-deployment checks and servicing, in accordance with guidelines set by CDMO and ACE Basin Reserve. Post-deployment checks of all the parameters are done before cleaning the sensors. Prior to April of 2019, sonde and sensors were cleaned before turbidity post-deployment checks. Wiper brushes and pads (ROX ODO only) are left on for the dissolved oxygen post-deployment check but removed prior to checking the remaining parameters. A clean wiper pad is installed on the 6600 turbidity sensor before the post-deployment checks. With the rapid pulse sensor, a DO membrane integrity test also was performed to determine if the membrane was damaged during deployment (no rapid pulse sensors were used in 2020).

A series of diagnostic values, including dissolved oxygen charge (rapid pulse only), and pH millivolt value at pH 7 and at pH 10, and pH slope are also recorded during post-deployment checks of data loggers. These diagnostic values are strong indicators of the individual sensor performance during deployment, and they are used to determine the accuracy of the data. The data are downloaded, and the datasets are reviewed to determine if any equipment malfunctions occurred during deployment that need immediate attention.

5) Site location and character –

ACE Basin National Estuarine Research Reserve is one of the largest undeveloped estuaries on the East Coast. The study area encompasses the Ashepoo, Combahee and South Edisto River basins, which empty into St. Helena Sound. The NERR consists of approximately 60,702 ha (150,000 acres) of diverse estuarine wetlands providing preserved habitats for fish and wildlife.

The South Edisto River has a drainage area of approximately 394,176 ha (974,030 ac), encompassing the area between Four Holes Swamp and St. Helena Sound. The river receives considerable input of freshwater (average annual streamflow is 74 m^3/s, 2613.29 ft^3/sec). The official saltwater-freshwater demarcation line on the river lies at river mile 20 (32.19 km); however, during periods of very low flow, the saltwater interface can intrude to river mile 32 (51.5 km), which is approximately 12 river miles (19.31

km) from the inland boundary of the reserve. Salt marshes of smooth cordgrass (*Spartina alterniflora*) dominate the wetlands in the euhaline, polyhaline, and mesohaline, while waterfowl impoundments are the dominant land cover in the oligohaline and fresh waters.

The average tidal range in the South Edisto River is approximately 2.0 m (6.6 ft), with a maximum of 2.8 m (9.2 ft) and a minimum of 1.4 m (4.6 ft). The bottom habitat at all stations consists of mud which is intermixed with dead shell hash at the saltwater sites.

Station Code	SWMP Status	Station Name	Location	Active Dates	Reason Decommissioned	Notes
aceeiwq	P	Edisto Island	32.5040 N -80.3247 W	01/01/2015 00:00 - current	NA	NA
acefcwq	P	Fishing Creek	32.63593 N -80.36556 W	10/01/2002 00:00 - current	NA	NA
acemcwq	P	Mosquito Creek	32.5558 N -80.4380 W	10/01/2002 00:00 - current	NA	NA
acespwq	P	St. Pierre	32.52800 N -80.36144 W	03/01/1995 00:00 - current	NA	NA
acegpwq	S	Grove Plantation	32.6637 N -80.4130 W	01/01/2015 00:00 - current	NA	NA
acejiwq	S	Jehossee Island	32.6209 N -80.3965 W	01/01/2015 00:00 - current	NA	NA
acefjwq	S	Fort Johnson	32.75334 N -79.89898 W	07/22/2020 15:15 - current	NA	NA
acechwq	S	Charleston Harbor	32.7573 N -79.8589 W	01/01/2018 00:00 - 08/30/2018	see Charleston Harbor description below	Data only avail. from ACE
acebbwq	P	Big Bay	32.4941 N -80.3241 W	03/01/1995 00:00 - 12/31/2014 00:00	see Big Bay description below	NA
acercwq	P	Rock Creek	32.54850 N -80.50361 W	03/01/1996 00:00 - 05/01/1996 00:00	see Rock Creek description	NA

Primary Monitoring Stations
Three of the four primary stations (Edisto Island, Fishing Creek, and St. Pierre Creek) are in tributaries of the South Edisto River and one station (Mosquito Creek) is in a tributary of both the South Edisto and Ashepoo rivers. The descriptions of the sites are as follow:

Edisto Island (EI) – GPS coordinates: 32.5040 N and -80.3247 W
On January 1, 2015, Edisto Island water quality station replaced the Big Bay station as a primary station. The Edisto Island station is approximately 1.27 km (0.68 nautical miles) upstream of the previous site (Big Bay) and is located on a dock at the Edisto Beach State Park. Water quality data was collected at both stations for 8 months and the overall results were very similar. Edisto Island station is also designated as a "treatment" site because of its proximity to developed areas. In 2022, the mean depth at the station was 2.63 m (8.6 ft), and the mean salinity was 29.7 practical salinity units (psu).

The eastern bank of the Big Bay creek, at the new station is bordered by *Spartina alterniflora* and *Salicornia virginica*. The high ground is dominated by maritime forest, characterized by live oak (*Quercus virginiana*), slash pine (*Pinus taeda*); and cabbage palmetto (*Sabal palmetto*). A marsh island with no high ground borders the western bank while American oyster (*Crassostrea virginica*) forms a reef along both creek banks. Boat traffic is heavy, especially during the warmer months, and the creek is closed to shellfish harvesting because of the surrounding human activities. Nonpoint sources of pollution, including fertilizers, pesticides, herbicides and

PAHs, to the monitoring station are surface runoff from lawns, golf courses, and paved ramps. Docks and bulkheads are constructed of concrete or wood treated with creosote, CCA-treated, or Wolmanized process.

Fishing Creek (FC) – GPS coordinates: 32.63593 N and -80.36556 W
This monitoring station is in a tributary of Fishing Creek, approximately 2 km (1.08 nautical miles) from the mouth of the creek and is located approximately 5 m (16.41 ft) from the northern bank of the creek. The tributary flows through the eastern half of Jehossee Island, a Wildlife Management Area (WMA) protected by the USFWS, and Fishing Creek forms the northeast border of the island. The station is surrounded by extensive *Spartina cynosuroides* marsh and vast mud flats. The upland area is characterized by slash pine, live oak, and cabbage palmetto. In 2022, the mean depth at the station was 2.49 m (8.2 ft), and the mean salinity was 8.6 psu.

The Fishing Creek monitoring station is designated as a "control" site because there is no development in the immediate area, and boat traffic is relatively light in the creek. The WMA contains impoundments (formerly rice fields) that are managed as wildlife habitat for endangered fauna and migratory waterfowl. No pesticides or herbicides are applied to the wetlands. Water level in the wetland is regulated by rice trunks that control the flow of water between the impoundment and the South Edisto River.

Mosquito Creek (MC) – GPS coordinates: 32.5558 N and -80.4380 W
This monitoring station is in Mosquito Creek (a tributary of both the South Edisto and Ashepoo rivers), approximately 2.51 km (1.36 nautical miles) from the Ashepoo River and 12 km (6.48 nautical miles) from the South Edisto River, and it is approximately 5 m (16.41 ft) from the southern bank of the creek. In 2022, the mean depth at the station was 4.15 m (13.6 ft), and the mean salinity was 22.4 psu.

The Mosquito Creek station is designated as a "treatment" site because of the land use practices in the surrounding area. Agriculture fields and impounded wetlands are found upstream of the monitoring station. Approximately fifteen docks constructed of creosote, concrete, Wolmanized or CCA treated wood; a public boat landing; a commercial seafood business with commercial shrimp boats and a fueling dock are located approximately 1.00 km (0.54 nautical miles) downstream of the monitoring station. The major contributor of nonpoint source pollution to the monitoring station is surface runoff from the impoundments and agricultural lands that contain high levels of nutrients and, at times, herbicides and pesticides. Impoundment trunks open and drain into the creek increasing the nutrient load and possibly introducing herbicides and pesticides. Vegetation in the area includes salt marsh dominated by *Spartina alterniflora* and *Juncus roemerianus*. Upland fringe areas consist of cabbage palmetto, live oaks and pine trees.

St. Pierre Creek (SP) – GPS coordinates: 32.52800 N and -80.36144 W
This monitoring station is in a small tributary of St. Pierre Creek, approximately 0.25 km (0.13 nautical miles) from the mouth of the creek, and it is approximately 5 m (16.41 ft) from the northern bank of the creek. The tributary flows through the southern portion of Bailey Island, and the creek forms the eastern border of the island. The monitoring station is surrounded by a wide expanse of *Spartina alterniflora* marsh. Extensive mud flats and oyster reefs fringe the banks. Maritime forest communities comprised of species such as wax myrtles (*Morella cerifera*), live oaks (*Quercus virginiana*), and palmettos dominate the upland areas. In 2022, the mean depth at the station was 2.044 m (6.7 ft), and the mean salinity was 31.3 psu.

The St. Pierre Creek station is designated as a "control" site because development in the immediate area was sparse when the station was established on March 3, 1995, and the tributary is subject to relatively light boat traffic. In 1996, the 695-acre (281.26 ha) island was sold, and the owners partnered with The Nature Conservancy to design a conservation-based development. Four hundred and three acres in the center of Bailey Island were set aside as a nature preserve that is managed by The Nature Conservancy, and the number of residential lots on the remaining 292 acres (118.17 ha) is limited to 67 (27.11 ha). Access to the island is limited to one bridge and all roads on the island are single lane and made of crushed seashells. In addition, a

conservation manual was developed for the property owners that provide specific lot designs and construction guidelines as well as landscaping guidelines to protect the maritime and estuarine habitats.

Secondary Monitoring Stations
Both secondary stations (Grove Plantation and Jehossee Island) are in the South Edisto River proper. The descriptions of the sites are as follow:

Grove Plantation (GP) – GPS coordinates: 32.6637 N and -80.4130 W
This monitoring station is in the South Edisto River located at the Grove Plantation unit of the ACE Basin National Wildlife Refuge, which is owned and managed by the US Fish and Wildlife Service (USFWS). The station is approximately 18 m (59 ft) from the eastern bank of the Edisto River. The station is surrounded by tidal freshwater fringe marsh and managed wetlands (aka "waterfowl impoundments"). The upland area is dominated by pine-mixed hardwood forest that is characterized by several species of oaks and pines. During years of normal rainfall, the salinity at this station generally is below 1 psu, but it will increase if rainfall is low. In 2022, the average depth at the station was 3.54 m (11.6 ft), and the mean salinity was 0.4 psu.

Jehossee Island (JI) – GPS coordinates: 32.6209 N and -80.3965 W
This monitoring station is in the South Edisto River. It is located at the Jehossee Island unit of the ACE Basin National Wildlife Refuge, which is owned and managed by the USFWS. The station is surrounded by *Spartina cynosuroides* fringe marsh and managed wetlands (aka "waterfowl impoundments"). The upland area is dominated by inland maritime forest that is characterized by slash pine, live oak, and cabbage palmetto. During years of normal rainfall, the salinity at this station generally is between 5 and 10 psu, and it will increase if rainfall is low. In 2022, the average depth at the station was.4.88 m (16.0 ft), and the mean salinity was 10.7 psu.

Fort Johnson (FJ) – GPS coordinates: 32.7533 N and -79.8989 W
This monitoring station is in Charleston Harbor on the southern side near the confluence of the Ashley River. The deployment mount is attached to the outer piling of SC DNR/Marine Resources Division boat slip. In 2022, the average depth at the station was 1.76 m (5.8 ft), and the mean salinity was 27.9 psu.

Inactive Monitoring Stations
Big Bay, Charleston Harbor, and Rock Creek are inactive stations, and the descriptions of the sites are as follow:

Big Bay (BB) – GPS coordinates: 32.4941 N and -80.3241 W
This monitoring station was in Big Bay Creek proper, approximately 2 km (1.24 mi) from the mouth of the creek and was located about 5 m (16.41 ft) from the southern bank of the creek. It was a "treatment" site because it was subject to nonpoint source pollution and was surrounded by moderate level of development. The southern bank of the Big Bay Creek near this station was bordered by residential and commercial development, with little setback from the bordering *Spartina alterniflora* marsh. For instance, there are over forty private docks, two commercial seafood docks and a marina with 75 slips, three paved boat ramps, and two fueling areas along the southern bank. Docks and bulkheads are constructed of concrete, or creosote, CCA-treated or Wolmanized material. Boat traffic was heavy, especially during the warmer months, and the creek is closed to shellfish harvesting because of the surrounding human activities. The major sources of nonpoint source pollution were surface runoff from lawns, golf courses, and paved ramps that contain fertilizers, pesticides, herbicides and PAHs. All of the high ground along the southern bank was developed (i.e., residential homes, condominiums and restaurants); and maritime plant communities have been replaced by golf courses, lawns and ornamental gardens. Small patches of a few maritime species (i.e. live oak (*Quercus virginiana*), cabbage palmetto (*Sabal palmetto*), and Southern red cedar (*Juniperus silicicola*)) are found along the roads. In contrast, the northern bank was bordered by a wide expanse of *Spartina alterniflora* marsh, and no high ground is present. American oyster (*Crassostrea virginica*) forms a reef along the creek banks, especially the northern side, and on intertidal mud flats within the creek. The site was moved to Edisto Island due to the

dock upon which it was located was owned by a private individual that was not maintaining the structure. Water quality data was collected at both stations for 8 months and the overall results were very similar.

Charleston Harbor (CH) – GPS coordinates: 32.7573 N and -79.8589 W
The Charleston Harbor station was about 85 meters from Fort Moultrie on Sullivans Island to the east, and about 0.8 km north from the mouth of Charleston Harbor Estuary. Fort Moultrie is a National Monument and part of the Fort Sumter National Park. The station was surrounded by water on three sides, and by beach to the east. The Charleston Harbor data and metadata are only available by contacting the reserve directly. Data was collected from 11/29/2017 to 08/30/2018. The site was destroyed on 08/30/2019. Data and metadata are only available directly from the ACE Basin NERR.

Rock Creek (RC) – GPS coordinates: 32.54850 N and -80.50361 W
The Rock Creek site was located near an impoundment on North Hutchinson Island. The site was surrounded by *Spartina alterniflora* marsh, and the upland areas were dominated by maritime forest with wax myrtles, live oaks, and palmettos. An impoundment (a managed wildlife habitat) bordered the *Spartina alterniflora* marsh near the site, and the outlet canal for the impoundment was about one meter away from the site. There was no development and very little boat traffic in this portion of the Reserve. The site was discontinued due to the loss of the deployment mount and data logger in July 1995.

6) Data collection period –
The end times below marked with an asterisk (*) coincide with the last actual reading in that deployment so the times will not be in consecutive order with the following deployment begin time. The gap between the end time of one deployment and the begin time of the next deployment is attributed to either missing or rejected data due to in field maintenance, battery failure, collector error, or sonde was lost. **Note**: see Section 14 for more information about the stations.

Edisto Island

BEGAN	ENDED	SONDE
12/01/2021 – 09:00	01/13/2022 – 11:15	EXO2
01/13/2022 – 11:30	02/16/2022 – 11:30	EXO2
02/16/2022 – 11:45	03/02/2022 – 14:00	EXO2
03/02/2022 – 14:15	04/05/2022 – 10:00	EXO2
04/05/2022 – 10:15	04/14/2022 – 10:15	EXO2
04/14/2022 – 10:30	04/27/2022 – 09:15	EXO2
04/27/2022 – 09:30	05/12/2022 – 13:00	EXO2
05/12/2022 – 13:15	05/26/2022 – 10:00	EXO2
05/26/2022 – 10:15	06/14/2022 – 14:15	EXO2
06/14/2022 – 14:30	06/28/2022 – 09:45	EXO2
06/28/2022 – 10:00	07/12/2022 – 09:15	EXO2
07/12/2022 – 09:30	07/26/2022 – 10:15	EXO2
07/26/2022 – 10:30	08/09/2022 – 09:00	EXO2
08/09/2022 – 09:15	08/23/2022 – 10:15	EXO2
08/23/2022 – 10:30	09/07/2022 – 07:45	EXO2
09/07/2022 – 08:00	09/20/2022 – 09:15	EXO2
09/20/2022 – 09:30	10/05/2022 – 07:15	EXO2
10/05/2022 – 07:30	11/03/2022 – 07:45	EXO2
11/03/2022 – 08:00	11/08/2022 – 12:00	EXO2
11/08/2022 – 12:15	12/07/2022 – 13:00*	EXO2
12/07/2022 – 15:30	01/10/2023 – 10:15	EXO2

Fishing Creek

BEGAN	ENDED	SONDE

12/01/2021 – 11:15	01/12/2022 – 10:00	EXO2
01/12/2022 – 10:15	02/15/2022 – 13:15	EXO2
02/15/2022 – 13:30	03/01/2022 – 13:00	EXO2
03/01/2022 – 13:15	04/13/2022 – 11:15	EXO2
04/13/2022 – 11:30	04/25/2022 – 10:45	EXO2
04/25/2022 – 11:00	05/11/2022 – 10:15	EXO2
05/11/2022 – 10:30	05/26/2022 – 13:00	EXO2
05/26/2022 – 13:15	06/13/2022 – 11:45*	EXO2
06/13/2022 – 12:15	06/28/2022 – 12:30	EXO2
06/28/2022 – 12:45	07/12/2022 – 12:00	EXO2
07/12/2022 – 12:15	07/26/2022 – 13:15	EXO2
07/26/2022 – 13:30	08/09/2022 – 11:45	EXO2
08/09/2022 – 12:00	08/23/2022 – 14:45	EXO2
08/23/2022 – 15:00	09/07/2022 – 10:30	EXO2
09/07/2022 – 10:45	09/27/2022 – 08:00	EXO2
09/27/2022 – 08:15	10/05/2022 – 10:00	EXO2
10/05/2022 – 10:15	11/03/2022 – 10:15	EXO2
11/03/2022 – 10:30	12/06/2022 – 12:45	EXO2
12/06/2022 – 13:00	01/10/2023 – 12:45	EXO2

Grove Plantation

BEGAN	ENDED	SONDE
12/01/2021 – 11:45	01/12/2022 – 10:30	EXO2
01/12/2022 – 10:45	02/15/2022 – 14:00	EXO2
02/15/2022 – 14:15	03/01/2022 – 13:30	EXO2
03/01/2022 – 13:45	04/13/2022 – 11:45	EXO2
04/13/2022 – 12:00	04/26/2022 – 12:00	EXO2
04/26/2022 – 12:15	05/11/2022 – 10:45	EXO2
05/11/2022 – 11:00	05/26/2022 – 13:30	EXO2
05/26/2022 – 13:45	06/13/2022 – 12:30	EXO2
06/13/2022 – 12:45	07/12/2022 – 12:30	EXO2
07/12/2022 – 12:45	08/09/2022 – 12:15	EXO2
08/09/2022 – 12:30	08/23/2022 – 14:15	EXO2
08/23/2022 – 14:30	09/07/2022 – 11:00	EXO2
09/07/2022 – 11:15	10/05/2022 – 10:30	EXO2
10/05/2022 – 10:45	11/03/2022 – 11:00	EXO2
11/03/2022 – 11:15	12/06/2022 – 13:30	EXO2
12/06/2022 – 13:45	01/10/2023 – 14:00	EXO2

Jehossee Island

BEGAN	ENDED	SONDE
12/01/2021 – 10:45	01/12/2022 – 09:30	6600EDS/V2
01/12/2022 – 09:45	02/15/2022 – 12:45	EXO2
02/15/2022 – 13:00	03/01/2022 – 12:30	EXO3
03/01/2022 – 12:45	04/13/2022 – 10:45	EXO2
04/13/2022 – 11:00	04/26/2022 – 11:30	EXO3
04/26/2022 – 11:45	05/11/2022 – 09:45	EXO2
05/11/2022 – 10:00	05/26/2022 – 12:30	EXO3
05/26/2022 – 12:45	06/13/2022 – 11:15	EXO2
06/13/2022 – 11:30	06/28/2022 – 12:00	EXO3
06/28/2022 – 12:15	07/12/2022 – 11:30	EXO2
07/12/2022 – 11:45	07/26/2022 – 12:45	EXO3

	07/26/2022 – 13:00	08/09/2022 – 11:15	EXO2
	08/09/2022 – 11:30	08/23/2022 – 13:30	EXO3
	08/23/2022 – 13:45	09/07/2022 – 10:00	EXO2
	09/07/2022 – 10:15	09/27/2022 – 11:15	EXO3
	09/27/2022 – 11:30	10/05/2022 – 09:30	EXO2
	10/05/2022 – 09:45	11/03/2022 – 11:30	EXO3
	11/03/2022 – 11:45	12/06/2022 – 12:15	EXO3
	12/06/2022 – 12:30	01/10/2023 – 12:15	EXO3

Mosquito Creek

	BEGAN	ENDED	SONDE
	12/01/2021 – 10:15	01/12/2022 – 08:45	EXO2
	01/12/2022 – 09:00	02/15/2022 – 11:45	EXO2
	02/15/2022 – 12:00	03/01/2022 – 11:45	EXO2
	03/01/2022 – 12:00	04/13/2022 – 10:00	EXO2
	04/13/2022 – 10:15	04/26/2022 – 10:45	EXO2
	04/26/2022 – 11:00	05/11/2022 – 09:00	EXO2
	05/11/2022 – 09:15	05/26/2022 – 11:30	EXO2
	05/26/2022 – 11:45	06/13/2022 – 10:30	EXO2
NO DATA	06/13/2022 – 10:45	06/28/2022 – 11:00*	EXO2
	06/28/2022 – 11:15	07/12/2022 – 10:45	EXO2
	07/12/2022 – 11:00	07/26/2022 – 12:00	EXO2
	07/26/2022 – 12:15	08/09/2022 – 10:30	EXO2
	08/09/2022 – 10:45	08/23/2022 – 11:45	EXO2
	08/23/2022 – 12:00	09/07/2022 – 09:15*	EXO2
	09/07/2022 – 09:30	09/27/2022 – 10:15	EXO2
	09/27/2022 – 10:30	10/05/2022 – 08:45	EXO2
	10/05/2022 – 09:00	11/03/2022 – 09:15	EXO2
	11/03/2022 – 09:30	12/06/2022 – 11:30	EXO2
	12/06/2022 – 11:45	01/10/2023 – 11:30	EXO2

St. Pierre

	BEGAN	ENDED	SONDE
	12/01/2021 – 09:30	01/12/2022 – 07:45	EXO2
	01/12/2022 – 08:00	02/16/2022 – 14:45	EXO2
	02/16/2022 – 15:00	03/02/2022 – 14:45*	EXO2
	03/02/2022 – 15:30	04/14/2022 – 11:15	EXO2
	04/14/2022 – 11:30	04/26/2022 – 09:30	EXO2
	04/26/2022 – 09:45	05/11/2022 – 07:30	EXO2
	05/11/2022 – 07:45	05/26/2022 – 10:45	EXO2
	05/26/2022 – 11:00	06/14/2022 – 15:00	EXO2
	06/14/2022 – 15:15	06/28/2022 – 10:30	EXO2
	06/28/2022 – 10:45	07/13/2022 – 14:00	EXO2
	07/13/2022 – 14:15	07/26/2022 – 11:00	EXO2
	07/26/2022 – 11:15	08/09/2022 – 09:30	EXO2
	08/09/2022 – 09:45	08/23/2022 – 11:00	EXO2
	08/23/2022 – 11:15	09/07/2022 – 08:30	EXO2
	09/07/2022 – 08:45	09/27/2022 – 09:15	EXO2
	09/27/2022 – 09:30	10/05/2022 – 08:00	EXO2
	10/05/2022 – 08:15	11/03/2022 – 08:30	EXO2
	11/03/2022 – 08:45	12/06/2022 – 10:45	EXO2
	12/06/2022 – 11:00	01/10/2023 – 10:45	EXO2

Fort Johnson

BEGAN	ENDED	SONDE
11/30/2021 – 11:00	01/19/2022 – 12:00*	EXO2
01/19/2022 – 12:30	01/28/2022 – 13:30	EXO2
01/28/2022 – 13:45	02/28/2022 – 16:15	EXO2
02/28/2022 – 16:30	03/08/2022 – 14:45	EXO2
03/08/2022 – 15:00	04/05/2022 – 07:45	EXO2
04/05/2022 – 08:00	04/12/2022 – 10:30	EXO2
04/12/2022 – 10:45	05/12/2022 – 14:00	EXO2
05/12/2022 – 14:15	06/13/2022 – 15:30*	EXO2
06/13/2022 – 16:00	06/29/2022 – 13:00	EXO2
06/29/2022 – 13:15	08/10/2022 – 15:00*	EXO2
08/10/2022 – 15:45	09/06/2022 – 13:00	EXO2
09/06/2022 – 13:15	09/27/2022 – 13:00	EXO2
09/27/2022 – 13:15	10/04/2022 – 12:30*	EXO2
10/04/2022 – 12:45	11/02/2022 – 13:00	EXO2
11/02/2022 – 13:15	12/15/2022 – 14:15	EXO2
12/15/2022 – 14:30	01/11/2023 – 08:15	EXO2

7) Distribution –

NOAA retains the right to analyze, synthesize and publish summaries of the NERRS System-wide Monitoring Program data. The NERRS retains the right to be fully credited for having collected and processed the data. Following academic courtesy standards, the NERR site where the data were collected should be contacted and fully acknowledged in any subsequent publications in which any part of the data are used. The data set enclosed within this package/transmission is only as good as the quality assurance and quality control procedures outlined by the enclosed metadata reporting statement. The user bears all responsibility for its subsequent use/misuse in any further analyses or comparisons. The Federal government does not assume liability to the Recipient or third persons, nor will the Federal government reimburse or indemnify the Recipient for its liability due to any losses resulting in any way from the use of this data.

Requested citation format:
NOAA National Estuarine Research Reserve System (NERRS). System-wide Monitoring Program. Data accessed from the NOAA NERRS Centralized Data Management Office website: http://www.nerrsdata.org/; *accessed* 12 October 2022.

NERR water quality data and metadata can be obtained from the Research Coordinator at the individual NERR site (please see Principal Investigators and Contact Persons), from the Data Manager at the Centralized Data Management Office (please see personnel directory under the general information link on the CDMO home page) and online at the CDMO home page www.nerrsdata.org. Data are available in comma delimited format.

8) Associated researchers and projects –

As part of the System-wide Monitoring Program (SWMP), nutrient and weather data are gathered at the ACE NERR in conjunction with water quality data obtained by YSI 6600-EDS or YSI EXO2 data loggers and meteorological data obtained by a Campbell Scientific CR1000 data logger. Diel nutrient samples are gathered once per month at the St. Pierre water quality monitoring station, and grab samples are obtained at each of the four sites once per month. The concentrations of the following parameters are measured and recorded for the nutrient monitoring program: ammonium (NH4), nitrite + nitrate (NO2 + NO3), ortho-phosphate (PO4), and chlorophyll-A (Chl-a). Real-time weather data are gathered 24/7

and is transmitted to the Centralized Data Management Office (CDMO). Historic water quality, nutrient, and weather data can be obtained at http://cdmo.baruch.sc.edu. Information about other studies conducted in the ACE Basin may be obtained from the ACE NERR Research Coordinator.

II. Physical Structure Descriptors

9) Sensor specifications –

ACE NERR deployed EXO2/EXO3 data sondes and 6600 EDS/V2 data sondes in 2022: 6600 sondes were only used at the JI monitoring station for the first part of January 2022. EXO2 sondes were used at EI, FC, FJ, GP, MC, SP, and JI and EXO3 sonde was used at JI. The EXO2 and EXO3 data sondes were configured the same, and the 6600 data sondes were configured the same. Optical DO sensors were installed at all monitoring stations.

YSI 6600EDS data sonde:

Parameter: Temperature
Units: Celsius (C)
Sensor Type: Thermistor
Model#: 6560
Range: -5 to 50 C
Accuracy: +/- 0.15
Resolution: 0.01 C

Parameter: Conductivity
Units: milli-Siemens per cm (mS/cm)
Sensor Type: 4-electrode cell with autoranging
Model#: 6560
Range: 0 to 100 mS/cm
Accuracy: +/- 0.5% of reading + 0.001 mS/cm
Resolution: 0.001 mS/cm to 0.1 mS/cm (range dependent)

Parameter: Salinity
Units: parts per thousand (ppt)
Sensor Type: Calculated from conductivity and temperature
Range: 0 to 70 ppt
Accuracy: +/- 1.0% of reading pr 0.1 ppt, whichever is greater
Resolution: 0.01 ppt

Parameter: Dissolved Oxygen % saturation
Units: percent air saturation (%)
Sensor Type: Rapid Pulse – Clark type, polargraphic
Model#: 6562
Range: 0 to 500% air saturation
Accuracy: 0-200% air saturation: +/- 2% of the reading or 2% air saturation, whichever is greater; 200 to 500% air saturation: +/- 6% of the reading
Resolution: 0.1% air saturation

Parameter: Dissolved Oxygen mg/L (Calculated from % air saturation, temperature, and salinity)
Units: milligrams/Liter (mg/L)
Sensor Type: Rapid Pulse – Clark type, polargraphic
Model#: 6562
Range: 0 to 50 mg/L
Accuracy: 0-20 mg/L: +/- 2% of the reading or 0.2 mg/L, whichever is greater

20 to 50 mg/L: +/- 6% of the reading
Resolution: 0.01 mg/L

Parameter: Dissolved Oxygen % saturation
Units: percent air saturation (%)
Sensor Type: Optical probe w/ mechanical cleaning
Model#: 6150 ROX
Range: 0 to 500% air saturation
Accuracy: 0-200% air saturation: +/- 1% of the reading or 1% air saturation, whichever is greater 200-500% air saturation: +/- 15% or reading
Resolution: 0.1% air saturation

Parameter: Dissolved Oxygen mg/L (Calculated from % air saturation, temperature, and salinity)
Units: milligrams/Liter (mg/L)
Sensor Type: Optical probe w/ mechanical cleaning
Model#: 6150 ROX
Range: 0 to 50 mg/L
Accuracy: 0-20 mg/L: +/-0.1 mg/l or 1% of the reading, whichever is greater
20 to 50 mg/L: +/- 15% of the reading
Resolution: 0.01 mg/L

Parameter: Non-vented Level – Shallow (Depth)
Units: feet or meters (ft or m)
Sensor Type: Stainless steel strain gauge
Range: 0 to 30 ft (9.1 m)
Accuracy: +/- 0.06 ft (0.018 m)
Resolution: 0.001 ft (0.001 m)

Parameter: pH – bulb probe
Units: pH units
Sensor Type: Glass combination electrode
Model#: 6561 or 6561FG
Range: 0 to 14 units
Accuracy: +/- 0.2 units
Resolution: 0.01 units

Parameter: Turbidity
Units: nephelometric turbidity units (NTU)
Sensor Type: Optical, 90-degree scatter, with mechanical cleaning
Model#: 6136
Range: 0 to 1000 NTU
Accuracy: +/- 2% of reading or 0.3 NTU (whichever is greater)
Resolution: 0.1 NTU

YSI EXO Sonde:
Parameter: Temperature
Units: Celsius (C)
Sensor Type: CT2 probe, Thermistor
Model#: 599870
Range: -5 to 50 C
Accuracy: -5 to 35: +/- 0.01, 35 to 50: +/- .05
Resolution: 0.001 C

Parameter: Temperature
Units: Celsius (C)
Sensor Type: Wiped probe; Thermistor
Model#: 599827
Range: -5 to 50 C
Accuracy: ±0.2 C
Resolution: 0.001 C

Parameter: Conductivity
Units: milli-Siemens per cm (mS/cm)
Sensor Type: Wiped probe; 4-electrode cell with autoranging
Model#: 599827
Range: 0 to 100 mS/cm
Accuracy: ±1% of the reading or 0.002 mS/cm, whichever is greater
Resolution: 0.0001 to 0.01 mS/cm (range dependent)

Parameter: Salinity
Units: practical salinity units (psu)/parts per thousand (ppt)
Model#: 599827
Sensor Type: Wiped probe; Calculated from conductivity and temperature
Range: 0 to 70 ppt
Accuracy: ±2% of the reading or 0.2 ppt, whichever is greater
Resolution: 0.01 psu

Parameter: Dissolved Oxygen % saturation
Sensor Type: Optical probe w/ mechanical cleaning
Model#: 599100-01
Range: 0 to 500% air saturation
Accuracy: 0-200% air saturation: +/- 1% of the reading or 1% air saturation, whichever is greater 200-500% air saturation: +/- 5% or reading
Resolution: 0.1% air saturation

Parameter: Dissolved Oxygen mg/L (Calculated from % air saturation, temperature, and salinity)
Units: milligrams/Liter (mg/L)
Sensor Type: Optical probe w/ mechanical cleaning
Model#: 599100-01
Range: 0 to 50 mg/L
Accuracy: 0-20 mg/L: +/-0.1 mg/l or 1% of the reading, whichever is greater
20 to 50 mg/L: +/- 5% of the reading
Resolution: 0.01 mg/L

Parameter: Non-vented Level – Shallow (Depth)
Units: feet or meters (ft or m)
Sensor Type: Stainless steel strain gauge
Range: 0 to 33 ft (10 m)
Accuracy: +/- 0.013 ft (0.004 m)
Resolution: 0.001 ft (0.001 m)

Parameter: Vented Level – Shallow (Depth)
Units: feet or meters (ft or m)
Sensor Type: Stainless steel strain gauge

Range: 0 to 33 ft (10 m)
Accuracy: +/- 0.010 ft (0.003 m)
Resolution: 0.001 ft (0.001 m)

Parameter: pH
Units: pH units
Sensor Type: Glass combination electrode
Model#: 599701(guarded) or 599702(wiped)
Range: 0 to 14 units
Accuracy: +/- 0.01 units within +/- 10° of calibration temperature, +/- 0.02 units for entire temperature range
Resolution: 0.01 units

Parameter: Turbidity
Units: formazin nephelometric units (FNU)
Sensor Type: Optical, 90-degree scatter
Model#: 599101-01
Range: 0 to 4000 FNU
Accuracy: 0 to 999 FNU: 0.3 FNU or +/-2% of reading (whichever is greater); 1000 to 4000 FNU +/- 5% of reading
Resolution: 0 to 999 FNU: 0.01 FNU, 1000 to 4000 FNU: 0.1 FNU

Parameter: Chlorophyll
Units: micrograms/Liter
Sensor Type: Optical probe
Model#: 599102-01
Range: 0 to 400 ug/Liter
Accuracy: Dependent on methodology
Resolution: 0.01 ug/L chl a, 0.1% FS

Depth Qualifier:

The NERR System-Wide Monitoring Program utilizes YSI data sondes that can be equipped with either vented or non-vented depth/level sensors. Readings for both vented and non-vented sensors are automatically compensated for water density change due to variations in temperature and salinity; but for all non-vented depth measurements, changes in atmospheric pressure between calibrations appear as changes in water depth. The error is equal to approximately 1.02 cm for every 1 millibar change in atmospheric pressure, and is eliminated for vented sensors because they are vented to the atmosphere throughout the deployment time interval.

Beginning in 2006, NERR SWMP standard calibration protocol calls for all non-vented depth sensors to read 0 meters at a (local) barometric pressure of 1013.25 mb (760 mm/hg). To achieve this, each site calibrates their depth sensor with a depth offset number, which is calculated using the actual atmospheric pressure at the time of calibration and the equation provided in the SWMP calibration sheet or digital calibration log. This offset procedure standardizes each depth calibration for the entire NERR System. If accurate atmospheric pressure data are available, non-vented sensor depth measurements at any NERR can be corrected.

In 2010, the CDMO began automatically correcting Depth/Level data for changes in barometric pressure as measured by the reserve's associated meteorological station during data ingestion. These corrected Depth/Level data are reported as cDepth and cLevel, and are assigned QAQC flags and codes based on QAQC protocols. Please see sections 11 and 12 for QAQC flag and code definitions.

NOTE: older Depth data cannot be corrected without verifying that the depth offset was in place and whether a vented or non-vented depth sensor was in use. No SWMP data prior to 2006 can be corrected using this method. The following equation is used for corrected Depth/Level data provided by the CDMO beginning in 2010:

((1013-BP)*0.0102)+Depth/Level = cDepth/cLevel.

Salinity Units Qualifier:

In 2013, EXO sondes were approved for SWMP use and began to be utilized by reserves. While the 6600 series sondes report salinity in parts per thousand (ppt) units, the EXO sondes report practical salinity units (psu). These units are essentially the same and for SWMP purposes are understood to be equivalent, however psu is considered the more appropriate designation. Moving forward the NERR System will assign psu salinity units for all data regardless of sonde type.

Turbidity Qualifier:

In 2013, EXO sondes were approved for SWMP use and began to be utilized by reserves. While the 6600 series sondes report turbidity in nephelometric turbidity units (NTU), the EXO sondes use formazin nephelometric units (FNU). These units are essentially the same but indicate a difference in sensor methodology, for SWMP purposes they will be considered equivalent. Moving forward, the NERR System will use FNU/NTU as the designated units for all turbidity data regardless of sonde type. If turbidity units and sensor methodology are of concern, please see the Sensor Specifications portion of the metadata.

Chlorophyll Fluorescence Disclaimer:

YSI chlorophyll sensors (6025 or 599102-01) are designed to serve as a proxy for chlorophyll concentrations in the field for monitoring applications and complement traditional lab extraction methods; therefore, there are accuracy limitations associated with the data that are detailed in the YSI manual including interference from other fluorescent species, differences in calibration method, and effects of cell structure, particle size, organism type, temperature, and light on sensor measurements.

10) Coded variable definitions –

Sampling station: Sampling site code: Station code:
Edisto Island EI aceeiwq
Fishing Creek FC acefcwq

Grove Plantation GP acegpwq
Jehossee Island JI acejiwq
Mosquito Creek MC acemcwq
St. Pierre Creek SP acespwq
Fort Johnson FJ acefjwq

11) QAQC flag definitions –

QAQC flags provide documentation of the data and are applied to individual data points by insertion into the parameter's associated flag column (header preceded by an F_). During primary automated QAQC (performed by the CDMO), -5, -4, and -2 flags are applied automatically to indicate data that is missing and above or below sensor range. All remaining data are then flagged 0, passing initial QAQC checks. During secondary and tertiary QAQC 1, -3, and 5 flags may be used to note data as suspect, rejected due to QAQC, or corrected.

-5 Outside High Sensor Range
-4 Outside Low Sensor Range
-3 Data Rejected due to QAQC
-2 Missing Data
-1 Optional SWMP Supported Parameter
0 Data Passed Initial QAQC Checks
1 Suspect Data
2 *Open - reserved for later flag*
3 Calculated data: non-vented depth/level sensor correction for changes in barometric pressure
4 Historical Data: Pre-Auto QAQC
5 Corrected Data

12) QAQC code definitions –

QAQC codes are used in conjunction with QAQC flags to provide further documentation of the data and are also applied by insertion into the associated flag column. There are three (3) different code categories, general, sensor, and comment. General errors document general problems with the deployment or YSI datasonde, sensor errors are sensor specific, and comment codes are used to further document conditions or a problem with the data. Only one general or sensor error and one comment code can be applied to a particular data point, but some comment codes (marked with an * below) can be applied to the entire record in the F_Record column.

General Errors

GIC	No instrument deployed due to ice
GIM	Instrument malfunction
GIT	Instrument recording error; recovered telemetry data
GMC	No instrument deployed due to maintenance/calibration
GNF	Deployment tube clogged / no flow
GOW	Out of water event
GPF	Power failure / low battery
GQR	Data rejected due to QA/QC checks
GSM	See metadata

Corrected Depth/Level Data Codes

GCC	Calculated with data that were corrected during QA/QC
GCM	Calculated value could not be determined due to missing data
GCR	Calculated value could not be determined due to rejected data
GCS	Calculated value suspect due to questionable data

GCU Calculated value could not be determined due to unavailable data

Sensor Errors

SBO Blocked optic
SCF Conductivity sensor failure
SCS Chlorophyll spike
SDF Depth port frozen
SDG Suspect due to sensor diagnostics
SDO DO suspect
SDP DO membrane puncture
SIC Incorrect calibration / contaminated standard
SNV Negative value
SOW Sensor out of water
SPC Post calibration out of range
SQR Data rejected due to QAQC checks
SSD Sensor drift
SSM Sensor malfunction
SSR Sensor removed / not deployed
STF Catastrophic temperature sensor failure
STS Turbidity spike
SWM Wiper malfunction / loss

Comments

CAB* Algal bloom
CAF Acceptable calibration/accuracy error of sensor
CAP Depth sensor in water, affected by atmospheric pressure
CBF Biofouling
CCU Cause unknown
CDA* DO hypoxia (<3 mg/L)
CDB* Disturbed bottom
CDF Data appear to fit conditions
CFK* Fish kill
CIP* Surface ice present at sample station
CLT* Low tide
CMC* In field maintenance/cleaning
CMD* Mud in probe guard
CND New deployment begins
CRE* Significant rain event
CSM* See metadata
CTS Turbidity spike
CVT* Possible vandalism/tampering
CWD* Data collected at wrong depth
CWE* Significant weather event

13) Post deployment information –

Edisto Island

Deployment Date (m/d/y)		Post-Deployment Checks							
	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	Depth (m)	Level (m)	pH (7)	pH (10)	Turb (FNU)	Turb (FNU)
12/01/2021	49.32	101.6	101.6	0.019		7.19	10.14	0.10	123.7
01/13/2022	49.63	100.1	101.1	0.028		7.13	10.13	1.21	124.5

02/16/2022	49.19	99.6	ND	0.117		7.08	10.09	-0.06	123.5
03/02/2022	49.97	99.0	99.0	-0.007		7.35	10.31	-0.09	123.3
04/04/2022	47.77	100.2	100.2	0.107		7.13	9.99	0.08	119.7
04/14/2022	48.38	99.6	99.8	0.043		7.15	10.09	0.48	122.4
04/27/2022	50.57	99.0	99.3	0.044		7.10	10.04	0.10	123.1
05/12/2022	49.40	99.8	99.3	-0.017		7.13	10.13	-0.07	122.4
05/26/2022	48.27	99.1	99.2	0.490		7.06	10.05	0.39	15.2
06/14/2022	49.26	100.5	100.3	0.095		7.13	10.19	1.75	111.7
06/28/2022	48.45	101.0	100.8	0.060		7.16	10.17	0.98	119.4
07/12/2022	49.67	99.9	99.8	0.091		7.14	10.05	0.10	125.0
07/26/2022	48.59	99.6	99.5	0.105		7.02	10.03	-0.07	123.9
08/09/2022	49.45	99.8	99.5	0.054		7.08	10.07	0.19	121.8
08/23/2022	49.55	98.0	97.9	-0.018		6.94	10.03	1.12	121.4
09/07/2022	50.90	99.5	99.5	0.005		7.02	10.11	0.28	121.1
09/20/2022	50.42	99.9	99.6	0.082		6.94	10.09	-0.19	120.9
10/05/2022	48.79	101.7	101.6	0.091		7.03	10.06	0.05	118.6
11/03/2022	50.92	101.6	101.6	0.120		7.25	10.23	-0.79	126.9
11/08/2022	47.99	100.3	100.1	0.051		7.01	10.07	1.11	119.1
12/07/2022	49.15	100.3	100.4		-2.617	7.01	10.04	0.04	125.5

Fishing Creek

Deployment Date (m/d/y)	Post-Deployment Checks							
	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	Depth (m)	pH (7)	pH (10)	Turb (FNU)	Turb (FNU)
12/13/2021	49.36	107.7	108.1	0.043	7.09	10.09	-0.08	131.9
01/12/2022	49.45	101.7	101.8	0.036	7.05	10.04	0.80	127.4
02/15/2022	49.60	100.3	100.3	0.049	7.11	10.60	-0.01	123.8
03/01/2022	48.89	99.6	99.8	0.031	7.09	10.07	0.13	121.9
04/13/2022	49.11	102.3	102.2	0.073	7.00	10.00	-0.15	121.6
04/25/2022	47.06	97.3	97.3	0.049	7.20	9.77	0.04	121.1
05/11/2022	48.85	99.2	99.1	0.014	6.95	9.77	0.17	121.3
05/26/2022	48.70	100.0	99.8	0.053	7.12	10.09	1.24	124.4
06/13/2022	49.83	100.8	100.7	0.105	7.13	10.15	-0.07	120.8
06/28/2022	49.99	100.1	99.9	0.055	7.12	9.99	-0.40	121.3
07/12/2022	49.48	100.2	100.0	0.450	7.14	10.05	-0.04	123.3
07/26/2022	49.08	99.5	99.2	0.084	7.10	10.14	0.32	126.0
08/09/2022	49.45	100.7	100.1	0.053	7.08	10.05	0.77	121.5
08/23/2022	49.62	97.9	97.7	-0.001	7.07	10.12	0.48	122.8
09/07/2022	49.66	100.4	100.5	0.024	7.01	10.07	2.19	123.8
09/27/2022	50.31	99.7	99.7	0.148	6.98	10.14	0.36	120.6
10/05/2022	49.29	100.3	100.7	0.116	7.03	10.08	0.87	116.5
11/03/2022	47.24	103.7	103.7	0.104	7.11	10.01	0.54	123.0
12/06/2022	48.12	100.3	100.1	0.087	6.93	10.07	0.71	119.9

Grove Plantation

Deployment Date (m/d/y)	Post-Deployment Checks							
	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	Depth (m)	pH (7)	pH (10)	Turb (FNU)	Turb (FNU)
12/01/2021	49.97	100.8	101.0	0.002	7.08	10.04	-0.02	123.3
01/12/2022	49.77	101.9	101.9	-0.449	7.07	10.04	0.37	122.8
02/15/2022	49.45	100.4	100.4	0.049	7.12	10.10	0.27	123.7
03/01/2022	48.97	99.6	100.0	0.022	7.10	10.02	0.02	122.0
04/13/2022	49.08	101.4	101.2	0.072	6.96	9.97	0.19	122.1
04/26/2022	0.254	100.1	100.3	0.080	7.15	10.10	0.50	121.1

05/11/2022	48.69	101.1	101.1	0.050	7.02	9.99	-0.16	121.8
05/26/2022	50.02	99.6	99.7	0.029	7.08	10.01	0.34	124.5
06/13/2022	48.41	98.6	97.9	0.066	6.99	10.03	-0.02	120.5
07/12/2022	48.67	99.5	99.4	0.083	7.07	10.06	0.89	125.9
08/09/2022	50.05	99.1	99.1	0.062	7.17	10.11	-0.17	122.1
08/23/2022	49.85	98.8	98.3	0.023	7.04	10.00	0.86	124.1
09/07/2022	50.12	99.5	99.6	0.075	6.87	10.05	0.95	122.1
10/05/2022	49.20	100.2	100.7	0.055	6.99	10.02	0.05	117.7
11/03/2022	46.19	101.8	101.7	0.083	7.04	10.00	1.45	119.3
12/06/2022	49.75	99.1	99.5	0.136	6.98	10.06	0.31	122.4

Jehossee Island

Deployment Date (m/d/y)	Post-Deployment Checks							
	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	Depth (m)	pH (7)	pH (10)	Turb (NTU)	Turb (NTU)
12/01/2021	48.56	100.5	100.7	-0.033	7.33	10.50	-0.30	124.0
01/12/2022	49.67	101.4	101.6	0.032	7.08	10.11	0.66	120.3
02/16/2022	50.01	103.7	103.6	0.049	7.60	10.08	0.07	123.1
03/01/2022	48.57	99.6	100.0	0.030	7.04	9.94	0.18	122.7
04/13/2022	49.09	99.7	100.3	0.068	6.97	10.03	-0.03	121.7
04/26/2022	49.16	99.6	99.5	0.056	7.15	10.10	0.03	121.9
05/11/2022	48.73	100.4	100.4	0.014	7.04	9.95	-0.14	121.1
05/26/2022	49.25	99.7	99.6	0.050	7.06	10.06	1.15	126.7
06/13/2022	49.74	97.5	97.3	0.106	7.09	10.09	1.45	115.1
06/28/2022	47.95	99.8	99.5	0.050	7.11	10.11	-0.39	120.3
07/12/2022	48.94	100.3	100.3	0.093	7.08	9.99	0.80	122.7
07/26/2022	49.01	99.8	99.7	0.070	7.08	10.12	0.99	124.6
08/09/2022	49.93	100.2	100.1	0.059	7.06	10.07	-0.11	122.0
08/23/2022	49.80	98.6	98.1	-0.018	7.16	10.07	0.17	123.0
09/07/2022	49.99	99.6	99.7	0.030	7.00	10.02	1.05	124.4
09/27/2022	50.20	98.8	98.7	0.130	6.92	10.10	-0.61	119.8
10/05/2022	49.28	100.9	100.9	0.112	7.04	10.01	-0.02	121.0
11/03/2022	45.85	101.1	101.2	0.080	7.11	10.01	2.40	119.8
12/06/2022	48.01	100.2	100.6	0.091	7.03	10.03	0.51	120.0

Mosquito Creek

Deployment Date (m/d/y)	Post-Deployment Checks							
	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	Depth (m)	pH (7)	pH (10)	Turb (FNU)	Turb (FNU)
12/01/2021	49.60	101.4	101.7	ND	7.11	10.01	-0.1	122.8
01/12/2022	ND	103.3	103.3	0.026	7.16	10.11	0.13	124.2
02/16/2022	49.20	99.8	100.0	0.051	7.06	10.01	0.50	123.7
03/01/2022	48.24	101.6	102.1	0.030	7.10	10.00	0.11	122.0
04/13/2022	48.88	100.8	100.6	0.066	7.08	10.09	0.15	121.6
04/26/2022	48.95	99.2	99.2	0.050	7.12	9.99	-0.3	121.0
05/11/2022	48.70	100.0	100.0	0.004	7.13	10.01	0.05	122.2
05/26/2022	49.78	99.7	99.5	0.033	7.10	9.92	0.15	127.1
06/13/2022	ND*	ND*	ND*	ND*	ND*	ND*	ND*	ND*
06/28/2022	47.40	99.9	99.6	0.035	7.09	9.98	-0.42	119.6
07/12/2022	49.00	100.2	100.2	0.089	7.16	10.04	0.18	123.3
07/26/2022	49.25	99.8	99.8	0.085	6.99	10.01	0.45	125.5
08/09/2022	49.57	99.2	99.8	0.055	7.12	10.13	0.37	121.2
08/23/2022	49.54	98.4	98.1	-0.019	7.07	9.94	0.44	121.5
09/07/2022	48.66	97.4	97.4	0.025	7.04	10.01	2.70	106.1

09/27/2022	49.83	98.6	99.0	0.067	6.93	10.12	-0.02	116.8
10/05/2022	49.32	ND	ND	0.099	6.89	10.00	1.27	124.8
11/03/2022	47.28	101.6	101.6	0.095	7.03	10.02	0.25	117.5
12/06/2022	47.99	100.1	100.2	0.096	7.16	10.12	0.22	120.0

ND*: no data collected during or at end of deployment

St. Pierre

Deployment Date (m/d/y)	Post-Deployment Checks							
	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	Depth (m)	pH (7)	pH (10)	Turb (FNU)	Turb (FNU)
12/01/2021	49.47	100.7	101.0	0.020	7.10	10.08	0.22	123.1
01/12/2022	49.50	101.2	101.6	-0.241	7.16	10.16	1.74	122.1
02/16/2022	49.05	100.5	100.6	0.046	7.08	10.00	0.20	123.8
03/02/2022	47.81	97.0	96.4	0.107	7.22	10.11	0.01	118.8
04/14/2022	48.58	ND	ND	0.059	7.14	10.05	0.26	122.6
04/26/2022	ND	99.2	99.2	0.058	7.14	10.04	0.04	121.5
05/12/2022	48.79	100.3	100.4	0.007	7.01	10.02	-0.11	122.5
05/26/2022	49.09	99.1	99.1	0.060	7.19	10.11	0.27	161.1
06/13/2022	48.93	101.0	101.0	0.086	7.12	10.18	2.22	119.1
06/28/2022	47.28	99.3	99.2	0.068	7.04	10.08	-0.06	118.7
07/12/2022	49.69	99.9	99.9	0.067	7.12	10.05	-0.17	124.2
07/26/2022	49.17	100.1	100.0	0.088	7.08	10.20	0.80	125.7
08/09/2022	49.66	100.5	100.4	0.059	7.01	10.09	1.44	120.9
08/23/2022	49.98	100.1	100.1	-0.065	7.15	10.12	0.30	124.3
09/07/2022	50.03	100.5	100.5	0.037	-2.34	-2.29	0.18	103.1
09/27/2022	49.22	98.9	99.4	0.067	6.98	9.99	0.41	119.3
10/05/2022	48.73	100.6	100.9	0.081	7.09	10.05	-0.33	120.8
11/03/2022	49.07	99.8	100.9	0.105	7.06	10.09	0.47	120.4
12/06/2022	46.89	101.6	101.6	0.111	7.09	10.02	0.87	117.5

Fort Johnson

Deployment Date (m/d/y)	Post-Deployment Checks									
	SpCond (ms/cm)	DO 1 (% sat)	DO 2 (% sat)	Depth (m)	pH (7)	pH (10)	Turb (0 FNU)	Turb (124 FNU)	Chl (0 mg/L)	Chl (mg/L)/ stnd
11/30/2021	49.46	101.1	101.7	0.101	7.07	10.06	0.07	124.1	0.09	26.0/69.1
01/19/2022	50.17	100.5	100.5	0.130	7.14	10.18	0.09	122.4	0.10	16/69
01/28/2022	49.18	100.2	100.2	0.050	7.14	10.08	0.83	125.7	0.83	68.6/69.5
02/28/2022	49.99	100.4	100.4	0.025	7.11	10.12	-0.05	122.3	0.08	66.1/67.9
03/08/2022	49.94	99.7	99.8	0.004	7.02	10.02	-0.01	124.2	-0.03	67.2/68.4
04/05/2022	47.28	96.6	97.6	ND	7.18	10.04	0.07	122.0	ND	ND
04/12/2022	46.13	99.9	99.9	0.049	7.14	9.90	0.16	119.3	2.75	69.5/68.0
05/12/2022	49.00	99.6	99.7	ND	7.28	9.82	0.75	125.5	0.14	64.0/65.5
06/13/2022	45.56	101.7	101.8	0.107	7.07	10.04	0.50	118.3	0.19	68.2/67.1
06/29/2022	48.75	100.3	100.1	0.086	7.31	9.90	1.24	122.8	0.15	65.6/69.7
08/10/2022	49.42	94.5	97.5	0.030	7.16	10.04	-0.01	121.6	-0.02	66.8/66.9
09/06/2022	49.00	94.8	96.8	0.031	7.04	10.07	2.97	120.2	12.00	62.8/66.2
09/27/2022	50.20	99.9	100.2	0.048	7.05	10.12	-0.69	129.7	1.02	68.0/69.2
10/04/2022	48.51	100.7	100.2	0.118	7.03	9.97	0.25	121.3	-0.04	75.4/67.4

11/02/2022	50.12	100.7	100.7	0.011	6.97	9.99	1.20	126.7	0.19	70.2/72.9
12/05/2022	49.80	102.0	100.6	0.089	7.09	10.30	0.03	127.1	-0.05	75.7/76.5

14) Other remarks/notes –

Data are missing due to equipment or associated specific probes not being deployed, equipment failure, time of maintenance or calibration of equipment, or repair/replacement of a sampling station platform. Any NANs in the dataset stand for "not a number" and are the result of low power, disconnected wires, or out of range readings. If additional information on missing data is needed, contact the Research Coordinator at the reserve submitting the data.

ACE NERR Water Quality Site Histories

Primary Sites

Edisto Island:

2014 – Water quality station was installed in **May** – Fasteners used to attach tube to the dock.
2015 – Site officially went online on **January 1**. (Coordinates: 32.5040 N and -80.3247 W).
2016 - PVC tube swapped with new tube on **June 1.**
2016 - PVC tube swapped with new tube on **November 19** because previous tube fell off and could find it**.**
2017 – PVC tube swapped with new tube with more holes along the length of tube on **December 1**.
2019 – PVC tube swapped with new tube with antifouling paint near bottom and the bottom strut was replaced on **February 28**.
2020 – The PVC tube was not swapped in 2020 but the outside of PVC tube was scraped to remove biofouling on **December 9**.
2021 – The PVC tube was swapped with tube without anti-fouling paint, the broken bottom Uni-strut was replaced, and the bottom signpost support was re-driven into the sediment on **May 6**.
2022 – PVC tube removed, barnacles scrapped off outside, and tube re-installed on **February 1**.
2022 – Storm transmitter installed to transmit real-time data and started transmitting data on **December 12**.
2022 – The PVC tube was swapped on **December 7.** Also, the un-vented sonde was replaced with a vented sonde. The elevation, relative to North American Vertical Datum of 1988 (NAVD88), of the tube was measured before it was removed; elevation (NAVD 88) of the new tube was measured after installation. Note: the new tube was attached to the second deployment post at the site.

Fishing Creek:

2002 – Fishing Creek site installed in **October** (Coordinates: 32.63593 N and -80.36556 W).
2010 – Fishing Creek signpost mount was replaced in **January** with a 40-ft, 8-in diameter pressure-treated piling.
2012 – Fishing Creek site PVC tube replaced on **May 31** – Fasteners used to attach tube to the piling.
2013 – Sutron Sat-Link2 transmitter installed in **March** at Fishing Creek to transmit real-time data.
2015 – Sutron Sat-Link2 telemetry equipment removed on **August 31**.
2016 – Fishing Creek site 6600 sondes were replaced with EXO2 sondes on **December 14**.
2017 – PVC tube swapped with new tube with more holes along the length of tube on **December 11**.
2019 – PVC tube swapped with old tube that was cleaned and then coated with antifouling paint (intertidal area of tube only) on **March 28**.
2020 – The PVC tube was not swapped in 2020 but the outside of PVC tube was scraped.
2021 – The PVC tube was swapped with new tube without anti-fouling paint on **June 8**.

Mosquito Creek:

2002 – Mosquito Creek site installed in **October** (Coordinates: 32.5558 N and -80.4380 W).
2007 – Deployment mount installed 0.5 meters away from old mount in **August**. This is a deeper location.
2009 – Site mount moved due to demolition of old bridge and construction of new one at same location in **August** (about 0.2 meters deeper).
2012 – Mosquito Creek site PVC tube was leaning during **May 2** and **May 16** deployments.

2012 – Mosquito Creek site PVC tube replaced on **May 31** – Fasteners used to attach tube to the bridge.
2016 – PVC tube was replaced, and a new mounting structure was installed on **May 17**.
2017 – Rapid Pulse DO sensors on YSI 6600 sondes were replaced with Optical DO sensors on **July 5**.
2018 – PVC tube swapped with new tube with more holes along the length of tube on **February 27**.
2018 – YSI 6600 sonde was replaced with EXO2 sonde on **November 5**.
2019 – PVC tube swapped with new tube with antifouling paint near bottom on **May 13**.
2021 – The PVC tube was swapped with new tube without anti-fouling paint on **May 26**.

St. Pierre Creek:
1995 – Water quality station was installed in **March**. (Coordinates: 32.52800 N and -80.36144 W).
2000 – Site moved to other side of channel in **April** (Coordinates changed: 32.5279 N -80.3615 W).
2006 – Sign post mount was replaced in **May** – with a 40-ft, 8-in diameter pressure-treated piling.
2006 – Sutron Sat-Link2 transmitter was installed in **June.**
2009 – St. Pierre site PVC tube replaced in **June** (about 0.06 meters deeper).
2012 – St. Pierre site PVC tube replaced on **June 1** – Fasteners used to attach tube to the piling.
2016 – PVC tube was re-positioned on piling on **July 18**.
2016 – Yagi antenna was replaced with the top hat design on **September 12**.
2016 – ISCO platforms were removed, and one was installed at different position on **November 4.**
2017 – PVC tube was re-positioned on piling on **June 6** – sonde is now higher on piling.
2017 – Rapid Pulse DO sensors on YSI 6600 sondes were replaced with Optical DO sensors on **July 5**.
2017 – PVC tube swapped with new tube with more holes along the length of tube (see Section 3) on **June 6**.
2017 – YSI 6600 sonde was replaced with an EXO2 sonde and switched to YSI Storm 3 telemetry system on **November 15.**
2019 – PVC tube swapped with new tube with antifouling paint near bottom on **May 28**.
2020 – The PVC tube was not swapped in 2020 but the outside of PVC tube was scraped.
2021 – The PVC tube was swapped with new tube without anti-fouling paint on **June 8**.

Secondary Sites
Fort Johnson – Charleston Harbor estuary:
2020 – A PVC tube was installed on a pre-existing piling in **July**.
2020 – YSI EXO2 sonde was deployed on **July 22.**
2020 – YSI Storm telemetry unit was installed and began transmitting data on **August 14**.
2021 – PVC tube was removed, cleaned onsite and replaced on **November 30**.

Grove Plantation – St. Helena Sound estuary:
2013 – A 40-ft, 8-in diameter treated pressure piling was installed on **November 8**.
2014 – YSI sonde was deployed on **January 15**.
2015 – Grove Plantation site officially went online on **January 1** (Coordinates: 32.6637N and -80.4130W)
2016 – Grove Plantation telemetry system was installed in **June**.
2016 – Grove Plantation site began transmitting real-time data on **June 15**.
2017 – Rapid Pulse DO sensors on YSI 6600s were replaced with Optical DO sensors on **December 4**.
2017 – PVC tube swapped with new tube with more holes along the length of tube on **December 11**.
2019 – PVC tube swapped with new tube with antifouling paint near bottom on **March 28**.
2019 – YSI 6600 sonde was replaced with an EXO2 sonde on **December 9**.
2019 – Switched to YSI Storm 3 telemetry system on **December 10**.
2020 – The PVC tube was not swapped in 2020 but the outside of PVC tube was scraped.
2021 – The PVC tube was swapped with tube without anti-fouling paint on **May 27**.

Jehossee Island – St. Helena Sound estuary:
2013 – Jehossee Island water quality station installed via PVC tube attached USFWS dock on **August 19**.
2015 – Jehossee Island site officially went online on **January** 1 (Coordinates: 32.6209 N and -80.3965 W).
2018 – PVC tube swapped with new tube with more holes along the length of tube on **January 30**.

2018 – Rapid Pulse DO sensors on YSI 6600 sondes were replaced with Optical DO sensors in **November**.
2019 – PVC tube swapped with new tube with antifouling paint near bottom on **April 29**.
2020 – PVC broke prior to sonde retrieval on **March 6**.
2020 – PVC tube reinstalled on **December 11**.
2021 – PVC tube was removed cleaned and replaced on **August 4**.
2022 – The PC6600 sondes were replaced with EXO2/EXO3 sondes on **January 12**.

Inactive Stations

Big Bay:

1995 – Big Bay water quality station was installed in tributary of Big Bay Creek in **March** (Coordinates: 32 29.662N and -80 19.427W).
2001- Big Bay station replaced in **October** due to old age and excessive biofouling of oysters (Coordinates: 32 29 38.72125N and -80 19 21.69864W).
2003 – Big Bay station moved to the creek proper in **July** after embankment collapsed near data logger (Coordinates: 32.4941N and -80.3241W).
2014 – Big Bay site officially went offline on **December 31**.

Charleston Harbor – Charleston Harbor Estuary:

2017 – Deployment mount was installed (PVC tube with holes along the length of the tube is mounted to a 40-ft, 8-in diameter treated pressure piling) **in October**.
2018 – Charleston Harbor site officially went online on **January 1** (Coordinates: 32.7573 N and -79.8589 W).
2018 – Telemetered transmission began on **January 4**.
2018 – Site was destroyed on **August 30**.
2019 – Data and metadata removed from CDMO. Only available directly from Reserve.

Rock Creek:

1996 – Rock Creek water quality station was installed in **March** (Coordinates: 32.5404 N and -80.4821 W [approximation because location was not measured while site was active]).
1996 – Rock Creek water quality station went offline in **July**.

Blanket Statements: All Stations

Wiper Brush Malfunctioning Coding

Wiper brush used to clean sensors during deployment fell off during a number of deployments. All post calibration checks were in the acceptable range. Values are flagged as <1> [SWM]. Any other data concerns that occurred during the deployment are listed under the appropriate parameter heading.

Missing Data Coding

Sonde was not at the correct depth in the deployment tube for last reading of the deployment. This is caused by sonde being pulled prematurely or deployed during the first reading. These values are considered post deployment values. Values are flagged as <-2>.

Dissolved Oxygen Hypoxia Coding

Dissolved oxygen percent and mg/L readings are coded <0> (CDA) when a hypoxic event is recorded (≤ 3 mg/L).

Turbidity Spike Coding

For YSI 6000 series sondes, turbidity values between 300 and 1000 NTU are coded <1> [STS] or [CTS]. For YSI EXO series sondes, turbidity values between 300 and 4000 FNU are coded <1> [STS] or [CTS]. These spikes are typically observed during low tides, max flood tides, and/or rain events.

Turbidity readings above 1000 NTU for YSI 6000 series sondes and above 4000 FNU for YSI EXO series are rejected and are coded <-3> [STS] or [CTS]. These values are above the sensor specifications.

Turbidity Negative Readings Coding

Negative turbidity values are rejected and are coded <-3> [SNV]. These values are below the sensor specifications.

Data Editing/Flagging Notes: Organized by Station, Parameter, and Code

Significant Weather Events

Weather Event	Date/Time Started	Date/Time Ended	Max Wind Speed
Hurricane Ian	September 30, 2022	September 30, 2022	85
Tropical Depression Nicole	November 11, 2022	November 11, 2022	15

After Tropical Storm Ian had crossed over Florida and was again over the open water, it strengthened back into a Category 1 hurricane on Sept. 30th before turning and making landfall south of Georgetown, South Carolina just after 2:00 p.m. that day. According to the National Hurricane Center, Ian was carrying maximum sustained winds of 85 mph. The town is about 120 miles northeast of ACE Basin NERR.

Hurricane Nicole made landfall in Florida on November 10th and was downgraded to a tropical storm when it moved across the Gulf. Tropical Storm Nicole weakened to a tropical depression (maximum winds of 45 miles per hour) as it moved through the Florida Panhandle this evening and then northeast into central Georgia and east to the Atlantic Ocean. Tropical Depression Nicole reached South Carolina on Friday but stayed off the coast as it moved up northward at a speed of 15 miles per hour.

Effect of Freshwater Input on Water Quality

Water quality at the SWMP sites is influenced by the river water level and streamflow rate in the South Edisto River at the USGS gauging station at Givhans Ferry. We observe a negative correlation between salinity and the river stage – significant salinity decreases when river crests above flood level (+10 feet, 3.05 meters) and salinity increases when the river level falls below drought level (5 feet, 1.52 meters). The same negative correlation is observed between streamflow and salinity, regardless of the river stage – decreases in salinity when streamflow is above 15,000 ft^3/sec (424.75 m^3/sec) and increases when streamflow is below 5,000 ft^3/sec (141.58 m^3/sec).

Flood river stage level (above or around)
01/11/2022 – 00:00 to 09:15
04/11/2022 – 12:15 to 04/18/2022 – 22:15

Drought river stage level (below or around)
03/06/2022 – 12:15 to 17:00
03/07/2022 – 03:30 to 03/15/2022 – 16:30
05/05/2022 – 12:15 to 06/12/2022 – 08:45
06/13/2022 – 21:45 to 07/01/2022 – 23:45
07/01/2022 – 00:00 to 07/11/2022 – 01:15
07/29/2022 – 03:15 to 08/30/2022 – 04:30
09/01/2022 – 09:45 to 14:45
09/22/2022 – 17:00 to 10/01/2022 – 10:45
10/19/2022 – 12:24 to 11/18/2022 - 11:30
11/18/2022 – 12:00 to 13:30
11/21/2022 – 12:00 to 16:00
11/21/2022 – 18:00 to 12/11/2022 – 22:15

Edisto Island

At 12/07/2022 – 15:30, switched to a vented sonde, meaning the differential depth transducer is exposed to the atmosphere via a cable as well as to the water column, so real-time atmosphere, as well as water, barometric pressure are used to calculate depth.
After the vented sonde was deployed in the PVC tube, the elevation of the depth sensor relative to North American Vertical Datum of 1988 (NAVD 88) was measured; the elevation is used as the station offset. The sonde was then programmed to calculate water level not depth values, by using the station offset to convert pressure values to water level values. The F_record is flagged as {CSM} until the end of the year and the first level record is flagged as <0> [GSM] (CND) and water depth record as <-1> [GSM] (CND).

All Parameters Blanket Statement for Edisto Island

The date time recorded in the raw data file was ahead by 12 hours during the December 1st deployment (12/01/2021 – 09:00 to 01/13/2022 – 11:15). The EXO2 date time was set to PM instead of AM which resulted in the first reading at 12/01/2021 21:00 instead of 09:00. The date time was changed to the correct date and time in the edited datafile. The F_Record column of these rows are flagged as {CSM}.

The date time recorded in the raw data file was in daylight savings time instead of eastern standard during the April 5th deployment (04/05/2022 – 10:15 to 04/14/2022 – 10:15). The date time was changed to the correct date and time in the edited datafile. The F_Record column of these rows are flagged as {CSM}.

Rejected Data (Flag <-3>)

The data collected on 02/01/2022 – 13:15 to 15:15 during the January 13th deployment (01/13/2022 – 11:30 to 02/16/2022 – 11:30) were rejected due to infield maintenance. The sonde was placed in a bucket of site water while the outside and inside of the deployment tube was scrapped after removing it from the struts. The same tube was re-deployed after cleaning. The first in tube reading was also rejected. The parameters readings, except dissolved oxygen, were similar to those collected prior to the cleaning. The values are flagged as <-3> [GMC] (CSM).

Missing Data (Flag <-2>)

No data was collected from 12/07/2022 – 13:15 to 15:15 due to infield maintenance. During this time the deployment tube was removed and replaced with a new tube. A telemetry unit was installed and a new vented depth EXO2 sonde was deployed. The values are flagged as <-2> [GMC] (CSM).

Suspect Data (Flag <1>)

Passed Initial QAQC Checks (Flag <0>)

Temperature

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Specific Conductivity/Salinity

Rejected Data (Flag <-3>)

The data collected at 11/30/2022 – 20:15 during the November 8th deployment (11/08/2022 – 12:15 to 12/07/2022 – 13:00) was rejected due to a dip in salinity. The low value of 8.6 psu occurred during low tide and 4.6 mm of rainfall was recorded at the Bennetts Point meteorological station. The value collected is outside the range typically observed at this site. The cause for the dip in salinity is unknown but thought to be attributed to a sensor malfunction. The value is flagged as <-3> [GSM] (CCU).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the following times were suspect due to a dip in salinity. The values occurred during early flood tide. The values collected were within the range typically observed at this site. The cause for the dips in salinity is unknown but thought to be attributed to a sensor malfunction. The values are flagged as <1> [GSM] (CCU).

01/25/2022 – 10:15 (23.4) 08/18/2022 – 14:00 (30.4) 08/20/2022 – 11:00 (26.4)
08/21/2022 – 11:45 (28.1)

Passed Initial QAQC Checks (Flag <0>)

DO Percent/mg/L

Rejected Data (Flag <-3>)

The DO mg/L data collected at 11/30/2022 – 20:15 during the November 8th deployment (11/08/2022 – 12:15 to 12/07/2022 – 13:00) were rejected due to conductivity potential sensor failure. Specific conductivity values are used to calculate DO mg/L. The value is flagged as <-3> [SCF] (CSM).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Passed Initial QAQC Checks (Flag <0>)

Depth/Level

Rejected Data (Flag <-3>)

The depth datum collected at 11/30/2022 – 20:15 during the November 8th deployment (11/08/2022 – 12:15 to 12/07/2022 – 13:00) was rejected due to conductivity potential sensor failure. Specific conductivity values are used to calculate depth. The value is flagged as <-3> [SCF] (CSM).

Missing Data (Flag <-2>)

The EXO2 did not collect depth data from 10/28/2022 – 20:45 to 10/29/2022 – 02:30 during the October 5th deployment (10/05/2022 – 07:30 to 11/03/2022 – 07:45). The reason for this loss of data is unknown. The values are flagged as <-2> [SSM] (CSM).

Suspect Data (Flag <1>)

Passed Initial QAQC Checks (Flag <0>)

Optional SWMP Supported Parameter (Flag <-1>)

The collection of depth data was replaced by the collection of level data during the December 7th deployment 12/07/2022 – 15:30 to 01/10/2023 – 10:15). The depth values are flagged as <-1> (CSM). To convert the level readings to depth reading, add the level offset for the deployment (-2.436 m) to the level values.

pH

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the March 2nd deployment (03/02/2022 – 14:15 to 04/05/2022 – 10:00) were suspect due to post calibration out of range. The post-deployment check of 7.35 and 10.31 are outside the accepted range of (pH 7: 6.7 - 7.3, pH 10: 9.7 - 10.3). The values collected were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

The data collected during the November 3rd deployment (11/03/2022 – 08:00 to 11/08/2022 – 12:00) were suspect due to sensor diagnostics out of range. The post-deployment check of 153.5 is below the accepted threshold of 155. The values collected were within the range typically observed at this site. The values are flagged as <1> [SDG] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Turbidity

Rejected Data (Flag <-3>)

The data collected during the following times were rejected due to a turbidity spike. Although the values were within the sensor specifications, there was a two or greater order of magnitude difference between the 15-minute intervals which is not typical for this site. The values are flagged as <-3> [STS] (CSM).

01/12/2022 – 21:45 (1485)	03/09/2022 – 23:15 (1621)	03/18/2022 – 00:45 (1382)
03/18/2022 – 01:15 (810)	03/18/2022 – 02:00 (629)	03/18/2022 – 03:15 (812)
03/19/2022 – 16:45 (812)	03/19/2022 – 22:00 (2383)	03/20/2022 – 22:30 (1436)
08/06/2022 – 18:30 (1271)	08/14/2022 – 21:30 (2234)	08/22/2022 – 09:30 (2249)
09/06/2022 – 05:15 (1407)	09/08/2022 – 14:45 (2059)	10/11/2022 – 20:30 (2963)
10/20/2022 – 10:30 (691)		

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)
The data collected during the May 26th deployment (05/26/2022 – 10:15 to 06/14/2022 – 14:15) were suspect due to post calibration out of range. The turbidity post-deployment check in 124 FNU was 15.23 FNU. Reading was within the acceptable range after cleaning. The data were not rejected because the values were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Fishing Creek

All Parameters Blanket Statement for Fishing Creek

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)
The data collected from 10/03/2022 – 13:45 to 10/05/2022 – 10:00 during the September 27th deployment (09/27/2022 – 08:15 to 10/05/2022 – 10:00) were missing due to instrument malfunction. The sonde stopped recording data even though there was sufficient battery power. The values are flagged as <-2> [GIM] (CSM).

Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Temperature

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Specific Conductivity/Salinity

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)
The data collected at 06/04/2022 – 08:45 during the May 26th deployment (05/26/2022 – 13:15 to 06/13/2022 – 11:45) was suspect due to a dip in salinity. The low value of 3.5 psu did not occur during low tide and no rainfall was recorded at the Bennetts Point meteorological station. The value collected is within the range typically observed at this site. The cause for the dip in salinity is unknown but thought to be attributed to a sensor malfunction. The value is flagged as <1> [GSM] (CCU).

Passed Initial QAQC Checks (Flag <0>)

DO Percent/mg/L

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Depth

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

pH

Rejected Data (Flag <-3>)

The data collected from 08/23/2022 – 15:00 to 08/28/2022 – 01:15 during the August 23rd deployment (08/23/2022 – 15:00 to 09/07/2022 – 10:30) were rejected due to sensor malfunction. The sonde started recording negative values after the first in-tube reading which was followed by no pH data. The values are flagged as <-3> [SSM] (CSM).

Missing Data (Flag <-2>)

The data collected from 08/28/2022 – 01:30 to 09/07/2022 – 10:30 during the August 23rd deployment (08/23/2022 – 15:00 to 09/07/2022 – 10:30) were missing due to sensor malfunction. The sensor first recorded negative and then stopped recording. The values are flagged as <-2> [SSM] (CSM).

Suspect Data (Flag <1>)

The data collected during the February 15th deployment (02/15/2022 – 13:30 to 03/01/2022 – 13:00) were suspect due to post calibration out of range. The post-deployment check of 10.60 is outside the accepted range of (pH 10: 9.7 - 10.3). The values collected were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

The data collected during the April 25th deployment (04/25/2022 – 11:00 to 05/11/2022 – 10:15) were suspect due to sensor diagnostics out of range. The post-deployment check of 150.7 is below the accepted threshold of 155. The values collected were within the range typically observed at this site. The values are flagged as <1> [SDG] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Turbidity

Rejected Data (Flag <-3>)

The data collected during the following times were rejected due to a turbidity spike. Although the values are within the sensor specifications, there was a two or greater order of magnitude difference between the 15-minute intervals which is not typical for this site. The values are flagged as <-3> [STS] (CSM).

04/15/2022 – 03:45 (2838)	06/18/2022 – 05:15 (1290)	06/29/2022 – 01:00 (1059)
07/03/2022 – 05:30 (2414)	07/05/2022 – 20:30 (3047)	11/16/2022 – 03:30 (1610)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the September 7th deployment (09/07/2022 – 10:45 to 09/27/2022 – 08:00) were suspect due to post calibration out of range. The turbidity post-deployment check in 0 FNU was 2.19 FNU.

Reading was within the acceptable range after cleaning. The data were not rejected because the values were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Grove Plantation

All Parameters Blanket Statement for Grove Plantation

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Temperature

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Specific Conductivity/Salinity

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)

Suspect Data (Flag <1>)
The data collected during the April 26th deployment (04/26/2022 – 12:15 to 05/11/2022 – 10:45) were suspect due to post-calibration out of range. The post-deployment check of 0.254 mS/cm for specific conductivity is outside the accepted range of 47 - 53 mS/cm. The data were not rejected because the readings were within the range typically observed at this site. It is suspected to be an error in documentation. The values are flagged as <1> [SPC] (CSM).

The data collected during the November 3rd deployment (11/03/2022 – 11:15 to 12/06/2022 – 13:30) were suspect due to post-calibration out of range. The post-deployment check of 46.19 mS/cm for specific conductivity is outside the accepted range of 47 - 53 mS/cm. The data were not rejected because the readings were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

DO Percent/mg/L

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Depth

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Corrected Data (Flag <5>)
The data collected during the January 12th deployment (01/12/2022 – 10:45 to 02/15/2022 – 14:00) were corrected due to the wrong depth offset used for calibration. The depth offset used was -0.272 m but based on barometric pressure, the correct depth offset was 0.190 m. In order to correct depth, 0.462 m was added

to each recorded value. It should also be noted that the post-deployment reading for depth was -0.445 which is lower than expected; however, the data between the end of this deployment and the beginning of the next deployment match. The values are flagged as <5> [SIC] (CSM).

pH

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Turbidity

Rejected Data (Flag <-3>)
The datum collected at 07/23/2022 – 23:15 during the July 12th deployment (07/12/2022 – 12:45 to 08/09/2022 – 12:15) was rejected due to a turbidity spike. Although the values are within the sensor specifications, the reading of 1580 FNU was a two or greater order of magnitude higher than the adjacent 15-minute intervals which is not typical for this site. The values are flagged as <-3> [STS] (CSM).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)
The data collected during the January 12th deployment (01/12/2022 – 10:45 to 02/15/2022 – 14:00) were suspect because the sensor was not calibrated. However, the post-deployment checks in the 0 and 124 FNU standards were within the acceptable ranges (0.37 and 122.78 FNU). Also, the first turbidity reading of the deployment was similar to the final reading of the prior deployment. The values are flagged as <1> [SIC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Jehossee Island

All Parameters Blanket Statement for Jehossee Island

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)

Passed Initial QAQC Checks (Flag <0>)
The total deployment time allowed for YSI 6600 sondes for December 1, 2021 deployment (12/01/2021 – 10:45 to 01/12/2022 – 09:30) was exceeded by twelve days from 01/01/2022 – 00:00 to 01/12/2022 – 09:30. The data appear to be within normal ranges and the post calibrations were acceptable except for pH, which was rejected as identified below. The F_record is flagged as {CSM}.

Temperature

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Specific Conductivity/Salinity

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the November 3rd deployment (11/03/2022 – 11:45 to 12/06/2022 – 12:15) is suspect due to post-calibration out of range. The post deployment check of 45.85 mS/cm for specific conductivity was outside the accepted range of 47 – 53 mS/cm. The data were not rejected because the readings were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

DO Percent/mg/L

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Depth

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

pH

Rejected Data (Flag <-3>)
The data collected during the December 1, 2021 deployment (12/01/2021 – 10:45 to 01/12/2022 – 09:30) were rejected due to post calibration out of range. The post-deployment check of 7.33 for pH 7, 10.34 for pH 10, and 145.8 for pH slope was outside the accepted range; the values of the other checks were acceptable. The values collected were higher than typically observed at this site but had a similar pattern to DO observed at this site. The values are flagged as <-3> [SPC] (CSM).

The first record of the April 13th deployment (04/13/2022 – 11:00 to 04/26/2022 – 11:30) were rejected due to a spike in pH when the sonde was deployed. There is a 0.3 unit or greater difference between the 15-minute intervals which is not typical; however, it is thought to be attributed to acclimation of the probe. The post-deployment checks and sensor diagnostics were within the accepted ranges. The values are flagged as <-3> [GSM] (CND) or <-3> [GSM] (CCU).

The first two records of the April 26th deployment (04/26/2022 – 11:45 to 05/11/2022 – 09:45) were rejected due to a spike in pH when the sonde was deployed. There is a 0.3 unit or greater difference between the 15-minute intervals which is not typical; however, it is thought to be attributed to acclimation of the probe. The post-deployment checks and sensor diagnostics were within the accepted ranges. The values are flagged as <-3> [GSM] (CND) or <-3> [GSM] (CSM).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)
The data collected during the February 15th deployment (02/15/2022 – 13:00 to 03/01/2022 – 12:30) were suspect due to post calibration out of range. The post-deployment check of 7.60 for pH 7 was outside the accepted range; the values of the other checks were acceptable. The values collected were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

The data collected during the December 6th deployment (12/06/2022 – 12:30 to 01/10/2023 – 12:15) were suspect due to sensor diagnostics. The post-deployment check of -221.9 for pH slope was outside the

accepted range; pH 7 and 10 checks were acceptable. The values were within the range expected at the site. The values are flagged as <1> [SDG] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Turbidity

Rejected Data (Flag <-3>)

The data collected during the following times were rejected due to a turbidity spike. Although the values are within the sensor specifications, there was a two or greater order of magnitude difference between the 15-minute intervals which is not typical for this site. The values are flagged as <-3> [STS] (CSM).

01/05/2022 – 18:00 (1146) 05/10/2022 – 08:15 (2331) 05/20/2022 – 09:45 (2001)
06/17/2022 – 16:15 (2332) 06/24/2022 – 07:30 (2800) 06/27/2022 – 17:30 (3282)
07/23/2023 – 22:30 (905)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the November 3rd deployment (11/03/2022 – 11:45 to 12/06/2022 – 12:15) is suspect due to post-calibration out of range. The post deployment check of 2.4 FNU for turbidity in the 0 FNU standard is outside the accepted range of -2 to 2 FNU. The data were not rejected because the readings were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Mosquito Creek

All Parameters Blanket Statement for Mosquito Creek

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

No data were collected for the June 13th deployment (06/13/2022 – 10:45 to 06/28/2022 – 11:00) due to an error. The values are flagged as <-2> (CSM).

The data collected from 09/18/2022 – 15:30 to 09/27/2022 – 10:15 during the September 7th deployment (09/07/2022 – 09:30 to 09/27/2022 – 10:15) were missing due to low battery. The values are flagged as <-2> [GPF] (CSM).

The data collected from 10/14/2022 – 00:15 to 11/03/2022 – 09:15 during the October 5th deployment (10/05/2022 – 09:00 to 11/03/2022 – 09:15) were missing due to low battery. The values are flagged as <-2> [GPF] (CSM).

The data collected from 12/06/2022 – 11:45 to 12/07/2022 – 17:30 during the December 6th deployment (12/06/2022 – 11:45 to 01/10/2023 – 11:30) were missing due to instrument malfunction. The values are flagged as <-2> [GIM] (CSM).

Suspect Data (Flag <1>)

Passed Initial QAQC Checks (Flag <0>)

Temperature

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

The data collected on 01/30/2022 – 14:00, 01/31/2022 – 01:45, and from 01/31/2021 – 02:15 to 02/15/2022 – 11:45 during the January 12th deployment (01/12/2022 – 9:00 to 02/15/2022 – 11:45) were missing due to catastrophic temperature sensor failure. The sensor failed because the pins broke. The values are flagged as <-2> [STF] (CSM).

Suspect Data (Flag <1>)

Passed Initial QAQC Checks (Flag <0>)

Specific Conductivity/Salinity

Rejected Data (Flag <-3>)

The datum collected at 08/13/2022 – 02:00 during the August 9th deployment (08/09/2023 – 10:45 to 08/23/2023 – 11:45) was rejected due to a dip in salinity. The low value of 8.6 psu occurred during mid-tide and no rainfall was recorded at the Bennetts Point meteorological station. The value collected is lower than what was observed surrounding this time period at this site. The cause for the dip in salinity is unknown but thought to be attributed to a sensor malfunction. the value is flagged as <-3> [GSM] (CCU).

Missing Data (Flag <-2>)

The data collected on 01/30/2022 – 14:00, 01/31/2022 – 01:45 and from 01/31/2021 – 02:15 to 02/15/2022 – 11:45 during the January 12th deployment (01/12/2022 – 9:00 to 02/15/2022 – 11:45) were missing due to catastrophic temperature sensor failure. The sensor failed because the pins broke. The values are flagged as <-2> [STF] (CSM).

Suspect Data (Flag <1>)

Passed Initial QAQC Checks (Flag <0>)

DO Percent/mg/L

Rejected Data (Flag <-3>)

The data collected on 01/30/2022 – 14:00, 01/31/2022 – 01:45 and from 01/31/2021 – 02:15 to 02/15/2022 – 11:45 during the January 12th deployment (01/12/2022 – 9:00 to 02/15/2022 – 11:45) were rejected due to catastrophic temperature sensor failure. The temperature and specific conductivity values are used to calculate DO (% sat and mg/L). The sensor failed because the pins broke. The values are flagged as <-3> [STF] (CSM).

The DO mg/L collected at 08/13/2022 – 02:00 during the August 9th deployment (08/09/2023 – 10:45 to 08/23/2023 – 11:45) was rejected due to conductivity sensor failure. The salinity dipped to 8.6 psu during mid ebb tide, and the cause for the dip in salinity is unknown. The specific conductivity values are used to calculate DO mg/L. The value is flagged as <-3> [SCF] (CSM).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Passed Initial QAQC Checks (Flag <0>)

Depth

Rejected Data (Flag <-3>)

The data collected on 01/30/2022 – 14:00, 01/31/2022 – 01:45 and from 01/31/2021 – 02:15 to 02/15/2022 – 11:45 during the January 12th deployment (01/12/2022 – 9:00 to 02/15/2022 – 11:45) were rejected due to catastrophic temperature sensor failure. The temperature and specific conductivity values are used to calculate depth. The sensor failed because the pins broke. The values are flagged as <-3> [STF] (CSM).

The datum collected at 08/13/2022 – 02:00 during the August 9th deployment (08/09/2023 – 10:45 to 08/23/2023 – 11:45) was rejected due to conductivity sensor failure. The salinity dipped to 8.6 psu during mid ebb tide, and the cause for the dip in salinity is unknown. The specific conductivity values are used to calculate depth. The value is flagged as <-3> [SCF] (CSM).

Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

pH

Rejected Data (Flag <-3>)
The data collected on 01/30/2022 – 14:00, 01/31/2022 – 01:45 and from 01/31/2021 – 02:15 to 02/15/2022 – 11:45 during the January 12th deployment (01/12/2022 – 9:00 to 02/15/2022 – 11:45) were rejected due to catastrophic temperature sensor failure. The temperature and specific conductivity values are used to calculate pH. The sensor failed because the pins broke. The values are flagged as <-3> [STF] (CSM).

The data collected from 10/05/2022 – 09:00 to 12:30 during the October 5th deployment (10/05/2022 – 09:00 to 11/03/2022 – 09:15) were rejected due to negative values. The values are flagged as <-3> [SSM] (CSM).

Missing Data (Flag <-2>)
The data collected from 10/05/2022 – 12:45 to 10/14/2022 – 00:00 during the October 5th deployment (10/05/2022 – 09:00 to 11/03/2022 – 09:15) were missing due to sensor malfunction. The pH sensor stopped recording during this period. The values are flagged as <-2> [SSM] (CSM).

Suspect Data (Flag <1>)
The data collected during the May 26th deployment (05/26/2022 – 11:45 to 06/13/2022 – 10:30) were suspect due to sensor diagnostics out of range. The post-deployment check of 153.6 is below the accepted threshold of 155. The values collected were within the range typically observed at this site. The values are flagged as <1> [SDG] (CSM).

The data collected from 09/07/2022 – 09:30 to 09/18/2022 – 15:15 during the September 7th deployment (09/07/2022 – 09:30 to 09/27/2022 – 10:15) were suspect due to sensor diagnostics were out of range. The pre- and post-deployment checks of pH millivolts were outside the accepted range, but the pH slope was above the accepted threshold of 155. The values collected were within the range typically observed at this site. The values are flagged as <1> [SDG] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Turbidity

Rejected Data (Flag <-3>)
The data collected during the following times were rejected due to a turbidity spike. Although the values are within the sensor specifications, there was a two or greater order of magnitude difference between the 15-minute intervals which is not typical for this site. The values are flagged as <-3> [STS] (CSM).
06/01/2022 – 19:45 (2333) 06/02/2022 – 14:15 (3940) 09/08/2022 – 21:45 (2393)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)
The data collected from 09/07/2022 – 09:30 to 09/18/2022 –15:15 during the September 7th deployment (09/07/2022 – 09:30 to 09/27/2022 –10:15) were suspect due to post calibration out of range. The turbidity post-deployment check in 0 FNU was 2.7 FNU. Reading was within the acceptable range after cleaning. The

data were not rejected because the values were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

St. Pierre

All Parameters Blanket Statement for St. Pierre

Rejected Data (Flag <-3>)

The data collected from 11/19/2022 – 11:30 to 12/06/2022 – 10:45 during the November 3rd deployment (11/03/2022 – 08:45 to 12/06/2022 – 10:45) were rejected due to instrument malfunction. The readings were either negative or "NAN"; last reading also was flagged even though the values appear normal. The negative and "NAN" indicated that the sonde malfunctioned. Deployment readings are recovered telemetry values; reason why the sonde transmitted readings but did not store them is unknown. Sending sonde to YSI for evaluation. The values are flagged as <-3> [GIM] (CSM) unless missing or another error flag was applied.

Missing Data (Flag <-2>)

The data collected on 03/02/2022 – 15:00 to 15:15 are missing due to infield maintenance. The outside and inside of the deployment tube was scrapped after removing it from the piling. The same tube was replaced after cleaning. The values are flagged as <-2> [GMC] (CSM).

The data collected from 08/23/2022 – 11:15 to 17:00 during the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were missing due to operator error. The telemetered data during this period were overwritten by the "out of water" readings at the end of the previous deployment, which were not removed from the file before it was uploaded to the CDMO. Unfortunately, the sonde did not store the readings during this deployment, so these records are not recoverable. The values are flagged as <-2> (CSM).

The data collected during the following times of the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were missing due to instrument malfunction. Deployment readings are recovered telemetry values; reason why the sonde transmitted readings but did not store them is unknown. The values are flagged as <-2> [GIM] (CSM).

08/24/2022 – 00:00 to 00:45	08/25/2022 – 02:00 to 02:45	08/31/2022 – 03:00 to 03:45
09/03/2022 – 09:00	09/04/2022 – 10:00 to 10:45	09/07/2022 – 01:00 to 01:45
09/30/2022 – 14:00 to 14:45		

The data collected from 10/11/2022 – 08:00 to 08:45 during October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) were missing due to instrument malfunction. Deployment readings are recovered telemetry values; reason why the sonde transmitted readings but did not store them is unknown. The values are flagged as <-2> [GIM] (CSM).

Suspect Data (Flag <1>)

The data collected from 04/21/2022 – 06:15 to 04/26/2022 – 09:30 during the April 14th deployment (04/14/2022 – 11:30 to 04/26/2022 – 09:30) were suspect due to being recovered telemetry data. The reason why the sonde transmitted data but did not store the data is unknown. The values are flagged as <1> [GIT] (CSM).

The data collected during the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were suspect due to being recovered telemetry data. Reason unknown why the sonde transmitted data but did not store the data. The values are flagged as <1> [GIT] (CSM) unless missing or another error flag was applied.

The data collected during the September 27th deployment (09/27/2022 – 09:30 to 10/05/2022 – 08:00) were suspect due to being recovered telemetry data. Reason unknown why the sonde transmitted data but did not store the data. The values are flagged as <1> [GIT] (CSM) unless missing or another error flag was applied.

The data collected during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) were suspect due to being recovered telemetry data and temperature probe failure during this deployment. The reason why the sonde transmitted did not store data is unknown. The values are flagged as <1> [GIT] (CSM) unless missing or another error flag was applied.

The data collected during the November 3rd deployment (11/03/2022 – 08:45 to 12/06/2022 – 10:45) were suspect due to being recovered telemetry data. The reason why the sonde did not store but did transmit readings is unknown, sending sonde to YSI for evaluation. The values are flagged as <1> [GIT] (CSM) unless missing or another error flag was applied.

Passed Initial QAQC Checks (Flag <0>)

Temperature

Rejected Data (Flag <-3>)

The datum collected on 10/05/2022 – 08:00 during the September 27th deployment (09/27/2022 – 09:30 to 10/05/2022 – 08:00) was rejected due to negative value. The reading was a recovered telemetry value. The value is flagged as <-3> [STF] (CSM).

The data collected at the following times during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2023 – 08:30) were rejected due to negative value. The reading was a recovered telemetry value. The values are flagged as <-3> [STF] (CSM).

10/05/2022 – 08:30 to 15:15, 15:45, and 16:00 10/06/2022 – 04:00 10/18/2022 – 01:30
11/03/2022 – 08:30

Missing Data (Flag <-2>)

The data collected during the following time periods of the April 26th deployment (04/26/2022 – 09:45 to 05/11/2022 – 07:30) were missing due to a catastrophic temperature sensor failure caused by a loose/broken pin. The values are flagged as <-2> [STF] (CSM).

04/26/2022 – 14:00 to 04/28/2022 – 00:30 04/28/2022 – 02:15 to 11:15
04/28/2022 – 12:00 to 15:30 04/29/2022 – 01:30 to 02:45
04/29/2022 – 15:00 to 16:15, 17:15 05/06/2022 – 20:00 to 05/11/2022 – 07:30

The data collected at 10/28/2023 – 19:00 to 19:45 during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) were missing due to instrument malfunction. Turbidity values were the only ones that were telemetered; the cause of the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

The data collected from 12/05/2022 – 07:00 to 07:45 during the November 3rd deployment (11/03/2022 – 08:45 to 12/06/2022 – 10:45) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

Suspect Data (Flag <1>)

The recorded data collected at the following times during the April 26th deployment (04/26/2022 – 09:45 to 05/11/2022 – 07:30) were considered suspect due to the eventual catastrophic temperature sensor failure caused by a loose/broken pin. The values are flagged as <1> [SSM] (CSM).

04/26/2022 – 09:45 to 13:45 04/28/2022 – 00:45 to 02:00
04/28/2022 – 11:30, 11:45 04/28/2022 – 15:45 to 04/29/2022 – 01:15
04/29/2022 – 03:00 to 14:45 04/29/2022 – 16:30 to 17:00
04/29/2022 - 17:30 to 05/06/2022 – 19:45

Passed Initial QAQC Checks (Flag <0>)

Specific Conductivity/Salinity

Rejected Data (Flag <-3>)

The data collected at 05/27/2022 – 21:00 during the May 26th deployment (05/26/2022 – 11:00 to 06/14/2022 – 15:00) was rejected due to conductivity sensor failure. The low value of 10.0 psu was during a falling tide. The value collected is outside the range typically observed at this site. The cause for the dip in salinity is unknown but thought to be attributed to a sensor malfunction. The values are flagged as <-3> [GSM] (CCU).

The data collected on 10/05/2022 – 08:00 during the September 27th deployment (09/27/2022 - 09:30 to 10/05/2022 -08:00) were rejected due to negative value or "NAN". The reading was a recovered telemetry value. The specific conductivity value is flagged as <-3> [STF] (CSM) and salinity as <-3> [STF] (CSM).

The specific conductivity and salinity collected at the following times during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) were rejected due a catastrophic temperature sensor failure. The temperature value is used to calculate specific conductivity and salinity. The values collected were within the range typically observed at this site. The readings were recovered telemetry values. The values are flagged as <-3> [STF] (CSM).

10/05/2022 – 08:30 to 15:15, 15:45, and 16:00 10/06/2022 – 04:00 10/18/2022 – 01:30
11/03/2022 – 08:30

Missing Data (Flag <-2>)

The data collected during the following time periods of the April 26th deployment (04/26/2022 – 09:45 to 05/11/2022 – 07:30) were missing due to a catastrophic temperature sensor failure from a loose/broken pin. The values are flagged as <-2> [STF] (CSM).

04/26/2022 – 14:00 to 04/28/2022 – 00:30
04/28/2022 – 02:15 to 11:15
04/28/2022 – 12:00 to 15:30
04/29/2022 – 01:30 to 02:45
04/29/2022 – 15:00 to 16:15, 17:15
05/06/2022 – 20:00 to 05/11/2022 – 07:30

The data collected during the following times of the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

09/03/2022 – 09:15 to 09:45
09/04/2022 – 03:00 to 03:15
09/04/2022 – 03:30 to 03:45 (salinity only)

The data collected from 10/28/2022– 19:00 to 1945 during the following times of the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were missing due to instrument malfunction. Turbidity values were the only ones that were telemetered; the cause for the missing readings is unknown. The values are flagged as <-2> [GIM] (CSM).

The data collected from 12/05/2022 – 07:00 to 07:45 during the November 3rd deployment (11/03/2022 – 08:45 to 12/06/2022 – 10:45) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

Suspect Data (Flag <1>)

The recorded data collected at the following times during the April 26th deployment (04/26/2022 – 09:45 to 05/11/2022 – 07:30) were considered suspect due to the eventual catastrophic temperature/conductivity sensor failure from a loose/broken pin. The values are flagged as <1> [SSM] (CSM).

04/26/2022 – 09:45 to 13:45
04/28/2022 – 00:45 to 02:00
04/28/2022 – 11:30, 11:45
04/28/2022 – 15:45 to 04/29/2022 – 01:15
04/29/2022 – 03:00 to 14:45
04/29/2022 – 16:30 to 17:00
04/29/2022 - 17:30 to 05/06/2022 – 19:45

The data collected during the December 6th deployment (12/06/2022 – 11:00 to 12/31/2022 – 23:45) were suspect due to post-calibration out of range. The post-deployment check of 46.89 mS/cm for specific conductivity is outside the accepted range of 47 - 53 mS/cm. The data were not rejected because the readings were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

DO Percent/mg/L

Rejected Data (Flag <-3>)

The DO (Percent and mg/L) data collected during the following time periods of the April 26th deployment (04/26/2022 – 09:45 to 05/11/2022 – 07:30) were rejected due to a catastrophic temperature sensor failure from a loose/broken pin. The readings were within the range typically observed at this site. The values are flagged as <-3> [STF] (CSM).

04/26/2022 – 14:00 to 04/28/2022 – 00:30
04/28/2022 – 12:00 to 15:30
04/29/2022 – 15:00 to 16:15, 17:15
04/28/2022 – 02:15 to 11:15
04/29/2022 – 01:30 to 02:45
05/06/2022 – 20:00 to 05/11/2022 – 07:30

The DO mg/L datum collected at 05/27/2022 – 21:00 during the May 27th deployment (05/26/2022 – 11:00 to 06/14/2022 – 15:00). was rejected due to conductivity sensor failure. The specific conductivity value used to calculate DO mg/L was rejected due to dip in salinity. The value collected was within the range typically observed at this site. The post-deployment checks were within the accepted range. The value is flagged as <-3> [SCF] (CSM).

The DO (Percent and mg/L) collected at 10/05/2022 – 08:00 during the September 27th deployment (09/27/2022 – 09:30 to 10/05/2022 – 08:00) were rejected due a catastrophic temperature sensor failure. The temperature value is used to calculate DO % and DO mg/L values. The DO values collected were within the range typically observed at this site. The readings were recovered telemetry values. The values are flagged as <-3> [STF] (CSM).

The DO (Percent and mg/L) collected at the following times during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) were rejected due a catastrophic temperature sensor failure. The temperature value is used to calculate DO. The values collected were within the range typically observed at this site. The readings were recovered telemetry values. The values are flagged as <-3> [STF] (CSM).

10/05/2022 – 08:30 to 15:15, 15:45, and 16:00
10/06/2022 – 04:00
10/18/2022 – 01:30
11/03/2022 – 08:30

Missing Data (Flag <-2>)

The data collected during the following times of the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

08/27/2022 – 05:00 to 05:30
09/03/2022 – 09:15 to 09:45
09/04/2022 – 03:00 to 03:45
09/06/2022 – 11:00 to 11:45

The data collected from 10/28/2023 – 19:00 to 1945 during the following times of the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were missing due to instrument malfunction. Turbidity values were the only ones that were telemetered; the cause for the missing readings is unknown. The values are flagged as <-2> [GIM] (CSM).

The data collected from 12/05/2022 – 07:00 to 07:45 during the November 3rd deployment (11/03/2022 – 08:45 to 12/06/2022 – 10:45) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Depth

Rejected Data (Flag <-3>)

The data collected during the following time periods of the April 26th deployment (04/26/2022 – 09:45 to 05/11/2022 – 07:30) were rejected due to a catastrophic temperature sensor failure from a loose/broken pin. The readings were within the range typically observed at this site. The values are flagged as <-3> [STF] (CSM).

04/26/2022 – 14:00 to 04/28/2022 – 00:30
04/28/2022 – 12:00 to 15:30
04/29/2022 – 15:00 to 16:15, 17:15
04/28/2022 – 02:15 to 11:15
04/29/2022 – 01:30 to 02:45
05/06/2022 – 20:00 to 05/11/2022 – 07:30

The datum collected at 05/27/2022 – 21:00 during the May 26th deployment (05/26/2022 – 11:00 to 06/14/2022 – 15:00) was rejected due to conductivity sensor failure. The specific conductivity value used to calculate depth was rejected due to an unusual dip. The value collected was within the range typically observed at this site. The post-deployment checks were within the accepted range. The value is flagged as <-3> [SCF] (CSM).

The depth collected at 10/05/2022 – 08:00 during the September 27th deployment (09/27/2022 – 09:30 to 10/05/2022 – 08:00) were rejected due a catastrophic temperature sensor failure. The temperature value is used to calculate depth. The values collected were within the range typically observed at this site. The reading was a recovered telemetry value. The value is flagged as <-3> [STF] (CSM).

The depth collected at the following times during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) were rejected due a catastrophic temperature sensor failure. The temperature value is used to calculate depth. The values collected were within the range typically observed at this site. The readings were recovered telemetry values. The values are flagged as <-3> [STF] (CSM).

10/05/2022 – 08:30 to 15:15, 15:45, and 16:00
10/06/2022 – 04:00
10/18/2022 – 01:30
11/03/2022 – 08:30

Missing Data (Flag <-2>)

The data collected during the following times of the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

08/24/2022 – 06:00 to 06:30
08/27/2022 – 05:00 to 05:45
08/27/2022 – 13:00 to 13:30
09/03/2022 – 09:15 to 09:45
09/04/2022 – 03:00 to 03:45
09/06/2022 – 11:00 to 11:45

The data collected from 10/28/2023 – 19:00 to 1945 during the following times of the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) were missing due to instrument malfunction. Turbidity values were the only ones that were telemetered; the cause for the missing readings is unknown. The values are flagged as <-2> [GIM] (CSM).

The data collected from 12/05/2022 – 07:00 to 07:45 during the November 3rd deployment (11/03/2022 – 08:45 to 12/06/2022 – 10:45) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

Suspect Data (Flag <1>)

The data collected during the January 12th deployment (01/12/2022 – 08:00 to 02/16/2022 – 14:45) were suspect due to post calibration out of range. The post-deployment check of -0.241 was lower than the expected value of 0.038, and the difference between this sonde and the others (pre and post) was also lower.

Also, the values collected during this deployment were lower than those collected during the adjacent deployments; the data were not rejected because the values collected were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

pH

Rejected Data (Flag <-3>)

The data collected during the following time periods of the April 26th deployment (04/26/2022 – 09:45 to 05/11/2022 – 07:30) were rejected due to a catastrophic temperature sensor failure from a loose/broken pin. The readings were within the range typically observed at this site. The values are flagged as <-3> [STF] (CSM).

04/26/2022 – 14:00 to 04/28/2022 – 00:30
04/28/2022 – 12:00 to 15:30
04/29/2022 – 15:00 to 16:15, 17:15
04/28/2022 – 02:15 to 11:15
04/29/2022 – 01:30 to 02:45
05/06/2022 – 20:00 to 05/11/2022 – 07:30

The datum collected at 08/27/2022 – 05:30 during the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were rejected due to sensor malfunction. The cause for the NAN value is unknown. The value is flagged as <-3> [GIM] (CSM).

The data collected from 09/09/2022 – 18:45 to 09/27/2022 – 09:15 during the September 7th deployment (09/07/2022 – 08:45 to 09/27/2022 – 09:15) were rejected due to sensor malfunction. The pH data dropped to 2.7 followed by negative values. The values are flagged as <-3> [SSM] (CSM).

The datum collected at 10/05/2022 – 08:00 during the September 27th deployment (09/27/2022 – 09:30 to 10/05/2022 – 08:00) was rejected due a catastrophic temperature sensor failure. The value is flagged as <-3> [STF] (CSM).

The datum collected at 10/05/2022 – 15:30 during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) was rejected due an instrument malfunction. The value is flagged as <-3> [GIM] (CSM).

The data collected from 10/05/2022 – 16:15 to 11/03/2022 - 08:15 during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) were rejected due to instrument malfunction. The values are flagged as <-3> [GIM] (CSM).

The datum collected at 11/03/2022 – 08:30 during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) was rejected due catastrophic temperature sensor failure. Temperature is used to calculate pH. The value collected was within the range typically observed at this site. The value is flagged as <-3> [STF] (CSM).

Missing Data (Flag <-2>)

The data collected during the following times of the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

08/24/2022 – 06:00 to 06:45
09/03/2022 – 09:15 to 09:45
08/27/2022 – 05:00 to 05:45
09/04/2022 – 03:00 to 03:45
08/27/2022 – 13:00 to 13:45
09/06/2022 – 11:00 to 11:45

The pH collected at the following times during the October 5th deployment (10/05/2022 – 08:15 to 11/03/2022 – 08:30) were missing due to instrument malfunction. The values collected were within the range typically observed at this site. The values are flagged as <-2> [GIM] (CSM).

10/05/2022 – 08:15 to 15:15, 15:45, and 16:00 10/06/2022 – 04:00 10/18/2022 – 01:30
10/28/2023 – 19:00 to 19:45

The data collected from 12/05/2022 – 07:00 to 07:45 during the November 3rd deployment (11/03/2022 – 08:45 to 12/06/2022 – 10:45) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Turbidity

Rejected Data (Flag <-3>)

The data collected for 106 data points were rejected due to turbidity spikes. Although the values were within the sensor specifications, there was a two or greater order of magnitude difference between the 15-minute intervals which is not typical for this site. The values are flagged as <-3> [STS] (CSM).

The datum collected at 08/24/2022 - 06:00 during the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) was negative. The value is flagged as <-3> [SNV] (CSM).

The data collected from 11/19/2022 – 10:30 to 11:15 during the November 3rd deployment (11/03/2022 – 08:45 to 12/06/2022 – 10:45) were negative. The values are flagged as <-3> [SNV] (CSM).

Missing Data (Flag <-2>)

The data collected during the following times of the August 23rd deployment (08/23/2022 – 11:15 to 09/07/2022 – 08:30) were missing due to instrument malfunction. The cause for the missing records is unknown. The values are flagged as <-2> [GIM] (CSM).

08/24/2022 - 06:15 to 06:45 08/27/2022 – 05:00 to 05:45 08/27/2022 – 13:00 to 13:45
08/28/2022 – 11:15 09/01/2022 – 14:00 09/03/2022 – 09:15 to 09:45
09/04/2022 – 03:00 to 03:45 09/06/2022 – 11:00 to 11:45

Suspect Data (Flag <1>)

The data collected during the May 26th deployment (05/26/2022 – 11:00 to 06/14/2022 – 15:00) were suspect due to post calibration out of range. The turbidity post-deployment checks were outside the accepted range (16.11 in 124 FNU standard). A thin coat of fouling material was removed from the sensor face during cleaning, and reading was within the acceptable range after cleaning. Rejected the turbidity readings that were out of range or two or more order of magnitude higher that adjacent readings, but not those that were within the range typically observed at this site. The anomalous reading values are flagged as <1> [SPC] (CSM) and rejected values are flagged as <-3> [SPC] (CSM).

The data collected during the June 14th deployment (06/14/2022 – 15:15 to 06/28/2022 – 10:30) were suspect due to post calibration out of range. The turbidity post-deployment checks were outside the accepted range (2.22 in 0 FNU standard). A thin coat of fouling material was removed from the sensor face during cleaning, and reading was within the acceptable range after cleaning. Rejected the turbidity readings that were out of range or two or more order of magnitude higher that adjacent readings, but not those that were within the range typically observed at this site. The anomalous reading values are flagged as <1> [SPC] (CSM) and rejected values are flagged as <-3> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Fort Johnson

All Parameters Blanket Statement for Fort Johnson

The date time recorded in the raw data file was in Daylight Savings Time instead of Eastern Standard Time during the April 5th deployment (04/05/2022 – 08:00 to 04/12/2022 – 10:30). The date time was changed to the correct date and time in the edited datafile. The F_Record column of these rows are flagged as {CSM}.

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)
The data at 06/23/2022 – 10:45 during the June 13th deployment (06/13/2022 – 16:00 to 06/29/2022 – 13:00) were missing due to maintenance. The data were not telemetering correctly to CDMO as a result of the wrong placement of the SDI-12 parameters. The sonde was pulled from the tube (wrapped in wet, white towel) the deployment was stopped, placement of SDI-12 parameters corrected, and new deployment started. The sonde was re-deployed without being re-calibrated, so this was considered one deployment. The values are flagged as <-2> [GMC] (CSM).

No data was collected during the October 4th deployment (10/04/2022 – 12:45 to 11/02/2022 – 13:00) due to instrument malfunction. The values are flagged as <-2> [GIM] (CSM).

Suspect Data (Flag <1>)
The data collected during the June 29th deployment (06/29/2022 – 13:15 to 08/10/2022 – 15:00) were suspect due to being recovered from the Storm unit. The values are flagged as <1> [GIT] (CSM) unless missing or another error flag was applied.

Passed Initial QAQC Checks (Flag <0>)

Temperature

Rejected Data (Flag <-3>)
Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Specific Conductivity/Salinity

Rejected Data (Flag <-3>)
The data collected at 05/26/2022 – 08:00 during the May 12th deployment (05/12/2022 – 14:15 to 06/13/2022 – 15:30) was rejected due to conductivity sensor failure. The salinity decreased to 11.4 psu, more than 20 psu from previous and the following intervals. The drop occurred during early ebb and there was no rain reported. The value collected is outside the range typically observed at this site. The cause for the dip in salinity is unknown but thought to be attributed to a sensor malfunction. the value is flagged as <-3> [GSM] (CCU).

The data collected at 09/13/2022 – 05:00 during the September 6th deployment (09/06/2022 – 13:15 to 09/27/2022 – 13:00) was rejected due to conductivity sensor failure. The salinity decreased to 12.6 psu, more than 10 psu from previous and the following intervals. The drop occurred during early ebb and there was no rain reported. The value collected is outside the range typically observed at this site. The cause for the dip in salinity is unknown but thought to be attributed to a sensor malfunction. the value is flagged as <-3> [GSM] (CCU).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)
The data collected during the April 12th deployment (04/12/2022 – 10:45 to 05/12/2022 – 14:00) were suspect due to post-calibration out of range. The post-deployment check of 46.13 mS/cm for specific

conductivity is outside the accepted range of 47 - 53 mS/cm. The data were not rejected because the readings were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

The data collected during the June 13th deployment (06/13/2022 – 16:00 to 06/29/2022 – 13:00) were suspect due to post-calibration out of range. The post-deployment check of 45.56 mS/cm for specific conductivity is outside the accepted range of 47 - 53 mS/cm. The data were not rejected because the readings were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

DO Percent/mg/L

Rejected Data (Flag <-3>)

The DO mg/L data at 05/26/2022 – 08:00 during the May 12th deployment (05/12/2022 – 14:15 to 06/13/2022 – 15:30) was rejected due to conductivity sensor failure. The specific conductivity values used to calculate DO mg/L were rejected due to dip in salinity. The values collected are within the range typically observed at this site. The post-deployment checks were within the accepted range. The values are flagged as <-3> [SCF] (CSM).

The DO mg/L data at 09/13/2022 – 05:00 during the September 6th deployment (09/06/2022 – 13:15 to 09/27/2022 – 13:00) was rejected due to conductivity sensor failure. The specific conductivity values used to calculate DO mg/L were rejected due to dip in salinity. The values collected are within the range typically observed at this site. The post-deployment checks were within the accepted range. The values are flagged as <-3> [SCF] (CSM).

Missing Data (Flag <-2>)
Suspect Data (Flag <1>)
Passed Initial QAQC Checks (Flag <0>)

Depth

Rejected Data (Flag <-3>)

The data collected at 05/26/2022 – 08:00 during the May 12th deployment (05/12/2022 – 14:15 to 06/13/2022 – 15:30) was rejected due to conductivity sensor failure. The specific conductivity values used to calculate depth were rejected due to an unusual dip. The values collected are within the range typically observed at this site. The post-deployment checks were within the accepted range. The values are flagged as <-3> [SCF] (CSM).

The data collected at 09/13/2022 – 05:00 during the September 6th deployment (09/06/2022 – 13:15 to 09/27/2022 – 13:00) was rejected due to conductivity sensor failure. The specific conductivity values used to calculate depth were rejected due to an unusual dip. The values collected are within the range typically observed at this site. The post-deployment checks were within the accepted range. The values are flagged as <-3> [SCF] (CSM).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the April 5th deployment (04/05/2022 – 08:00 to 04/12/2022 – 10:30) were suspect due to no post-calibration depth value was recorded. The data were not rejected because the readings were within the range typically observed at this site and the next time this sonde was deployed had pre-calibration was 0.082 with an expected 0.061 m. The values are flagged as <1> [SDG] (CSM).

The data collected during the May 12th deployment (05/12/2022 – 14:15 to 06/13/2022 – 15:30) were suspect due to no post-calibration depth value was recorded. The data were not rejected because the readings

were within the range typically observed at this site and the next time this sonde was deployed had pre-calibration was 0.154 with an expected 0.125 m. The values are flagged as <1> [SDG] (CSM).

Passed Initial QAQC Checks (Flag <0>)

pH

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the May 12th deployment (05/12/2022 – 14:15 to 06/13/2022 – 15:30) were suspect due to sensor diagnostics out of range. The post-deployment diagnostic check of 141.3 is below the accepted threshold of 155. The post-deployment checks in the pH standards were within the acceptable range. The values collected were within the range typically observed at this site. The values are flagged as <1> [SDG] (CSM).

The data collected during the June 29th deployment (06/29/2022 – 13:15 to 08/10/2022 – 15:00) were suspect due to sensor diagnostics out of range. The post-deployment check of 144.3 is below the accepted threshold of 155. The post-deployment checks in the pH standards were within the acceptable range. The values collected were within the range typically observed at this site. The values are flagged as <1> [SDG] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Turbidity

Rejected Data (Flag <-3>)

The data collected during the following times were rejected due to a turbidity spike. Although the values were within the sensor specifications, there was a two or greater order of magnitude difference between the 15-minute intervals which is not typical for this site. The values are flagged as <-3> [STS] (CSM).

01/11/2022 – 15:30 (520)	01/14/2022 – 11:30 (657)	05/25/2022 – 08:00 (1688)
05/25/2022 – 19:30 (3623)	06/03/2022 – 13:30 (1053)	06/04/2022 – 13:15 (1517)
06/04/2022 – 16:45 (1093)	06/04/2022 – 22:30 (2355)	06/06/2022 – 08:45 (784)
06/06/2022 – 12:30 (2442)	06/06/2022 – 15:30 (2022)	06/06/2022 – 16:00 (1197)
06/06/2022 – 18:15 (1971)	06/11/2022 – 01:30 (952)	06/13/2022 – 08:30 (1633)
06/20/2022 – 17:15 (950)	06/22/2022 – 19:00 (1283)	06/28/2022 – 15:00 (1125)
07/23/2022 – 18:30 (812)	08/06/2022 – 07:45 (1826)	08/13/2022 – 15:30 (1419)
09/19/2022 – 23:30 (3991)	09/20/2022 – 02:00 (1089)	09/20/2022 – 05:45 (657)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the September 6th deployment (09/06/2022 – 13:15 to 09/27/2022 – 13:00) were suspect due to post calibration out of range. A turbidity post-deployment check of 0 FNU standard was 2.97 which is outside the accepted range. The data were not rejected because the values were within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Passed Initial QAQC Checks (Flag <0>)

Chlorophyll

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the April 5th deployment (04/05/2022 – 08:00 to 04/12/2022 – 10:30) were suspect due to no post-calibration value was recorded. The data were not rejected because the readings were within the range typically observed at this site and the next time this sonde was deployed had pre-calibration was 68.7 with an expected 69.6 ug/L. The values are flagged as <1> [SDG] (CSM).

Passed Initial QAQC Checks (Flag <0>)