

ACE Basin (ACE) National Estuarine Research Reserve Water Quality Metadata
January-December 2015 Report
Latest Update: 12/8/2016

I. Data Set and Research Descriptors

1) Principal investigator(s) and contact persons

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2) Entry verification

Deployment data are uploaded from the YSI data logger to a Personal Computer (IBM compatible). Files are exported from EcoWatch in a comma-delimited format (.CDF), EcoWatch Lite in a comma separated file (CSV) or KOR Software in an Excel File (.XLS) 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. After secondary QAQC results in ingestion into the database as provisional plus data, recalculation of cDepth or cLevel parameters, and for primary sites. For primary sites, a 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. Amanda Fornal, Meghan Miller, and Saundra Upchurch 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: 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, a monitoring station was established in Fishing Creek and in Mosquito Creek, tributaries of the South Edisto River. In 2014, two sites were established in the South Edisto River proper at Jehossee Island and Grove Plantation.

Four primary monitoring stations (Edisto Island [formerly Big Bay], Fishing Creek, Mosquito Creek and St. Pierre) 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 medium to dense. 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 at 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 from the polyhaline to the limnetic zone. The Jehossee Island station is located in the oligohaline zone, and the Grove Plantation is in the limnetic zone, approximately 0.1 nautical miles downstream of the legal saltwater demarcation line. See *Section 5 - Site Location and Character* for detailed descriptions of the sites.

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 above the creek bottom. Turbidity monitoring was added to the program on April 11, 1996. Initially the loggers measured the parameters at 15-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

One data logger is deployed at each monitoring station (Edisto Island, St. Pierre, Fishing Creek, Mosquito Creek, Grove Plantation and Jehossee Island). Both YSI 6600 series and EXO series sondes were used at ACE in 2015. The data logger is attached to a deployment mount at each station to ensure that the sensor is positioned approximately 0.5 m from the creek bottom during a deployment. At each monitoring station, 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.

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 and at Fishing Creek station on 02/20/2013 NEEDIS ID #3b04b1ce. (Where 3b02f20a and 3b04b1ce are the GOES ID for each particular station.). The transmissions 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>.

To minimize fouling (i.e. settlement of barnacles and sponges) of data loggers, new sensors are wrapped in nonconductive copper tape. A plastic mesh is wrapped around the sensor guard to keep out large animals (i.e.

crabs, fish). In addition, fouling organisms within the PVC deployment mounts are removed during sampling (bimonthly during April to September and monthly during October to March).

The YSI 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 – May). 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. The final reading of a deployment is a check against the newly deployed data logger to determine how much drift in the readings occurred during the previous deployment. Water depth and meteorological conditions (i.e. precipitation and wind speed and direction) also are recorded. The in-situ measurements are used to determine if the sensor readings drifted significantly during deployment and to evaluate anomalous oxygen readings (<28%).

When the data loggers are retrieved, they are taken to the laboratory for cleaning, post-deployment calibration checks and servicing, in accordance with guidelines set by YSI Operating and Service Manual. Upon returning to the laboratory, the data are downloaded, and the dataset is reviewed to determine if any equipment malfunctions occurred during deployment that need immediate attention. Post-deployment calibration checks of all the parameters except turbidity are done before cleaning the data loggers. Turbidity checks are performed after cleaning the data loggers to prevent contamination of the standard. Sensors are immersed in the appropriate standard solutions (i.e. pH) and readings are recorded. A DO membrane integrity test also is conducted to determine if the membrane was damaged during deployment.

A series of diagnostic values, including dissolved oxygen charge, dissolved oxygen gain, and pH millivolt value at pH 7 and at pH 10, are recorded during calibration and post-deployment calibration checks of data loggers. These diagnostic values are strong indicators of the individual sensor performance, and they are used to determine the accuracy of the data.

Before the data loggers are deployed dissolved oxygen (DO) membranes are changed and allowed to stretch for 24 hours, and the voltage of the batteries are checked. Next, the pH, conductivity, and turbidity sensors are calibrated, using the following standards: pH 7 and 10, 50 mS/cm potassium calibrated using an offset based on the barometric pressure in the laboratory that is recorded at the time of calibration. Before leaving the laboratory the following day, the DO sensor is calibrated in air-saturated water at the barometric pressure reading within the lab in mmHg. In addition to the procedures outlined in the CDMO manual, we conduct a DO membrane integrity test prior to deployment to determine if the membrane was installed properly or was damaged during calibration.

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 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, encompassing the area between Four Holes Swamp and St. Helena Sound. The river receives considerable input of freshwater (average annual streamflow is 74 m³/s. The official saltwater-freshwater demarcation line on the river lies at river mile 20; however during periods of very low flow, the saltwater interface can intrude to river mile 32, which is approximately 12 river miles from the inland boundary of the Reserve. Salt marshes of smooth cordgrass (*Spartina alterniflora*) dominate the wetlands in the polyhaline and mesohaline, while waterfowl impoundments are the dominant land cover in the oligohaline and limnetic waters.

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

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- GPS coordinates: 32.5040N and -80.3247W

On January 1, 2015, Edisto Island (EI) station replaced Big Bay station as a primary station. The Edisto station is approximately 1.27 km (0.68 nautical miles) upstream of the previous site (Big Bay) and is located at a dock on Edisto Beach State Park. This station also is designated as a "treatment" site because of its proximity to developed areas. In 2015, the mean depth at the station was 2.48 m (8.1 ft.), and the mean salinity was 29.30 parts per thousand (ppt).

The eastern bank of the 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*) and slash pine (*Pinus taeda*), and cabbage palmetto (*Sabal palmetto*). A marsh island with no high ground borders the western bank, and 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. Major sources of nonpoint source pollution are surface runoff from lawns, golf courses, and paved ramps that contain fertilizers, pesticides, herbicides and PAHs. Docks and bulkheads are constructed of concrete, or creosote, CCA-treated or Wolmanized material.

Fishing Creek – GPS coordinates: 32.6358 N and -80.3655W

This monitoring station is in a tributary of Fishing Creek, approximately 1.79 km (1.11 mi) 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 protected 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 2010, the mean depth at the station was 1.77 m (5.81 ft.), and in 2015 the mean salinity was 8.79 parts per thousand (ppt).

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 Wildlife Management Area 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 managed wetlands. Water level in the managed wetland is regulated by rice trunks that control the flow of water between the impoundment and the South Edisto River.

Mosquito Creek – GPS coordinates: 32.5558 N and -80.4380W

This monitoring station is in Mosquito Creek proper (a tributary of both the South Edisto and Ashepoo rivers), approximately 2.51 km (1.56 mi) from the Ashepoo River and 12 km (7.46 mi) from the South Edisto River, and it is about 5 m (16.41 ft.) from the southern bank of the creek. In 2010, the mean depth at the station was 3.71 m (12.17 ft.), and in 2015 the mean salinity was 14.15 parts per thousand (ppt).

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. Ten docks constructed of creosote, concrete and Wolmanized pilings; a public boat landing; a commercial seafood business with three commercial shrimp boats and a fueling area are located about 0.8 km (0.5 mi) downstream of the monitoring station. The major source 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 - GPS coordinates: 32.5233N and -80.3568W

This monitoring station is in a small tributary of St. Pierre Creek, approximately 0.25 km (0.16 mi) from the mouth of the creek, and it is about 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, live oaks, and palmettos dominate the upland areas. In 2010, the mean depth at the station was 2.00 m (8.69 ft.), and in 2015 the mean salinity was 27.35 parts per thousand (ppt).

The St. Pierre 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 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 number of residential lots on the remaining 292 acres is limited to 67. 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 – GPS coordinates: 32.6637N and -80.4130W

This monitoring station is in the South Edisto River proper. It is located at the Grove Plantation unit of the ACE Basin National Wildlife Refuge, which is owned and managed by the US Fish and Wildlife Services (USFWS). It is on a piling that is approximately 18 m (59 feet) from the eastern bank of the 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 ppt, but it will increase if rainfall is low. In 2014, the average depth at the station was 2.9 m (9.51 feet) and in 2014 the mean salinity was 1.1 parts per thousand (ppt).

Jehossee Island – GPS coordinates: 32.6209N and -80.3965W

This monitoring station is in the South Edisto River proper. It is located on a dock at the Jehossee Island unit of the ACE Basin National Wildlife Refuge, which is owned and managed by the US Fish and Wildlife Services (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 ppt, and it will increase if rainfall is low. In 2014, during a period of normal rainfall (January-May), salinity level was between 5 and 10 ppt; while a period of low rainfall (September-November) caused the salinity level to rise, reaching highs of 25 to 30 ppt during flood tides in the fall. In 2014, the average depth at the station was 4.0 m (13.12 feet) and in 2015 the mean salinity was 8.31 parts per thousand (ppt).

6) Data collection period

Edisto Island

BEGAN	ENDED	SONDE
12/03/2014 – 09:15	01/07/2015 – 12:30	EXO2
01/07/2015 – 12:45	02/23/2015 – 14:00	EXO2
02/23/2015 – 14:15	03/18/2015 – 09:15	EXO2
03/18/2015 – 09:30	04/08/2015 – 12:45	EXO2
04/08/2015 – 13:00	04/22/2015 – 09:30	EXO2
04/22/2015 – 09:45	05/06/2015 – 11:15	EXO2
05/06/2015 – 11:30	05/20/2015 – 10:00	EXO2
05/20/2015 – 10:15	06/08/2015 – 09:45	EXO2
06/08/2015 – 10:00	06/17/2015 – 10:45	EXO2
06/17/2015 – 11:00	07/01/2015 – 10:30	EXO2
07/01/2015 – 10:45	07/15/2015 – 10:30	EXO2
07/15/2015 – 10:45	07/29/2015 – 10:15	EXO2
07/29/2015 – 10:30	08/12/2015 – 09:45	EXO2
08/12/2015 – 10:00	08/26/2015 – 10:15	EXO2
08/26/2015 – 10:30	09/16/2015 – 12:45	EXO2
09/16/2015 – 13:00	09/30/2015 – 11:00	EXO2
09/30/2015 – 11:15	10/14/2015 – 11:45	EXO2
10/14/2015 – 12:00	11/12/2015 – 12:00	EXO2
11/12/2015 – 12:15	12/09/2015 – 11:15	EXO2
12/09/2015 – 11:30	01/13/2016 – 12:30	EXO2

Fishing Creek

BEGAN	ENDED	SONDE
12/09/2014 – 13:15	01/07/2015 – 13:45	6600 EDS/V2
01/07/2015 – 14:00	02/07/2015 – 23:15	6600 EDS/V2
02/23/2015 – 14:30	03/18/2015 – 09:45	6600 EDS/V2
03/18/2015 – 10:15	04/08/2015 – 14:30	6600 EDS/V2
04/08/2015 – 14:45	04/28/2015 – 09:30	6600 EDS/V2
04/28/2015 – 09:45	05/06/2015 – 13:00	6600 EDS/V2
05/06/2015 – 13:15	05/20/2015 – 11:15	6600 EDS/V2
05/20/2015 – 11:30	06/08/2015 – 11:00	6600 EDS/V2
06/08/2015 -- 11:15	06/17/2015 – 10:45	6600 EDS/V2
06/17/2015 – 11:00	07/15/2015 – 11:45	6600 EDS/V2
07/15/2015 – 12:00	08/04/2015 – 10:15	6600 EDS/V2
08/04/2015 – 10:30	08/12/2015 – 10:15	6600 EDS/V2
08/12/2015 – 10:30	08/23/2015 – 11:30	6600 EDS/V2
08/26/2015 – 11:45	09/16/2015 – 13:45	6600 EDS/V2
09/16/2015 – 14:15	09/30/2015 – 12:00	6600 EDS/V2
09/30/2015 – 12:15	10/14/2015 – 12:30	6600 EDS/V2
10/14/2015 – 12:45	11/12/2015 – 13:00	6600 EDS/V2
11/12/2015 – 13:15	12/14/2015 – 13:45	6600 EDS/V2
12/14/2015 – 14:00	01/13/2016 – 13:45	6600 EDS/V2

Mosquito Creek

BEGAN	ENDED	SONDE
12/03/2014 – 11:45	01/07/2015 – 15:00	6600 EDS/V2
01/07/2015 – 15:15	02/23/2015 – 16:15	6600 EDS/V2
02/23/2015 – 16:30	03/20/2015 – 09:15	6600 EDS/V2
03/20/2015 – 09:30	04/08/2015 – 14:45	EXO2

04/08/2015 – 15:15	04/28/2015 – 11:15	6600 EDS/V2
04/28/2015 – 11:30	05/06/2015 – 14:15	6600 EDS/V2
05/06/2015 – 14:30	05/20/2015 – 12:00	6600 EDS/V2
05/20/2015 – 12:15	06/08/2015 – 12:30	6600 EDS/V2
06/08/2015 – 12:45	06/17/2015 – 12:45	6600 EDS/V2
06/17/2015 – 13:00	07/01/2015 – 12:00	6600 EDS/V2
07/01/2015 – 12:15	07/15/2015 – 12:15	6600 EDS/V2
07/15/2015 – 12:30	07/29/2015 – 11:30	6600 EDS/V2
07/29/2015 – 11:45	08/12/2015 – 11:45	6600 EDS/V2
08/12/2015 – 12:15	08/26/2015 – 13:00	6600 EDS/V2
08/26/2015 – 13:15	09/16/2015 – 14:30	6600 EDS/V2
09/16/2015 – 14:45	09/30/2015 – 13:45	6600 EDS/V2
09/30/2015 – 14:00	10/14/2015 – 13:30	6600 EDS/V2
10/14/2015 – 13:45	11/12/2015 – 14:15	6600 EDS/V2
11/12/2015 – 14:30	12/09/2015 – 12:45	6600 EDS/V2
12/09/2015 – 13:00	01/13/2016 – 16:30	6600 EDS/V2

St. Pierre

BEGAN	ENDED	SONDE
01/07/2015 – 13:15	02/23/2015 – 13:30	6600 EDS/V2
02/23/2015 – 13:45	03/18/2015 – 09:00	6600 EDS/V2
03/18/2015 – 09:15	04/08/2015 – 13:45	6600 EDS/V2
04/08/2015 – 14:00	04/22/2015 – 10:00	6600 EDS/V2
04/22/2015 --10:15	05/06/2015 – 12:15	6600 EDS/V2
05/06/2015 – 12:30	05/20/2015 -- 10:30	6600 EDS/V2
05/20/2015 – 10:45	06/08/2015 – 10:15	6600 EDS/V2
06/08/2015 – 10:30	06/17/2015 – 10:15	6600 EDS/V2
06/17/2015 – 10:30	07/01/2015 – 10:45	6600 EDS/V2
07/01/2015 – 11:00	07/15/2015 – 11:00	6600 EDS/V2
07/15/2015 – 11:15	07/29/2015 – 10:45	6600 EDS/V2
07/29/2015 – 11:00	08/12/2015 – 09:30	6600 EDS/V2
08/12/2015 – 09:45	08/26/2015 – 10:45	6600 EDS/V2
08/26/2015 – 11:00	09/16/2015 – 13:15	6600 EDS/V2
09/16/2015 – 13:30	09/30/2015 – 11:15	6600 EDS/V2
09/30/2015 – 11:45	10/14/2015 – 12:00	6600 EDS/V2
10/14/2015 – 12:15	11/12/2015 – 12:15	6600 EDS/V2
11/12/2015 – 12:30	12/14/2015 – 13:00	6600 EDS/V2
12/14/2015 – 13:15	01/13/2016 – 13:00	6600 EDS/V2

Jehossee Island

BEGAN	ENDED	SONDE
01/01/2015 – 00:00	01/07/2015 – 14:00	6600 EDS/V2
01/07/2015 – 14:15	02/23/2015 – 14:30	EXO2
02/23/2015 – 15:00	03/18/2015 – 10:15	6600 EDS/V2
03/18/2015 – 10:30	04/08/2015 – 14:45	6600 EDS/V2

04/08/2015 – 15:00	04/28/2015 – 09:45	6600 EDS/V2
04/28/2015 – 10:00	05/06/2015 – 13:15	6600 EDS/V2
05/06/2015 – 13:30	05/20/2015 – 11:30	6600 EDS/V2
05/20/2015 – 11:45	06/08/2015 – 11:15	6600 EDS/V2
06/08/2015 -- 11:30	06/17/2015 – 11:00	6600 EDS/V2
06/17/2015 – 11:15	07/15/2015 – 12:15	6600 EDS/V2
07/15/2015 – 12:30	08/04/2015 – 11:30	6600 EDS/V2
08/04/2015 – 11:45	08/12/2015 – 10:30	6600 EDS/V2
08/12/2015 – 10:45	08/26/2015 – 11:45	6600 EDS/V2
08/26/2015 – 12:00	09/16/2015 – 14:15	6600 EDS/V2
09/16/2015 – 14:30	09/30/2015 – 12:30	6600 EDS/V2
09/30/2015 – 12:45	10/14/2015 – 13:00	6600 EDS/V2
10/14/2015 – 13:15	11/12/2015 – 13:15	6600 EDS/V2
11/12/2015 – 13:30	12/14/2015 – 14:00	6600 EDS/V2
12/14/2015 - 14:15	01/13/2016 – 14:00	6600 EDS/V2

Grove Plantation

BEGAN	ENDED	SONDE
01/01/2015 – 00:00	01/07/2015 – 14:30	6600 EDS/V2
01/07/2015 – 14:45	02/23/2015 – 15:00	6600 EDS/V2
02/23/2015 – 15:15	03/18/2015 – 10:30	6600 EDS/V2
03/18/2015 – 10:45	04/08/2015 – 15:15	6600 EDS/V2
04/08/2015 – 15:30	04/28/2015 – 10:15	6600 EDS/V2
04/28/2015 – 10:30	05/06/2015 – 13:30	EXO2
05/06/2015 – 13:45	06/08/2015 – 11:45	6600 EDS/V2
06/08/2015 – 12:00	06/17/2015 – 11:30	EXO2
06/17/2015 – 11:45	07/15/2015 – 12:15	6600 EDS/V2
07/15/2015 – 12:45	08/04/2015 – 11:00	EXO2
08/04/2015 – 11:15	08/12/2015 – 11:00	6600 EDS/V2
08/12/2015 – 11:15	08/26/2015 – 12:00	6600 EDS/V2
08/26/2015 – 12:15	09/16/2015 – 14:30	6600 EDS/V2
09/16/2015 – 14:45	09/30/2015 – 12:45	6600 EDS/V2
09/30/2015 – 13:00	10/14/2015 – 13:15	6600 EDS/V2
10/14/2015 – 13:30	11/12/2015 – 13:30	6600 EDS/V2
11/12/2015 – 13:45	12/14/2015 – 14:30	6600 EDS/V2
12/14/2015 – 14:45	01/13/2016 – 14:30	6600 EDS/V2

7) Distribution

NOAA/ERD retains the right to analyze, synthesize and publish summaries of the NERRS System-wide Monitoring Program data. The PI retains the right to be fully credited for having collected and processed the data. Following academic courtesy standards, the PI and NERR site where the data were collected will be contacted and fully acknowledged in any subsequent publications in which any part of the data are used. Manuscripts resulting from this NOAA/OCRM supported research that are produced for publication in open literature, including refereed scientific journals, will acknowledge that the research was conducted under an award from the Estuarine Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration. 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.

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. 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 2012.

8) Associated researchers and projects

Dr. Charles Wenner of SCDNR/Marine Resources Research Institute received funding through the National Marine Fisheries Service in January of 2001 to continue an ongoing survey of red drum (*Sciaenops ocellatus*) in the South Edisto and Combahee River basins, by electrofishing in tidal freshwater and low salinity brackish water. Although red drum is the target species, all species are identified, measured and weighed.

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. 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 Research Coordinator.

II. Physical Structure Descriptors

9) Sensor specifications

ACE NERR deployed mainly 6600 EDS/V2 data sondes and EXO2 data sondes in 2015. All 6600 and EXO2 data sondes are configured the same, with respect to the type of sonde. Rapid-pulse DO sensors were deployed with each 6600 sonde at Fishing Creek, Mosquito Creek, St. Pierre, Jehossee Island and Grove Plantation sites. 6600 sondes were deployed at SP and FC sites for all 2015 deployments. 6600 sondes were deployed at MC, JI and GP with the exception of EXO2 sondes deployed at MC site during the April 8 deployment, at JI site during the January 1 deployment and at GP site during the following deployments; April 28, June 8 and July 15. EXO2 sondes were deployed at EI site for all 2015 deployments.

YSI 6600EDS/V2 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 auto ranging
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, polarographic
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, polarographic
Model#: 6562
Range: 0 to 50 mg/L
Accuracy: 0 to 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: Depth (non-vented level – medium)
Units: meters (m)
Sensor Type: 6600 integrated stainless steel strain gauge
Model#: 6600 EDS/V2
Range: 0 to 61 m
Accuracy: +/- 0.12 m
Resolution: 0.001 m

Parameter: pH – bulb probe
Units: pH units
Sensor Type: Glass combination electrode
Model#: 6561
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 EXO2 Sonde:

Parameter: Temperature

Units: Celsius (°C)

Sensor Type: Thermistor

Model#: 599870-01

Range: -5 to 50 °C

Accuracy: -5 to 35 °C: +/- 0.01 °C, 35 to 50 °C: +/- .005 °C

Resolution: 0.01 °C

Parameter: Conductivity

Units: milli-Siemens per cm (mS/cm)

Sensor Type: 4-electrode nickel cell with auto ranging

Model#: 599870-01

Range: 0 to 200 mS/cm

Accuracy: 0 to 100 mS/cm: +/- 0.5% of reading or 0.001 mS/cm, whichever is greater

100 to 200 mS/cm: +/- 1% of reading

Resolution: 0.001 mS/cm to 0.1 mS/cm (range dependent)

Parameter: Salinity

Units: practical salinity units (psu)/parts per thousand (ppt)

Sensor Type: Calculated from conductivity and temperature

Range: 0 to 70 psu

Accuracy: +/- 1.0% of reading pr 0.1 ppt, whichever is greater

Resolution: 0.01 psu

Parameter: Dissolved Oxygen % saturation

Sensor Type: Optical, luminescence lifetime w/ mechanical cleaning

Model#: 599100-01; 599110 sensor cap

Range: 0 to 500% air saturation

Accuracy: 0 to 200% air saturation: +/- 1% of the reading or 1% air saturation, whichever is greater; 200 to 500% air saturation: +/- 5% 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: Optical, luminescence lifetime w/ mechanical cleaning

Model#: 599100-01; 599110 sensor cap

Range: 0 to 50 mg/L

Accuracy: 0 to 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: Depth (non-vented level – medium)
Units: meters (m)
Sensor Type: EXO2 integrated stainless steel strain gauge
Model#: 59950x-02 (EXO2 – medium)
Range: 0 to 100 m
Accuracy: +/- 0.04% FS (+/- 0.04 m)
Resolution: 0.001 m

Parameter: pH (unguarded)
Units: pH units
Sensor Type: Glass combination electrode
Model#: 599702 (wiped); 599795-02 module
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: nephelometric turbidity units (NTU), converted from 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

Dissolved Oxygen Qualifier (Rapid Pulse / Clark type sensor):

The reliability of dissolved oxygen (DO) data collected with the rapid pulse / Clark type sensor after 96 hours post-deployment for non-EDS (Extended Deployment System) data sondes may be problematic due to fouling which forms on the DO probe membrane during some deployments (Wenner et al. 2001). Some Reserves utilize the YSI 6600 EDS data sondes, which increase DO accuracy and longevity by reducing the environmental effects of fouling. Optical DO probes have further improved data reliability. The user is therefore advised to consult the metadata for sensor type information and to exercise caution when utilizing rapid pulse / Clark type sensor DO data beyond the initial 96-hour time period. Potential drift is not always problematic for some uses of the data, i.e. periodicity analysis. It should also be noted that the amount of fouling is very site specific and that not all data are affected. If there are concerns about fouling impacts on DO data beyond any information documented in the metadata and/or QAQC flags/codes, please contact the Research Coordinator at the specific NERR site regarding site and seasonal variation in fouling of the DO sensor.

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 1.03 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, EXO2 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 EXO2 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, EXO2 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 EXO2 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:
St. Pierre

Sampling site code:
SP

Station Code:
acespwq

Edisto Island	EI	aceeiwq
Fishing Creek	FC	acefcwq
Mosquito Creek	MC	acemcwq
Jehossee Island	JI	acejiwq
Grove Plantation	GP	acegpwq

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	<i>Open - reserved for later flag</i>
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
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

Probe Identification:

Turbidity 6136/599101-01 Probe

pH 6561/599702; 599795-02 Probe

Standards for Calibration:

YSI 6073G Turbidity Standard
126 NTU

VWR Analytical (BDH)
buffer, reference standard 7.0 and 10.0

Edisto Island

Deployment Date (m/d/y)	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	pH (7)	pH (10)	Turb (NTU)	Turb (NTU)	Depth (m)
01/07/2015	51.45	99.3	99.3	7.18	10.28	-0.1	125.1	-0.019
02/23/2015	49.39	99.7	99.7	7.16	10.02	1.4	121.2	0.035
03/18/2015	48.78	100.3	100.3	7.05	10.02	-0.1	120.2	0.08
04/08/2015	49.85	101.2	101.2	7.01	9.98	-0.1	121.4	0.006
04/22/2015	48.69	101.1	101.1	6.69	9.85	0.2	120.1	0.04
05/06/2015	48.21	101.6	101.6	6.89	10	-0.16	109.5	0.088
05/20/2015	52.00	96.7	96.7	6.63	9.78	0.7	108.4	0.049
06/08/2015	57.46	99.1	99.1	6.97	10.02	0.16	113.4	0.067
06/17/2015	52.70	99.9	99.9	6.89	9.87	1.5	120.4	0.036
07/01/2015	54.00	98.5	98.5	7.04	7.08	-0.17	120.9	0.01
07/15/2015	47.46	98.8	98.8	6.75	9.78	1.13	113.9	0.015
07/29/2015	51.28	100.6	100.6	7.31	10.19	-9.42	128.7	0.052
08/12/2015	48.86	99.8	99.8	7.42	10.3	0.4	138.0	0.041
08/26/2015	46.41	98.6	98.6	7.02	10.04	-0.02	125.2	0.043
09/16/2015	51.86	98.1	98.1	6.96	9.92	0.3	124.9	0.082
09/30/2015	51.36	98.4	98.4	6.98	10.01	0.98	124.5	0.085
10/14/2015	47.29	93.9	93.9	7.06	10.03	-0.98	119.2	0.111
11/12/2015	48.10	98.8	98.8	6.94	10.15	0.5	120.6	0.03
12/09/2015	53.04	99.6	99.6	12.43	15.65	-0.8	120.8	0.102

Fishing Creek

Deployment Date (m/d/y)	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	pH (7)	pH (10)	Turb (NTU)	Turb (NTU)	Depth (m)
01/07/2015	50.67	101.5	101.4	7.33	10.37	0.1	124.9	0.012
02/23/2015	49.6	101.7	101.6	7.17	10.11	0.6	122.8	0.029
03/18/2015	48.48	101.7	101.7	7.4	10.42	0.5	120.7	0.053
04/08/2015	49.41	99.7	99.7	7.15	10.1	0.3	120.2	-0.037
04/28/2015	48.91	99.7	99.7	7	10.01	0.1	122	0.015
05/06/2015	47.73	98.4	98.4	7.02	10.18	0.1	122.5	-0.016
05/20/2015	52.61	101.2	101.2	7.04	9.76	-0.1	114.1	0.026
06/08/2015	47.81	98.2	98.2	7.08	10.19	1	112.5	0.122
06/17/2015	50.37	108.3	108.5	7.47	9.7	0.06	115.7	0.016
07/01/2015	No Deployment							
07/15/2015	47.69	108	108.9	7.09	10.09	0.8	121.8	0.045
08/04/2015	50.73	102.8	102.8	7.18	10.03	0.8	120.9	0.093
08/12/2015	48.32	135.8	136.3	7.11	9.98	0.1	126.1	0.04
08/26/2015	47.95	96.5	96.4	6.9	9.96	-0.1	128.1	0.049
09/16/2015	52.57	112.5	112.7	7.05	9.97	0.1	126	-0.054
09/30/2015	50.97	98.3	98.2	7.1	10.03	0.4	125.1	0.08
10/14/2015	47.04	148.4	151.4	7.04	9.9	-0.1	124.3	0.11
11/12/2015	48.3	92.8	92.8	6.94	10.12	-0.1	125.3	-0.01
12/14/2015	53.97	92.6	92	6.92	10.09	-0.2	133.7	0.123

Mosquito Creek

Deployment Date (m/d/y)	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	pH (7)	pH (10)	Turb (NTU)	Turb (NTU)	Depth (m)
1/7/2015	-29.6	106.5	106.5	7.68	10.32	6.2	193.8	0.066
2/23/2015	49.4	109.2	109.3	7.15	10.1	0.6	122.2	0.034

3/20/2015	49.52	101	101.1	7.04	10	0.7	117.7	0.085
4/8/2015	49.42	109.6	109.6	7.1	10.06	-72	-62.2	-0.022
4/28/2015	49.02	101.3	101.2	7.99	10.35	0.1	122.4	0.047
5/6/2015	48.15	104.8	104.8	7.05	10.19	-0.2	114.6	-0.026
5/20/2015	52.53	86.9	86.3	7.68	10.07	-0.3	114.4	0.033
6/8/2015	48.38	92.4	92.4	7.07	10.08	0.6	111.7	0.067
6/17/2015	51.9	98.6	98.6	7.03	10.91	0	116.6	0.049
7/1/2015	49.65	91.3	91	7.02	9.98	0.3	119.4	0.009
7/15/2015	48.82	90.5	89.9	7.09	10.08	-0.4	122.3	0.015
7/29/2015	50.64	86.5	86.3	7.13	10	0.5	120.7	0.089
8/12/2015	49.23	97.4	97.3	7.08	9.98	0	126.3	0.032
8/26/2015	47.7	91.3	91.3	6.97	10.05	0	128.8	0.044
9/16/2015	51.71	90.8	90.7	7.11	10.02	0	127.2	-0.181
9/30/2015	51.93	99.2	99	7.05	9.98	0.7	124.2	0.081
10/14/2015	48.12	70.1	69.7	7.09	10.01	-0.4	124.8	0.118
11/12/2015	49.37	98.6	98.4	6.99	10.19	331	316.4	0.055
12/9/2015	52.78	84.4	84.1	7	10.2	0.1	127.8	0.099

St. Pierre

Deployment Date (m/d/y)	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	pH (7)	pH (10)	Turb (NTU)	Turb (NTU)	Depth (m)
1/7/2015	50.66	79.7	78.9	7.24	10.24	0	126.3	-0.117
2/23/2015	50.15	55.2	54.9	7.01	10	-1.7	123.7	0.042
3/18/2015	48.02	88.7	88.5	7.11	10.06	0.3	122.1	0.084
4/8/2015	49.04	93.6	93.1	7.1	10.13	-0.1	120	0.007
4/22/2015	49.19	97.1	97.1	7.08	10.21	-0.3	124.2	0.038
5/6/2015	48.53	58.9	58.7	7.08	10.1	-0.1	111.5	0.028
5/20/2015	51.63	100.2	99.9	7	10.06	0.3	111.5	0.051
6/8/2015	47.08	76.9	76.5	7.01	10.14	1.2	110.4	0.06
6/17/2015	50.72	103.4	103.2	7.04	10.01	0.6	116.4	0.048
7/1/2015	49.08	89.5	89.1	7.14	10.08	0.5	116.3	0.013
7/15/2015	52.4	96.3	96.3	7.25	10.44	-0.3	135.2	-0.004
7/29/2015	50.71	76.1	75.6	7.03	9.92	0.8	120.6	0.092
8/12/2015	49.84	104.4	104.4	7.3	10.18	-0.4	130	0.029
8/26/2015	48.52	59.7	59.2	7.03	10.09	0	127.4	0.059
9/16/2015	50.46	95.9	95.9	7.01	9.93	-0.1	127	-0.05
9/30/2015	51.46	94	93.6	7.2	8.91	0.2	124.6	0.075
10/14/2015	47.94	80.3	80.2	7.11	10.03	0	126.2	0.052
11/12/2015	48.1	66.8	65.6	7.05	10.17	0	125.3	-0.028
12/14/2015	53.93	36.9	36.4	4.46	6.7	-0.1	131.7	0.101

Grove Plantation

Deployment Date (m/d/y)	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	pH (7)	pH (10)	Turb (NTU)	Turb (NTU)	Depth (m)
1/7/2015	49.94	92.9	92.8	7.06	10.17	9999.9	-999.9	-0.069
2/23/2015	50.01	105.9	105.8	7.05	9.99	0.8	122.3	0.035

3/18/2015	47.95	110.4	110.4	7.09	9.59	0.1	122.3	0.082
4/8/2015	49.43	104.5	104.6	6.86	9.96	0.3	119.7	-0.028
4/28/2015	49.14	100.6	100.6	6.92	10.03	0.3	120.2	0.02
5/6/2015	50.47	105.5	105.4	6.94	10.18	-0.6	120.3	0.049
5/20/2015	No Deployment							
6/8/2015	48.63	103.1	103.1	6.98	9.89	0.2	115	-0.101
6/17/2015	50.97	98.2	98.1	7.07	10.05	-0.1	104.3	0.013
7/1/2015	No Deployment							
7/15/2015	46.83	100.8	100.8	7.09	10.13	0.1	118.6	0.32
8/4/2015	53.08	95.6	95.5	6.94	9.84	0.2	123.6	0.089
8/12/2015	49.31	100.1	100.1	7.11	10.01	1	117.9	0.148
8/26/2015	47.52	103.1	103.1	7.04	10.14	7.1	127	0.044
9/16/2015	53.35	67.6	67.6	7.19	10.12	-0.4	129.8	-0.049
9/30/2015	52.08	84.1	81.7	7.04	9.99	1.3	125.7	0.08
10/14/2015	48.18	97.4	97.4	7.19	10.1	-0.4	127.7	0.045
11/12/2015	48.3	107.2	107.2	6.98	10.14	-0.7	126.5	-0.01
12/14/2015	52.94	111	111	7	10.22	0.1	127.5	0.091

Jehossee Island

Deployment Date (m/d/y)	SpCond (ms/cm)	DO 1 (100% sat)	DO 2 (100% sat)	pH (7)	pH (10)	Turb (NTU)	Turb (NTU)	Depth (m)
1/7/2015	50.68	100.6	100.6	7.16	10.23	-0.2	126.1	-0.061
2/23/2015	49.88	101.1	101.2	7.08	10.03	0.5	122.3	0.031
3/18/2015	48.27	102.7	102.8	7.19	9.47	0.2	123	0.076
4/8/2015	49.22	99.2	99.1	7.08	10.04	0.4	119.4	-0.048
4/28/2015	49.05	102.6	102.6	7.75	9.97	-0.2	124	0.03
5/6/2015	48.38	97.6	97.5	7.05	10.2	-0.1	122.6	0.063
5/20/2015	52.22	112.4	112.3	7.42	10.22	0.1	112.3	0.052
6/8/2015	47.84	99.5	99.4	6.91	9.9	1	100	0.059
6/17/2015	51.49	84.1	82.9	7.3	10.52	0.6	115.4	0.02
7/1/2015	No Deployment							
7/15/2015	47.84	101	101	7.01	10.04	0.6	121.6	0.048
8/4/2015	52.72	97.4	97.2	6.93	9.82	0.1	126.2	0.091
8/12/2015	49.57	100.6	100.6	7.09	9.98	0	128.2	0.015
8/26/2015	47.98	83.4	82.6	6.93	10.01	0	127.8	0.052
9/16/2015	51.99	97.9	97.9	7.13	10.05	0.1	126.8	-0.049
9/30/2015	52.21	102.8	102.8	7.33	10.25	0.6	125.5	0.08
10/14/2015	47.88	95.7	95.3	7.14	10.07	-0.3	127.1	0.043
11/12/2015	47.39	98.3	98.3	7.13	9.17	-0.2	126.3	-0.002
12/14/2015	53.93	107.9	107.8	6.96	10.15	0.1	129	0.095

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

Edisto Island:

2014 - Edisto Island water quality station was installed in **May** - Fasteners used to attach tube to the dock.

2015 – Edisto Island officially went online on **January 1**. (Coordinates: 32.5040N and -80.3247W)

2015 - Edisto Island PVC tube was bolted to the dock on **January 13** - no change in vertical position of tube and no change in the readings because sonde was out of the tube between sampling intervals.

Fishing Creek:

2002 - Fishing Creek site installed in **October**. (Coordinates: 32.6358 N 80.3655W)

2009 - Fishing Creek site PVC tube replaced in **May** (about 0.2 meters deeper).

2009 - Fishing Creek site destroyed in **October**.

2010 - Fishing Creek sign post 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.

2013 - Fishing Creek site PVC tube replaced on **August 19** - Fasteners used to attach tube to the piling.

2015- Sutron Sat-Link2 telemetry equipment removed on **August 31**

2016 - Fishing Creek site PVC tube was bolted to the piling on **February 17**.

Mosquito Creek:

2002 - Mosquito Creek site installed in **October**. (Coordinates: 32.5558 N 80.4380W)

2007 - Mosquito Creek mount installed 0.5 meters away from old mount in **August**. This a deeper location.

2008 - Mosquito Creek site mount attached to original mount after new mount broke in **October** (about 0.2 meters shallower).

2008 - Mosquito Creek site mount was destroyed and repaired in **December** (about 0.2 meters shallower).

2009 - Mosquito Creek 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 - 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.

2013 - Mosquito Creek site PVC tube replaced on **August 20** - Fasteners used to attach tube to the bridge.

2016 - Top bandit on Mosquito Creek site was replaced on **February 17**. Need to build a more secure mounting structure - diagram for new mount under review.

St. Pierre:

1995 - St. Pierre water quality station was installed in **October**. (Coordinates: 32 31.724N 81 21.573W)

1997 - St. Pierre site moved away from bank in **February, March, and other times** due to sedimentation issues and biofouling readings.

2000 - St Pierre site moved to other side of channel and station modified in **April** (coordinates changed: 32 31 40.59518N 80 21 41.2548W).

2001 - St. Pierre station replaced in **September**.

2006 - St. Pierre station PVC replaced in **April**.

2006 - St Pierre sign post mount was replaced in **May** - with a 40-ft, 8-in diameter treated pressure piling.

2006 - Sutron Sat-Link2 transmitter installed in **June** at St. Pierre to transmit real-time data.

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.

2013 - St. Pierre site PVC tube replaced on **August 20** - Fasteners used to attach tube to the piling.

2014 - St. Pierre telemetry cable was replaced on **June 26**.

2015 - St. Pierre PVC tube shifted down about 6 - 13 inches - noted on **November 12** by field crew, happened because the fastener ("bandit") holding PVC to piling was loose.

2016 - The loose fastener ("bandit") was replaced on **January 11**.

2016 - St. Pierre PVC tube was bolted to the piling on **February 17**.

Grove Plantation:

2013 - Grove Plantation 40-ft, 8-in diameter treated pressure piling was installed on **November 8** by contractor.

2014 - Grove Plantation PVC tube was installed on **August 19** - Fasteners used to attach tube to the piling.

2014 - Grove Plantation YSI sonde was deployed on **December 12**. (Coordinates: 32.6637N and -80.4130W).

2015 - Grove Plantation officially went online on **January 1**.

2016 - Grove Plantation PVC tube was bolted to the piling on **February 18**

Jehossee Island:

2013 - Jehossee Island water quality station was installed on **August 19** - Fasteners used to attach tube to the dock.

2015 – Jehossee Island officially went online on **January 1** (Coordinates: 32.6209N and -80.3965W).

2015 – Jehossee Island PVC cap came loose and rope became entangled around dock during November deployment. Rope was fixed on **December 22**.

2016 - Jehossee Island PVC tube was bolted to the dock on **February 17**.

Big Bay:

2014 - Big Bay site officially went offline on **December 31**.

Rock Creek:

1996 - Rock Creek water quality station went offline in **July**.

Blanket Statements: All Stations

Effect of Freshwater Input on Water Quality

Water quality at the SWMP sites are 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) and salinity increases when the river level falls below 5 feet. The same negative correlation is observed between streamflow and salinity, regardless of the river stage - decreases in salinity when streamflow is above 15,000 ft³/sec and increases when streamflow is below 5,000 ft³/sec.

The higher than normal salinities at sites during the mid-May to October were attributed to mean river levels below 5 feet and mean discharge rates below 5,000 ft³/sec. The lower than normal salinity levels observed at the sites during the October 14 and November 12 deployments at all sites were attributed to mean river levels above 10 feet and mean discharge rates above 15,000 ft³/sec. The values are flagged as <0> (CRE).

Sonde Exchange In-Situ Readings

For the entire year there were no in-situ readings recorded. Instead the reserve used the first and last reading of each deployment as the field data check. Therefore the deployment information under the “NERRS SWMP Water Quality Field Log” section of the CDMO log is not true in-situ readings.

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] (CSM). For YSI EXO series sondes, turbidity values between 300 and 4000 NTU (FNU) are coded <1> [STS] (CSM). 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 NTU (FNU) for YSI EXO series are rejected and are coded <-3> [STS] (CSM). 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

Edisto Island

All Parameters Blanket Statement for Edisto Island

Time Change

For the following deployments, the time was recorded in UTC time, not the required EST time. The UTC time entries in the CSV were converted to Eastern Standard Time (EST) by subtracting five hours from every time entry. The corrected files were uploaded to the CDMO on 09/02/2015. The corrected times are flagged as {CSM}. However, the times in the BIN files stored at the ACE Basin Reserve were not corrected.

01/07/2015, 02/23/2015, 03/18/2015, 04/08/2015, 04/22/2015, 05/06/2015, 05/20/2015, 06/08/2015, 06/17/2015, 07/01/2015, 07/15/2015, 07/29/2015, and 08/12/2015

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Temperature

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Reading collected on 07/25/2015 at 12:30 was suspect due to QAQC checks. The value was 3 degrees lower than the previous and following readings, and the cause of the low reading is unknown at this time. The data were not rejected because all post-calibration checks were acceptable, and this could have just been a “hiccup” in the sensor. The value is flagged as <1> [SQR] (CCU).

Specific Conductivity/Salinity

The data collected during the following time periods were not suspect. The elevated salinity levels were attributed to low river level and streamflow rate on the South Edisto River due to drought conditions (see blanket statement). The values are flagged as <0> [GSM] (CDF).

05/06/2015 at 11:30 to 05/20/2015 at 10:00

06/17/2015 at 11:00 to 09/30/2015 at 23:45

The data collected during the following time periods were not suspect. The post-deployment check and sensor diagnostics were within acceptable range. The decrease in salinity were attributed to the high streamflow in the South Edisto River caused by the record rains during early October (see blanket statement). The values are flagged as <0> [GSM] (CDF).

10/08/2015 at 23:30 to 10/17/2015 at 19:15

11/11/2015 at 21:45 to 11/17/2015 at 08:30

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Data collected during the May 20 deployment (05/20/2015 at 10:15 to 06/08/2015 at 09:45) were suspect due to sensor diagnostics. The cell constant value was outside the acceptable range, but the post-deployment check was

EI cont.

acceptable. The readings were below the range expected at this site, and the cause of the anomalous readings is unknown at this time. The values are flagged as <1> [SDG] (CCU).

Data collected during the June 8 deployment (06/08/2015 at 10:00 to 06/17/2015 at 10:45) were suspect due to post calibration out of range. The post calibration check was higher than normally observed, but the cell constant value was within acceptable range. The readings were above the range expected at this site, and the cause of the anomalous readings is unknown at this time. The values are flagged as <-3> [SSM] (CSM).

Reading collected on 07/25/2015 at 12:30 was suspect because the temperature reading was suspect. The value is flagged as <1> [SQR] (CCU).

DO Percent/mg/L

The high DO during the January 7 (1/07/2015 at 12:45 to 02/23/2015 at 14:00) and February 23 (2/23/2015 at 14:15 to 03/18/2015 at 09:15) deployments were not suspect. The high readings were attributed to the low temperatures during these deployments. The values are flagged as <0> (CSM).

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Depth

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected from 09/16/2015 at 13:00 to 12/31/2015 at 23:45 were suspect because the depth readings were lower than previous readings. Lower depth readings also were recorded at all of the primary sites during the last three to six months of the year, indicating that the problem was not related to the deployment mounts. The values are flagged as <1> [GSM] (CCU).

pH

The data collected during the February 23 deployment (02/23/2015 at 14:15 to 03/18/2015 at 09:15) were not suspect. The post-deployment calibration checks and sensor diagnostics were within acceptable range. The high readings were attributed to the low temperatures during these deployments. The values are flagged as <0> (CCU).

Rejected Data (Flag <-3>)

The pH data collected during the deployment that started on December 3, 2014 (12/03/2014 at 09:15 to 01/07/2015 at 12:30) were rejected due to sensor malfunction. The pH slope, pH 7 voltage, and post-deployment checks were well outside the acceptable range. The readings were above pH 15, indicating a catastrophic pH sensor failure, and the sensor was retired after the deployment. The values are flagged as <-3> [SSM].

The data collected during the July 1 deployment (07/01/2015 at 10:45 to 07/15/2015 at 10:30) were rejected due to sensor diagnostics. The post-deployment pH slope was 2.3, and the readings were well below the range typically observed at the site. Sensor was retired after the deployment. The values are flagged as <-3> [SDG].

The data collected from 07/29/2015 at 10:30 to 08/08/2015 at 00:30 were rejected due to QAQC checks. The post-deployment check for 10 was within range but the post-deployment check for 7 was reading 7.31. The pH slope was within the acceptable range, but the higher than normal readings

EI cont.

indicated that sensor was not working properly. The cause of the high readings is unknown at this time. The values are flagged as <-3> [SPC] (CSM).

The data collected from 12/09/2015 at 11:30 to 12/31/2015 at 23:45 were rejected due to sensor diagnostics. The pH voltage and post-deployment checks were well outside the acceptable range. The readings started rising after 07:30 on December 12, and continued rising until the end of the deployment; thus, indicating that the sensor was not working properly during this time period. The values are flagged as <-3> [SPC].

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the March 18 deployment (03/18/2015 at 09:30 to 04/08/2015 at 12:45) were suspect due to sensor diagnostics. The post-deployment pH slope was outside the acceptable range, but the checks were acceptable. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

Turbidity

Rejected Data (Flag <-3>)

Turbidity data collected during the following time periods were rejected due to QAQC checks. Although the post-calibration checks were within accepted range, the upward drift in the values indicated biofouling. The values are flagged as <-3> [SQR] (CBF).

01/01/2015 at 00:00 to 01/07/2015 at 12:30

11/27/2015 at 09:45 to 12/09/2015 at 11:15

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Fishing Creek

All Parameters Blanket Statement for Fishing Creek

Suspect Data (Flag <1>)

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Data were not collected from 02/07/2015 at 23:30 to 02/23/2015 at 14:15 due to battery failure. The values are flagged as <-2> [GPF].

Data are missing on 09/16/2015 at 14:00 because sonde was out of water. The sonde tube was being cleaned at the time. The value is flagged at <-2> (CMC).

Temperature

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

FC cont.

Specific Conductivity/Salinity

The data collected from 05/06/2015 at 13:15 to 09/30/2015 at 23:45 were not suspect. The elevated salinity levels were attributed to low river level and streamflow rate on the South Edisto River due to drought conditions (see blanket statement). The values are flagged at <0> (CRE).

The data collected from the following time periods were not suspect. The post-deployment check and sensor diagnostics were acceptable range. The decrease in salinity were attributed to the high streamflow in the South Edisto River caused by the week-long rain events (see blanket statement). The values are flagged as <0> (CRE).

10/03/2015 at 04:00 to 10/19/2015 at 13:00

11/09/2015 at 11:30 to 11/16/2015 at 11:30

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the December 14 deployment (12/14/2015 at 14:00 to 01/13/2016 at 13:45) were suspect due to sensor diagnostics. The cell constant was outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

DO Percent/mg/L

Rejected Data (Flag <-3>)

Dissolved oxygen data collected during the deployment that started on December 9, 2014 (12/09/2014 at 13:15 to 01/07/2015 at 13:45) were rejected due to sensor diagnostics. The post-calibration check and the sensor diagnostics were outside acceptable range, the readings were also well below the range typically observed this time of year at this site. The values are flagged as <-3> [SPC].

Data collected during the following deployments were rejected due to instrument malfunction. The post-deployment checks were well outside the acceptable range, and the pre-calibration check during the September 16 deployment was outside the acceptable range. Through diagnostics it was determined the sonde was malfunctioning, not the sensor. The values are flagged as <-3> [GIM].

09/16/2015 at 14:15 to 09/30/2015 at 12:00

10/14/2015 at 12:45 to 11/12/2015 at 13:00

Data collected during the August 26 deployment (08/26/2015 at 11:45 to 09/16/2015 at 13:45) were rejected due to sensor diagnostics. The pre-deployment sensor diagnostics were outside acceptable range, also, the readings were well below the range typically observed this time of year at this site. The data were rejected although the DO returned to the normal range near the end of the deployment, and the post-deployment check and sensor diagnostics were within acceptable range. The values are flagged as <-3> [SPC].

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Data collected during the January 7 deployment (01/07/2015 at 14:00 to 02/23/2015 at 14:15) were suspect due to post-calibration out of range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

Data collected from 08/19/2015 at 13:15 to 08/26/2015 at 11:30 were suspect due to post-calibration out of range. The post-calibration sensor diagnostics were within acceptable range and the post-calibration check was out of range, also the readings were well above the range typically observed this time of year at this site. The values are flagged as <1> [SPC].

FC cont.

Depth

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected from 1/7/2015 14:00 to 18:00 appears to have been collected at the wrong depth. We believe that the sonde was stuck in the tube until 18:00 when it fell down to the correct depth. The values for depth are marked <1> [GSM] (CWD) with other parameters marked <0> [GSM] (CWD).

The data collected from 4/28/2015 9:45 to 12:15 appears to have been collected at the wrong depth. We believe that the sonde was stuck in the tube until 12:15 when it fell down to the correct depth. The values for depth are marked <1> [GSM] (CWD) with other parameters marked <0> [GSM] (CWD).

The data collected from 6/8/2015 11:15 to 14:45 appears to have been collected at the wrong depth. We believe that the sonde was stuck in the tube until 14:45 when it fell down to the correct depth. The values for depth are marked <1> [GSM] (CWD) with other parameters marked <0> [GSM] (CWD).

The data collected from 08/04/2015 at 10:30 to 12/31/2015 at 23:45 were suspect because the depth readings are lower than previous readings. Lower depth readings also were recorded at all of the primary sites during the last four to six months of the year, indicating that the problem is not related to the deployment mounts. The values are flagged as <1> (CSM).

pH

The data collected from 10/06/2015 at 01:45 to 11/30/2015 at 06:00 were not suspect. The post-deployment checks and pH slopes were acceptable range. The low readings were due to the hydrologic conditions of the South Edisto River at this time (see blanket statement). The values are flagged as <0> (CRE).

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Data collected during the October 14 deployment (10/14/2015 at 12:45 to 11/12/2015 at 13:00) were marked suspect due to the slope being out of range. The post-deployment pH slope was outside the acceptable range reading 152.6, but the post deployment checks were within the acceptable range. It was later discovered that the sonde was the problem and it was sent to YSI for repairs. The data were not rejected but instead marked suspect. This deployment was during the 1000 year flood that affected the reserve and its stations, considering this significant weather event data appear to fit conditions. The values are flagged as <1> [SDG].

The data collected during the deployment that started on December 9, 2014 (12/09/2014 at 13:15 to 01/07/2015 at 13:45) were suspect due to sensor diagnostics. The post-deployment pH slope was outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

The data collected during the following deployments were suspect due to sensor diagnostics. The post-deployment pH slope was outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

04/28/2015 at 09:45 to 05/06/2015 at 13:00

05/20/2015 at 11:30 to 06/08/2015 at 11:00

09/30/2015 at 12:15 to 10/14/2015 at 12:30

The data collected during the deployment that started on January 7, 20145 (01/07/2015 at 14:00 to 02/07/2015 at 23:45) were suspect due to post-calibration checks being out of range. The post-deployment pH slope was also outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

The data collected during the deployment that started on March 18, 2015 (03/18/2015 at 10:00 to 04/08/2015 at 14:30) were suspect due to post-calibration checks being out of range. The post-deployment pH slope was also outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

The data collected during the deployment that started on June 17, 2015 (06/17/2015 at 11:00 to 07/15/2015 at 11:45) were suspect due to post-calibration checks being out of range. The post-deployment pH slope was also outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

Turbidity

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Mosquito Creek

All Parameters Blanket Statement for Mosquito Creek

Depth data is marked 1 GSM CWD and other parameters 0 GSM CWD during the following dates/times because the PVC mount is higher in the water column due to one or more of the bandits securing the PVC being loose. This issue was corrected in February of 2016

Time Change

For the following collection, the time was recorded in UTC time, not the required EST time. The UTC time entries in the CSV were converted to Eastern Standard Time (EST) by subtracting five hours from every time entry. The corrected files were uploaded to the CDMO on 09/02/2015. The corrected times are flagged as {CSM}. However, the times in the BIN files stored at the ACE Basin Reserve were not corrected.

01/01/2015 at 00:00 to 03/20/2015 at 09:15

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Data are missing during the following times because sonde was out of water. The sonde tube was being cleaned at the time. The value is flagged at <-2> (CMC).

04/08/2015 at 15:00

08/12/2015 at 12:00

Data were not collected from 12/07/2015 at 20:15 to 12/09/2015 at 12:45 due to battery failure. The values are flagged as <-2> [GPF].

Suspect Data (Flag <1>)

Temperature

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Specific Conductivity/Salinity

The data collected from 05/06/2015 at 14:30 to 09/30/2015 23:45 were not suspect. The elevated salinity levels were attributed to low river level and streamflow rate on the South Edisto River due to drought conditions (see blanket statement). The values are flagged at <0> (CRE).

The data collected during the following time periods were not suspect. The post-deployment check and sensor diagnostics were within acceptable range. The decrease in salinity was attributed to the high streamflow in the South Edisto River caused by the week-long rain events (see blanket statement). The values are flagged as <0> (CRE).

10/04/2015 at 21:15 to 10/19/2015 at 11:30

11/09/2015 at 10:30 to 11/27/2015 at 18:30

Rejected Data (Flag <-3>)

Conductivity data collected during the January 7 deployment (01/07/2015 at 15:15 to 02/23/2015 at 16:15) were rejected due to post-calibration out of range. The cell constant was within the acceptable range; however, the post-deployment check was -29.6 mS/cm and the readings were very erratic, indicating that the sensor was not working properly. The values are flagged as <-3> [SDG].

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the March 20 deployment (03/20/2015 at 09:30 to 04/08/2015 at 15:00) were suspect due to sensor diagnostics. The cell constant was outside the acceptable range. The data were not rejected because the **MC cont.** post-deployment check was within acceptable range, and readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

DO Percent/mg/L

The data collected during the January 7 deployment (01/07/2015 at 15:15 to 02/23/2015 at 16:15) are suspect. The high readings may be attributed to the low temperatures during this deployment. However, the post-deployment check was also on the high side at 106%. The values are flagged as <1> (CSM).

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The dissolved oxygen data collected during the following deployments were suspect due to the high frequency of hypoxic events not typically observed at this site. The post-calibration check and sensor diagnostics were within acceptable range. The frequency of hypoxic events were higher than normally observed at this site, but the other readings were within the range typically observed at the site. The cause of the hypoxic events is unknown at this time. The values are flagged as <1> [SDO] (CCU).

04/28/2015 at 11:30 to 05/06/2015 at 14:15

07/29/2015 at 11:45 to 08/12/2015 at 11:4

The dissolved oxygen data collected during the May 20 deployment (05/20/2015 at 12:15 to 06/08/2015 at 12:30) were suspect due to the post-calibration check. The post-calibration check was outside the acceptable range, but the sensor diagnostics were acceptable. The data were not rejected because the readings were within the range typically observed at the site, and there was no sensor drift. The values are flagged as <1> [SDG].

The dissolved oxygen data collected during the July 1st deployment (07/01/2015 at 12:15 to 07/15/2015 at 12:15) were suspect due to the post-calibration check. The post-calibration check was outside the acceptable range, but the sensor diagnostics were acceptable. The data were not rejected because the readings were within the range typically observed at the site, and there was no sensor drift. The values are flagged as <1> [SPC].

The dissolved oxygen data collected during the July 29th deployment (07/29/2015 at 11:45 to 08/12/2015 at 11:45) were suspect due to the post-calibration check. The post-calibration check was outside the acceptable range, but the sensor diagnostics were acceptable. The data were not rejected because the readings were within the range typically observed at the site, and there was no sensor drift. The values are flagged as <1> [SPC].

The dissolved oxygen data collected during the September 16 deployment (09/16/2015 at 14:45 to 09/30/2015 at 13:45) were suspect due to sensor diagnostics. The DO charge was outside the acceptable range during pre- and post-calibration, but the post-deployment check was acceptable. The data were not rejected because the readings were within the range typically observed at the site, and there was no sensor drift. The values are flagged as <1> [SDG].

The dissolved oxygen data collected during the following deployments were suspect due to sensor diagnostics. The DO charge as well as the post-deployment checks were outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site, and there was no sensor drift. The values are flagged as <1> [SDG].

10/14/2015 at 13:45 to 11/12/2015 at 14:15

12/09/2015 at 13:00 to 01/13/2016 at 16:30

Depth

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The depth data collected during the April 28 deployment (04/28/2015 at 11:30 to 05/06/2015 at 14:15) were suspect because the data were collected at the wrong depth. The sonde was not at the bottom of the tube because the depth levels were higher than observed during the previous and subsequent deployments. The values are flagged as <1> (CWD).

The data collected during the July 1 deployment (07/01/2015 at 12:15 to 07/15/2015 at 12:15) were suspect because the data were collected at the wrong depth. The sonde was not at the bottom of the tube because the depth

MC cont.

levels were higher than observed during the previous and subsequent deployments. The values are flagged as <1> (CWD).

The data collected from 07/15/2015 at 12:30 to 12/31/2015 at 23:45 were suspect because the depth readings are lower than previous readings. Lower depth readings also were recorded at all of the primary sites during the last four to six months of the year, indicating that the problem is not related to the deployment mounts. The values are flagged as <1> (CSM).

pH

Rejected Data (Flag <-3>)

The pH data collected during the following deployments were rejected due to sensor diagnostics. The out-of-range pH slope and the higher than normal readings indicated that the sensor was not working properly during the deployment. The values are flagged as <-3> [SDG].

01/07/2015 at 15:15 to 02/23/2015 at 16:15

The pH data collected during the following deployments were rejected due to sensor diagnostics and post-deployment checks. The out-of-range post-deployment checks, out-of-range pH slope and the higher than normal readings indicated that the sensor was not working properly during the deployment. The values are flagged as <-3> [SSM] (CSM).

04/28/2015 at 11:30 to 05/06/2015 at 14:15

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the following deployments were suspect due to sensor diagnostics. The post-deployment pH slope was outside the accepted range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

05/20/2015 at 12:15 to 06/08/2015 at 12:30

06/17/2015 at 13:00 to 07/01/2015 at 12:00

Turbidity

Rejected Data (Flag <-3>)

The turbidity data collected during the April 8 deployment (04/08/2015 at 15:15 to 04/28/2015 at 11:15) deployment were rejected due to sensor malfunction - wiper was not moving in both directions. The majority of the readings were negative. The values are flagged as <-3> (CSM).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the November 12 deployment (11/12/2015 at 14:30 to 12/09/2015 at 12:45) were suspect due to post calibration out of range. The post-deployment 0 and 126 NTU check were outside the acceptable range. Data were not rejected because the readings were within the range typically observed at this site. The values are flagged as <1> [SDG].

The data collected during the December 9 deployment (12/09/2015 at 13:00 to 01/13/2016 at 16:30) were suspect due to wiper malfunction/loss. The data were not rejected because the readings were within the range typically observed at this site. The values are flagged as <1> [SWM].

St. Pierre

All Parameters Blanket Statement for St. Pierre

Data collected from 06/09/2015 at 19:45 to 06/09/2105 at 21:00 were affected by rain events. Approximately 36 mm of rain fell from 18:30 to 21:45 on June 9, and it caused a decrease in temperature and salinity and an increase in the turbidity spikes. Although no obvious effect on dissolved oxygen and pH were observed, rain does influence these parameters. The values are flagged as <0> (CRE).

SP cont.

Rejected Data (Flag <-3>)

Data collected during the following time periods were rejected due to negative value. The temperature values were negative so the specific conductivity, dissolved oxygen, and pH readings were rejected. Depth and turbidity are not affected by water temperature so these readings are valid. The values are flagged as <-3> [SNV].

07/18/2015 at 19:00

07/19/2015 at 13:15

Missing Data (Flag <-2>)

Data were not collected from 12/12/2014 at 02:30 to 01/07/2015 at 13:00 due to battery failure. The values are flagged as <-2> [GPF].

Data are missing on 09/30/2015 at 11:30 because sonde was out of the water. The sonde tube was being cleaned at the time. The values are flagged as <-2> (CMC).

Suspect Data (Flag <1>)

Temperature

Data collected from 06/09/2015 at 19:45 to 06/09/2105 at 21:00 were affected by rain events. Approximately 36 mm of rain fell from 18:30 to 21:45 on June 9, and it caused a decrease in temperature. The values are flagged as <0> (CRE).

Data collected from 06/25/2015 at 04:30 to 06/25/2105 at 08:30 were affected by rain events. Approximately 31.5 mm of rain fell from 00:30 to 07:30 on June 25, and it caused a decrease in salinity. The values are flagged as <0> (CRE).

Data collected during the following periods were affected by rain events. Although the rain was not recorded by our weather station at Bennetts Point, the dip in temperature was indicative of rain events during low tide. The values are flagged as <0> (CRE).

08/01/2015 at 13:15 to 08/01/2105 at 16:00

08/14/2015 at 23:30 to 08/15/2105 at 04:00

08/28/2015 at 01:30 to 08/28/2105 at 03:45

09/24/2015 at 21:00 to 09/25/2015 at 00:45

Rejected Data (Flag <-3>)

The data collected from 07/20/2015 at 04:30 to 07/28/2015 at 06:00 were rejected due to catastrophic temperature sensor failure. The temperature values were negative. The values are flagged as <-3> [STF].

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Specific Conductivity/Salinity

The data collected during the following time periods were not suspect. The elevated salinity levels from were attributed low river level and streamflow rate on the South Edisto River due to drought conditions (see blanket statement). The values are flagged at <0> [GSM] (CDF).

05/06/2015 at 12:30 to 07/09/2015 at 04:15 07/28/2015 at 06:15 to 09/30/2015 at 23:45

Data collected from 06/09/2015 at 19:45 to 06/09/2105 at 21:00 were affected by rain events. Approximately 36 mm of rain fell from 18:30 to 21:45 on June 9, and it caused a decrease in salinity. The values are flagged as <0> [GSM] (CDF).

SP cont.

Data collected from 06/25/2015 at 04:30 to 06/25/2105 at 08:30 were affected by rain events. Approximately 31.5 mm of rain fell from 00:30 to 07:30 on June 25, and it caused a decrease in salinity. The values are flagged as <0> (CRE).

Data collected during the following periods were affected by rain events. Although the rain was not recorded by our weather station at Bennetts Point, the dip in salinity was indicative of rain events during low tide. The values are flagged as <0> (CRE).

08/01/2015 at 13:15 to 08/01/2105 at 16:00

08/14/2015 at 23:30 to 08/15/2105 at 04:00

08/28/2015 at 01:30 to 08/28/2105 at 03:45

09/24/2015 at 21:00 to 09/25/2015 at 00:45

The data collected during the following time periods were not suspect. The post-deployment check and sensor diagnostics were acceptable range. The decrease in salinity were attributed to the high streamflow in the South Edisto River caused by the week-long rain events (see blanket statement). The values are flagged as <0> (CRE).

10/08/2015 at 13:00 to 10/14/2015 at 18:15

11/12/2015 at 12:45 to 11/13/2015 at 06:30

Rejected Data (Flag <-3>)

The data collected from 07/20/2015 at 04:30 to 07/28/2015 at 06:00 were rejected due to catastrophic temperature sensor failure. The temperature values were negative. The values are flagged as <-3> [STF].

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected from 7/15/2015 11:15 to 7/20/2015 4:15 and 7/28/2015 6:15 to 7/29/2015 10:45 were suspect due to out of range post-deployment checks and the ongoing issues with the temperature probe. The SpCond and salinity values are flagged as <1> [SSM].

DO Percent/mg/L

Rejected Data (Flag <-3>)

St. Pierre DO data collected during the following time periods were rejected due to sensor diagnostics. The DO charge and post-deployment DO check were outside the acceptable range. The downward drift in the readings during the deployment indicated biofouling. The values are flagged as <-3> [SDG] (CBF).

02/23/2015 at 13:45 to 03/18/2015 at 09:00

03/30/2015 at 23:30 to 04/08/2015 at 13:45

The data collected from 07/20/2015 at 04:30 to 07/28/2015 at 06:00 were rejected due to catastrophic temperature sensor failure. The temperature values were negative. The values are flagged as <-3> [STF].

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the January 7 deployment (01/07/2015 at 13:15 to 02/23/2015 at 13:30) were suspect due to sensor diagnostics. The post-deployment DO check and the DO charge were well outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

The data collected during the April 8 deployment (04/08/2015 at 14:00 to 04/22/2015 at 10:00) were suspect due to sensor diagnostics. The DO charge was outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

SP cont.

The data collected during the following deployments were suspect due to post calibration out of range. The post-deployment DO checks were well outside the acceptable range, but the sensor diagnostics were acceptable. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

05/06/2015 at 12:30 to 05/20/2015 at 10:30
07/01/2015 at 11:00 to 07/15/2015 at 11:00
08/26/2015 at 11:00 to 09/16/2015 at 13:15
11/12/2015 at 13:15 at 12/14/2015 at 13:00

06/08/2015 at 10:30 to 06/17/2015 at 10:15
07/29/2015 at 11:00 to 08/12/2015 at 09:30
10/14/2015 at 12:15 to 11/12/2015 at 12:15

The data collected during the July 15 deployment (07/15/2015 at 11:15 to 07/20/2015 at 04:15) deployment were suspect due to the high frequency of DO spikes. The post-deployment checks and sensor diagnostics were within acceptable range. The cause of the frequent DO spikes is unknown at this time. The sensor was retired after the August 12 deployment. The values are flagged as <1> [SDO] (CCU).

The data collected from 08/13/2015 at 04:00 to 08/24/2015 at 17:45 were suspect due to an abrupt increase in DO readings in the middle of the deployment. The post-deployment checks and sensor diagnostics were within acceptable range. The cause of the jump in DO readings during the middle of a deployment is unknown at this time. The values are flagged as <1> [SDO] (CCU).

The data collected during the December 14 deployment (12/14/2015 at 13:15 to 01/11/2016 at 13:45) were suspect due to post-calibration out of range. The values are flagged as <1> [SPC].

Depth

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected from 04/20/2015 11:15 to 12:15 were suspect because the depth readings were higher than previous readings. It appears that the sonde was stuck in the tube during the first hour of the deployment. After 12:15 the sonde appears to have lowered to the correct depth. The depth values are flagged as <1> [GSM] (CWD) and other parameters are marked <0> [GSM] (CWD).

The data collected from 07/29/2015 at 11:00 to 12/31/2015 at 23:45 were suspect because the depth readings were lower than previous readings. Lower depth readings also were recorded at all of the primary sites during the last four to six months of the year, indicating that the problem was not related to the deployment mounts. The values are flagged as <1> (CSM).

During the December 14 deployment the sonde tube detached from the site piling. The sonde was found on 1/11/2016 still in the deployment tube; however, several of the bandits holding the tube at the proper depth were missing. The depth data indicates the sonde deployment mount may have begun to move along the pole around December 18, 2015. The tube was reattached at the start of the January 11, 2016 deployment.

pH

Rejected Data (Flag <-3>)

The data collected from 07/20/2015 at 04:30 to 07/28/2015 at 06:00 were rejected due to catastrophic temperature sensor failure. The temperature values were negative. The values are flagged as <-3> [STF].

Data collected from during the December 14 deployment (12/14/2015 at 13:15 to 01/13/2016 at 13:00) were rejected due to sensor malfunction. The post-deployment slope and the post-deployment pH 7 and 10 checks were outside the acceptable range. The out-of-range check values and sensor diagnostics values were attributed to a broken pin in the sensor that was discovered during cleaning. The data were rejected because the readings were

within the range typically observed at the site, but were slightly lower than those of previous deployment. The values are flagged as <-3> [SDG].

Missing Data (Flag <-2>)

SP cont.

Suspect Data (Flag <1>)

The pH data collected during the January 7 deployment (01/07/2015 at 13:15 to 02/23/2015 at 13:30) were suspect due to sensor diagnostics. The post-deployment slope was outside the acceptable range, and the readings were above the normal range typically observed at the site. The values are flagged as <1> [SDG].

Data collected from 07/15/2015 at 23:45 to 07/16/2015 at 03:45 were suspect due to QAQC checks. There was an unexpected dip in the pH during this time, but the cause of the readings is unknown at this time. The data were not rejected because the post-deployment checks and sensor diagnostics are within acceptable range. The values are flagged as <1> [SQR] (CCU).

The data collected from 07/20/2015 at 04:30 to 07/28/2015 at 06:00 were rejected due to catastrophic temperature sensor failure. The temperature values were negative. The values are flagged as <-3> [STF].

Data collected from during the September 30 deployment (09/30/2015 at 11:45 to 10/14/2015 at 12:00) were suspect due to sensor diagnostics. The post-deployment slope and the post-deployment pH 10 check were outside the acceptable range, but the post-deployment pH 7 check was acceptable. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SDG].

Turbidity

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Grove Plantation

All Parameters Blanket Statement for Grove Plantation

Time Change

For the following deployments, the time was recorded in UTC time, not the required EST time. The UTC time entries in the CSV were converted to Eastern Standard Time (EST) by subtracting five hours from every time entry. The corrected files were uploaded to the CDMO on 09/02/2015. The corrected times are flagged as {CSM}. However, the times in the BIN files stored at the ACE Basin Reserve were not corrected.

04/28/2015 at 10:30 to 05/06/2015 at 13:30

06/08/2015 at 12:00 to 06/17/2015 at 11:30

The depth at Grove Plantation showed a large amount of variation throughout the year by deployment and the cause of this variation is unknown. Due to this the F_Record column has been flagged as {CSM} for all deployments throughout 2015. The following deployments were different than the expected depth and therefore the depth was flagged as <1> [GSM] (CWD) (see below) and all other parameters for these deployments have been flagged as <0> [GSM] (CWD) unless flagged for another reason.

01/07/2015 at 14:45 to 02/23/2015 at 15:00

03/18/2015 at 10:45 to 04/08/2015 at 15:15

04/28/2015 at 10:30 to 05/06/2015 at 13:30

07/15/2015 at 12:45 to 08/04/2015 at 11:00
08/12/2015 at 11:15 to 08/26/2015 at 12:00
09/30/2015 at 13:00 to 10/14/2015 at 13:15

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Data are missing on 07/15/2015 at 12:30 because sonde was out of the water. The sonde tube was being cleaned at the time. The value is flagged as <-2> [GOW] (CMC).

Suspect Data (Flag <1>)

Temperature

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Specific Conductivity/Salinity

The data collected from 05/20/2015 at 23:00 to 08/04/2015 at 11:00 were not suspect. The elevated salinity levels were attributed to low river level and streamflow rate on the South Edisto River due to drought conditions (see blanket statement). The values are flagged as <0> [GSM] (CDF).

The data collected from 08/12/2015 at 11:15 to 09/16/2015 at 14:30 were not suspect. The elevated salinity levels were attributed to low river level and streamflow rate on the South Edisto River due to drought conditions (see blanket statement). The values are flagged as <0> [GSM] (CDF).

The data collected from 09/30/2015 at 13:00 to 10/04/2015 at 23:45 were not suspect. The elevated salinity levels were attributed to low river level and streamflow rate on the South Edisto River due to drought conditions (see blanket statement). The values are flagged as <0> [GSM] (CDF).

Note:

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the August 4 deployment (08/04/2015 at 11:15 to 08/12/2015 at 11:00) were suspect due to post-calibration out of range. The post-deployment checks were outside the acceptable range at 53.08 uS/cm, but the sensor diagnostics were acceptable. The data were not rejected because they were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

The data collected during the September 16 deployment (09/16/2015 at 14:45 to 09/30/2015 at 12:45) were suspect due to post calibration outside the acceptable range at 53.35 mS/cm. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

DO Percent/mg/L

The data collected during the October 14 deployment (10/14/2015 at 13:30 to 11/12/2015 at 13:30) were not suspect. The post-deployment check and sensor diagnostics were acceptable range. The low DO were attributed to

the elevated dissolved solids caused by the high streamflow in the South Edisto River due to the week-long rain events from 10/01/2015 to 10/06/2015 (see blanket statement). The values are flagged as <0> [GSM] (CRE).

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the following deployment times were suspect due to the post-calibrations being out of the acceptable range. The data were not rejected because they were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

03/18/2015 at 10:45 to 04/08/2015 at 15:15 (110.4)
09/16/2015 at 14:45 to 09/30/2015 at 12:45 (67.6)
09/30/2015 at 13:00 to 10/14/2015 13:15 (84.1)
12/14/2015 at 14:45 to 01/13/2016 at 14:30 (111.0)

Depth

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The depth at Grove Plantation showed a large amount of variation throughout the year and the cause of this variation is unknown. The following deployments are suspect due to the data possibly being collected at the wrong depth. The values are flagged as <1> [GSM] (CWD).

01/07/2015 at 14:45 to 02/23/2015 at 15:00
03/18/2015 at 10:45 to 04/08/2015 at 15:15
04/28/2015 at 10:30 to 05/06/2015 at 13:30
07/15/2015 at 12:45 to 08/04/2015 at 11:00
08/12/2015 at 11:15 to 08/26/2015 at 12:00
09/30/2015 at 13:00 to 10/14/2015 at 13:15

pH

The data collected during the October 14 deployment (10/14/2015 at 13:30 to 11/12/2015 at 13:30) were not suspect. The post-deployment check and sensor diagnostics were acceptable range. The low pH were attributed to the low salinity and high tannin levels caused by high streamflow in the South Edisto River due to the week-long rain events from 10/01/2015 to 10/06/2015 (see blanket statement). The values are flagged as <0> [GSM] (CRE).

Rejected Data (Flag <-3>)

The following times at the beginning of multiple deployments during 2015 were rejected due to pH spikes caused when the sonde was deployed. This is not typical; however, it is thought to be attributed to acclimation of the probe. The post deployment checks and sensor diagnostics were within an acceptable range. The values are flagged as <-3> [GSM] (CND).

02/23/2015 at 15:15 to 02/23/2015 at 15:45
03/18/2015 at 10:45 to 03/18/2015 at 12:00
04/28/2015 at 10:30 to 04/28/2015 at 11:00
06/08/2015 at 12:00 to 06/08/2015 at 12:15
07/15/2015 at 12:45 to 07/15/2015 at 13:15
11/12/2015 at 13:45

12/14/2015 at 14:45 to 12/14/2015 at 15:15

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected from 03/18/2015 at 12:15 to 04/08/2015 at 15:15 were suspect due to post calibration check and sensor diagnostics being outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

The data collected during the April 8 deployment (04/08/2015 at 15:30 to 04/28/2015 at 10:15) were suspect because the readings decreased during the deployment and were lower than normally observed at this site. The post-deployment checks and sensor diagnostics were acceptable. The data were not rejected because they were within the range typically observed at the site. The values are flagged as <1> [GSM] (CCU).

The following dates and times at the beginning of multiple deployments during 2015 were suspect due to pH spikes caused when the sonde was deployed. This is not typical; however, it is thought to be attributed to acclimation of the probe. The post deployment checks and sensor diagnostics were within an acceptable range. The values are flagged as <1> [GSM] (CND).

01/07/2015 at 14:45

05/06/2015 at 13:45

06/17/2015 at 11:45

08/04/2015 at 11:15

Turbidity

Rejected Data (Flag <-3>)

The data collected during the January 7 deployment (01/07/2015 at 14:45 to 02/23/2015 at 15:00) were rejected due to sensor malfunction. The sensor wiper did not reverse during the deployment. The post-deployment checks were outside the acceptable range (0 NTU: 9999.9 and 126 NTU:-999.9). The data were rejected because the readings were either negative or above 1000 NTU. The values are flagged as <-3> [SSM] (CSM).

The data collected during the August 26 deployment (08/26/2015 at 12:15 to 09/16/2015 at 14:30) were rejected due to a sensor malfunction that caused readings above 2000 NTU. The post calibration check was outside the acceptable range (0 NTU: 7.1 NTU). The values are flagged as <-3> [SSM] (CSM).

The data collected from 11/02/2015 at 20:45 to 11/12/2015 to 13:30 were rejected due to an anomalous spike near the end of the deployment. Although the post-calibration check was within the acceptable range, the upward drift in the readings maybe attributed to the elevated dissolved solids caused by the high streamflow in the S. Edisto River due to the week-long rain events (see blanket statement). However, a precipitous drop in the turbidity levels occurred with the following new deployment so the exact cause is unknown. The values are flagged as <-3> [GSM] (CCU).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Data collected during the February 23 deployment (02/23/2015 at 15:15 to 03/18/2015 at 10:30) were suspect because the wiper brush fell off during deployment. The post calibration check of 0 NTU was acceptable (0.8), but initially the readings fluctuated between -0.4 and -1.1. The readings were not rejected because they were within the range typically observed at the site. The values are flagged as <1> [SWM] (CSM).

The data collected during the June 17 deployment (06/17/2015 at 11:45 to 07/15/2015 at 12:15) were suspect due to the post calibration check being outside the acceptable range (126 NTU: 104.3 NTU). The data were not rejected because the readings are within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Jehossee Island

All Parameters Blanket Statement for Jehossee Island

Time Change

For the following deployment, the time was recorded in UTC time, not the required EST time. The UTC time entries in the CSV were converted to Eastern Standard Time (EST) by subtracting five hours from every time entry. The corrected files were uploaded to the CDMO on 09/02/2015. The corrected times are flagged as {CSM}. However, the times in the BIN files stored at the ACE Reserve were not corrected.

01/07/2015 at 14:15 to 02/23/2015 at 14:30

The data collected during the November 12 deployment (11/12/2015 at 13:30 to 12/14/2015 at 14:00) were collected at the wrong depth. Due to this the F_Record column has been flagged as {CSM}. The depth was flagged as <1> [GSM] (CWD) (see below) and all other parameters for these deployments have been flagged as <0> [GSM] (CWD) unless flagged for another reason.

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Data are missing on 02/23/2015 at 14:45 because sonde was out of the water. The sonde deployment tube was being cleaned at the time. The value is flagged as <-2> [GOW] (CMC).

Suspect Data (Flag <1>)

Temperature

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

Specific Conductivity/Salinity

The data collected from 05/27/2015 at 16:30 to 10/04/2015 at 23:45 were not suspect. The elevated salinity levels were attributed to low river level and streamflow rates on the South Edisto River due to drought conditions (see blanket statement). The values are flagged at <0> [GSM] (CDF).

The data collected during the following time periods were not suspect. The post-deployment checks and sensor diagnostics were within an acceptable range. The decrease in salinity were attributed to the high streamflow in the South Edisto River caused by the week-long rain events from 10/01/2015 to 10/06/2015 (see blanket statement). The values are flagged as <0> [GSM] (CRE).

10/05/2015 at 00:00 to 10/19/2015 at 23:45

11/12/2015 at 13:30 to 12/05/2015 at 06:45

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the December 14 deployment (12/14/2015 at 14:15 to 01/13/2016 at 14:00) were suspect due to post-calibration out of range. The post-deployment check was outside the acceptable range at 53.93 mS/cm, but the sensor diagnostic was acceptable. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

DO Percent/mg/L

The data collected during the October 14 deployment (10/14/2015 at 13:15 to 11/12/2015 at 13:15) were not suspect. The post-deployment check and sensor diagnostics were within acceptable range. The increase in DO readings were attributed to the high streamflow in the South Edisto River caused by the week-long rain events from 10/01/2015 to 10/06/2015 (see blanket statement). The values are flagged as <0> [GSM] (CRE).

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the following deployments were suspect due to the post-calibration checks being outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

05/20/2015 at 11:45 to 06/08/2015 at 11:15 (112.4)
08/26/2015 at 12:00 to 09/16/2015 at 14:15 (83.4)

06/17/2015 at 11:15 to 07/15/2015 at 12:15 (84.1)

Depth

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the November 12 deployment (11/12/2015 at 13:30 to 12/14/2015 at 14:00) were suspect because the data were collected at the wrong depth. The sonde was probably not at the bottom of the tube because the depth levels were lower or shallower than observed during the previous and subsequent deployments. The values are flagged as <1> [GSM] (CWD).

pH

The data collected during the October 14 deployment (10/14/2015 at 13:15 to 11/12/2015 at 13:15) were not suspect. The post-deployment check and sensor diagnostics were acceptable range. The low pH values were attributed to the low salinity and high tannin levels caused by high streamflow in the South Edisto River due to the week-long rain events from 10/01/2015 to 10/06/2015 (see blanket statement). The values are flagged as <0> [GSM] (CRE).

Rejected Data (Flag <-3>)

The data collected on 01/07/2015 at 14:15 were rejected due to pH spikes caused when the sonde was deployed. This is not typical; however, it is thought to be attributed to acclimation of the probe. The post deployment checks and sensor diagnostics were within an acceptable range. The values are flagged as <-3> [GSM] (CND).

The data collected during the April 28 deployment (04/28/2015 at 10:00 to 05/06/2015 at 13:15) were rejected due to the data being higher than the deployments on either side. The pH 7 post calibration check was out of range at 7.75 and the pH slope was out of range at 117.2. The values are flagged as <-3> [SPC] (CSM).

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the following deployments were suspect due to post calibration checks and sensor diagnostics being outside the acceptable range. The data were not rejected because the readings were within the range typically observed at the site. The values are flagged as <1> [SPC] (CSM).

03/18/2015 at 10:30 to 04/08/2015 at 14:45 (slopes: 158.3 & 119.8, pH 10: 9.47)
04/28/2015 at 10:00 to 05/06/2015 at 13:15 (slopes: 117.4 & 117.2, pH 7: 7.75)
05/20/2015 at 11:45 to 06/08/2015 at 11:15 (slopes: 108.2 & 101.2, pH 7: 7.42)
06/17/2015 at 11:15 to 07/15/2015 at 12:15 (slopes: 121.5 & 130.2, pH 7: 7.3 & pH 10: 10.52)
11/12/2015 at 13:30 to 12/14/2015 at 14:00 (slopes: 161.5 & 109.8, pH 10: 9.17)

Turbidity

Rejected Data (Flag <-3>)

Missing Data (Flag <-2>)

Suspect Data (Flag <1>)

The data collected during the June 8 deployment (06/08/2015 at 11:30 to 06/17/2015 at 11:00) were suspect due to post calibration check being outside the acceptable range at 100.0 NTU for the 126 NTU standard. The data were not rejected because the readings are within the range typically observed at this site. The values are flagged as <1> [SPC] (CSM).

Data collected from 11/12/2015 at 13:30 to 12/14/2015 at 14:00 were suspect due to pre-calibration readings. The sensor did calibrate properly, and the post-deployment checks were within acceptable range. However, the lack of spikes during late to early stage tides indicated that sensor was not working properly. The data were not rejected because the other readings were within the range typically observed at the site. The values are flagged as <1> [SSM] (CSM).