

ACE Basin (ACE) National Estuarine Research Reserve Water Quality Metadata
January-December 2004 Report
Latest edit: August 28, 2023

I. Data Set & Research Descriptors

1. Principal investigator & contact persons:

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2. Entry verification:

The data are downloaded from the YSI® Model 6600EDS sondes to a Personal Computer (IBM compatible) as PC6000 files (*.dat) and as comma-delimited files (*.csv). The PC6000 files are examined in EcoWatch® to detect equipment malfunctions that require immediate attention or to detect damaged DO membrane. The comma-delimited format (.CSV) files are opened in Microsoft Excel for pre-processing with the EQWin format macro that was developed by the CDMO to reformat the header columns, insert station codes, and insert a corrected time column. Data at the beginning and end of each data record, when the instrument was out of the water, are deleted by the staff before running the macros. The formatted and processed files are saved as an Excel file (*.xls). Before submitting the data to the CDMO, the datasets are imported into EQWin® where: 1) the station and parameter names are verified; 2) the date and time formats are verified; 3) data are checked for duplication, and 4) yearly statistics (i.e. mean, standard deviation) for each parameter are generated. The statistical reports are printed and reviewed to ensure that all anomalous data have been detected and evaluated. EQWin® is also used to cross query the water, weather and nutrient data and finally export the data to the CDMO. **Note:** periods are removed from cells before dataset is submitted to the CDMO.

The anomalous data are evaluated to determine whether to flag or delete the suspect data. Data are flagged if the values are: 1) outside the range expected at the site, 2) outside the range of measurements established for the sensors, 3) outside the range of accuracy established for the sensors, or 4) outside the range established for good water quality conditions (i.e. dissolved oxygen <28%). Data are deleted if the anomalies are attributed to: 1) a sensor malfunction, 2) exposure of sensors during low tides, or 3) fouling of sensors by aquatic organisms, debris, or sediment. Data in the remainder of the record are not deleted unless supporting reasons can be documented. In addition, condition of the data logger at the time of deployment and retrieval (i.e.

of presence of organisms on sensors or body of logger, buildup of sediment in sensor guard) are noted on field logs, as well as the ambient conditions (tide stage, air temperature, wind speed/direction).

Sensor malfunctions are detected when the voltage reading of the sensor is outside the range established for the sensor or when sensor will not calibrate. Fouling of sensors is detected by comparing in-situ readings to YSI measurements (see **Research Methods** section) or examining data graphically. In addition, sensor readings that differ significantly (>10%) from standard solution (i.e. conductivity) suggest that the sensor was fouled during deployment. After corrections are made to the Excel worksheet (*.xls), the files are exported as tab-delimited files (*.txt) to the CDMO. Amy Whitaker Dukes and Julie Dingle are 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. The Reserve research staff has elected to compare water quality conditions in shallow creeks along a salinity gradient and different levels of development. 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. Two tributaries, St. Pierre Creek and Fishing Creek are in areas where light boat traffic is light and development is sparse, and they are designated as "control" sites. In contrast, the two "treatment" sites are in Big Bay Creek and Mosquito Creek where boat traffic is moderate to heavy and residential and commercial development is medium to dense. The four sites also are located along the salinity gradient in the South Edisto River watershed: Big Bay Creek and St. Pierre Creek are in the polyhaline zone (18-30 ppt), Mosquito Creek is in the mesohaline zone (5-18 ppt), and Fishing Creek is in the oligohaline zone. See *Section 5 - Site Location and Character* for detailed descriptions of the sites.

The water quality monitoring program began on March 3, 1995 at Big Bay Creek and St. Pierre Creek; in October 2002, a monitoring station was established in Fishing Creek and in Mosquito Creek. Initially, YSI electronic data loggers were deployed to monitor the water temperature, specific conductance, dissolved oxygen, water level, and pH conditions, approximately 0.5 meters above the creek bottom, at 15-minute intervals; on August 11, 1995, the sampling interval was changed to 30 minutes, and turbidity monitoring was added to the program on April 11, 1996.

4. Research Methods

One data logger is deployed at each permanent monitoring station (Big Bay, St. Pierre, Fishing Creek, and Mosquito Creek). 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 St. Pierre, Fishing Creek and Mosquito Creek, the deployment mount consists of a PVC pipe that is attached vertically to a galvanized pole, which is driven approximately 1 m into the sediment. The mount at the Big Bay station consists of a PVC pipe that is attached horizontally in a stainless steel triangular-shaped cage, which rests on the creek bottom, and is tethered to a cleat on a floating dock. To facilitate water flow across the sensors, approximately

two-inch diameter holes are drilled into the PVC pipes.

To minimize fouling (i.e. settlement of barnacles and sponges) of data loggers, new sensors and sensor guards are coated with a copper-based anti-fouling paint and periodically re-applied. A plastic mesh is wrapped around the sensor guard to keep out large animals (i.e. crabs, fish); the mesh is coated with anti-fouling paint. In addition, fouling organisms are removed from the deployment mounts during monthly inspections.

The YSI data loggers are deployed for one to two weeks during the summer months, and the sampling period is extended up to one month during the cooler months. A data logger is retrieved and replaced with a newly calibrated data logger prior to a 30-minute reading to prevent interruption of data collection. After deploying the calibrated data logger, a water sample is collected from same depth as the sensor to measure several water quality parameters (water temperature, salinity, pH, dissolved oxygen [mg/l]). Water temperature, salinity, and pH are measured directly with a thermometer, refractometer and hand-held pH meter, respectively, dissolved oxygen, expressed at mg/l, is determined with a field Winkler titration kit. 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 readings (<28% air saturation).

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 is also 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 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, 58.64 mS/cm potassium chloride solution, and 0 and 123 NTU solutions. The water level sensor is zeroed in air, and the barometric pressure in the laboratory is recorded. Before leaving the laboratory the following day, the DO sensor is calibrated in air-saturated water at 760 mm barometric pressure. 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 Locations 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.

Three monitoring stations are tributaries of the South Edisto River and one is in a tributary of both the S. Edisto and Ashepoo rivers, contributing to freshwater input to each site. The average tidal range at all stations is approximately 2.0 m (6.5 feet), with a maximum of 2.36 m (7.8 feet) and a minimum of 1.39 m (4.6 feet). The bottom habitat at each of the four sites consists of mud intermixed with dead shell hash. The descriptions of the sites are as follow:

Big Bay - GPS coordinates: 32.4941N and -80.3241W

This monitoring station is in Big Bay Creek proper, approximately 2 km (1.24 mi) from the mouth of the creek, and is located about 5 m (16.41 ft) from the southern bank of the creek. In 2004, the mean depth at the station was 4.17 m (13.68 ft), and the mean salinity was 29.0 parts per thousand (ppt).

The Big Bay monitoring station is designated as a "treatment" site because it is subject to nonpoint source pollution and has a high density of development. The southern bank of the creek is bordered by residential and commercial development, with little setback from the bordering *Spartina* marsh. For instance, there are over forty private docks, two commercial seafood docks and a marina with 75 slips, three paved boat ramps, and two fueling areas along the southern bank. Docks and bulkheads are constructed of concrete, or creosote, CCA-treated or Wolmanized material. Boat traffic is heavy, especially during the warmer months, and the creek is closed to shellfish harvesting because of the surrounding human activities. The major sources of nonpoint source pollution are surface runoff from lawns, golf courses, and paved ramps that contain fertilizers, pesticides, herbicides and PAHs. All of the high ground along the southern bank is developed (i.e. residential homes, condominiums and restaurants); and maritime plant communities have been replaced by golf courses, lawns and ornamental gardens. Small patches of a few maritime species (i.e. live oak, cabbage, and Southern red cedar) are found along the roads. In contrast, the northern bank is bordered by a wide expanse of *Spartina alterniflora* marsh, and no high ground is present. American oyster (*Crassostrea virginica*) forms a reef along the creek banks, especially the northern side, and on intertidal mud flats within the creek.

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 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 2004, the mean depth at the station was 1.64 m (5.38 ft), and the mean salinity was 28.1 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.

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 2004, the mean depth at the station was 1.96 m (6.43 ft), and the mean salinity was 8.4 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 2004, the mean depth at the station was 3.14 m (10.3 ft), and the mean salinity was 18.9 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.

6. Data collection period:

BEGAN

ENDED

Big Bay Site

12/19/03 - 09:30:00

01/19/04 - 10:30:00

01/19/04 - 11:00:00	02/17/04 - 11:00:00
02/17/04 - 11:30:00	03/16/04 - 09:00:00
03/16/04 - 09:30:00	04/15/04 - 09:30:00
04/15/04 - 10:00:00	05/13/04 - 08:30:00
05/13/04 - 09:00:00	06/15/04 - 10:30:00
06/15/04 - 11:00:00	06/29/04 - 13:00:00
06/29/04 - 13:30:00	07/12/04 - 08:30:00
07/12/04 - 09:00:00	07/29/04 - 10:30:00
07/29/04 - 11:00:00	08/26/04 - 08:30:00
08/26/04 - 09:00:00	09/09/04 - 10:00:00
09/09/04 - 10:30:00	09/23/04 - 08:30:00
09/23/04 - 09:00:00	10/25/04 - 09:30:00
10/25/04 - 10:00:00	12/02/04 - 10:30:00
No data were recorded on 12/02/04 at 11:00:00	
12/02/04 - 11:30:00	12/21/04 - 09:00:00
Duplicate reading was recorded at 09:30:00	
12/21/04 - 09:30:00	01/20/05 - 09:30:00

St. Pierre Site

12/19/03 - 10:00:00	01/19/04 - 11:00:00
01/19/04 - 11:30:00	02/17/04 - 11:30:00
02/17/04 - 12:00:00	03/16/04 - 09:30:00
03/16/04 - 10:00:00	04/15/04 - 10:00:00
04/15/04 - 10:30:00	05/13/04 - 09:30:00
05/13/04 - 10:00:00	06/15/04 - 11:00:00
No data were recorded on 06/15/04 at 11:30:00	
06/15/04 - 12:00:00	06/29/04 - 13:30:00
06/29/04 - 14:00:00	07/12/04 - 09:00:00
07/12/04 - 09:30:00	07/29/04 - 10:00:00
07/29/04 - 10:30:00	08/26/04 - 09:30:00
No data were recorded on 08/26/04 at 10:00:00	
08/26/04 - 10:30:00	09/09/04 - 10:30:00
09/09/04 - 11:00:00	09/23/04 - 09:00:00
09/23/04 - 09:30:00	10/25/04 - 10:30:00
10/25/04 - 11:00:00	11/23/04 - 10:30:00
11/23/04 - 11:00:00	12/21/04 - 10:00:00
12/21/04 - 10:30:00	01/20/05 - 10:30:00

Fishing Creek

12/19/03 - 11:30:00	01/19/04 - 12:00:00
01/19/04 - 12:30:00	02/17/04 - 13:00:00
02/17/04 - 13:30:00	03/16/04 - 10:30:00
03/16/04 - 11:00:00	04/15/04 - 11:30:00

04/15/04 - 12:00:00	05/13/04 - 10:30:00
05/13/04 - 11:00:00	06/15/04 - 12:30:00
No data were recorded on 06/15/04 at 13:00:00	
06/15/04 - 13:30:00	06/29/04 - 11:30:00
06/29/04 - 12:00:00	07/12/04 - 10:00:00
07/12/04 - 10:30:00	07/29/04 - 11:30:00
07/29/04 - 12:00:00	08/26/04 - 11:30:00
No data were recorded on 08/26/04 at 12:00:00	
08/26/04 - 12:30:00	09/09/04 - 12:00:00
09/09/04 - 12:30:00	09/23/04 - 10:30:00
09/23/04 - 11:00:00	10/25/04 - 12:00:00
10/25/04 - 12:30:00	11/23/04 - 12:00:00
11/23/04 - 12:30:00	12/21/04 - 11:30:00
12/21/04 - 12:00:00	01/20/05 - 12:00:00

Mosquito Creek

12/19/03 - 11:30:00	01/19/04 - 12:30:00
01/19/04 - 13:00:00	02/17/04 - 12:30:00
02/17/04 - 13:00:00	03/16/04 - 12:00:00
No data were recorded from 03/16/04 at 12:30:00 to 04/15/04 at 10:30:00	
(See <i>Section 15 - Other Remarks</i> for details on missing data)	
04/15/04 - 11:00:00	05/13/04 - 08:30:00
05/13/04 - 09:00:00	06/15/04 - 10:30:00
During the previous deployment, the sonde experienced intermittent data collection	
(See <i>Section 15 - Other Remarks</i> for details on missing data)	
06/15/04 - 11:00:00	06/29/04 - 09:30:00
No data were recorded on 06/29/04 at 10:00:00 to 16:00:00	
06/29/04 - 16:30:00	07/12/04 - 09:00:00
During the previous deployment, the sonde experienced intermittent data collection	
(See <i>Section 15 - Other Remarks</i> for details on missing data)	
No data were recorded from 7/12/04 at 09:30:00 to 07/29/04 at 13:00:00	
(See <i>Section 15 - Other Remarks</i> for details on missing data)	
07/29/04 - 13:30:00	08/26/04 - 10:30:00
08/26/04 - 11:00:00	09/14/04 - 10:00:00
No data were recorded on 09/14/04 at 10:30:00	
09/14/04 - 11:00:00	09/21/04 - 10:00:00
09/21/04 - 10:30:00	10/26/04 - 11:30:00
10/26/04 - 12:00:00	11/23/04 - 10:00:00
11/23/04 - 10:30:00	01/25/05 - 09:30:00

7. Distribution

According to the Ocean and Coastal Resource Management Data Dissemination Policy for the NERRS System-wide Monitoring Program, is as follows.

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 the 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 of 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 (see *Section 1 - Principal Investigators and Contact Persons* for addresses), from the Data Manager at the Centralized Data Management Office (please see personnel directory under general information link on CDMO homepage) and online at the CDMO homepage <http://cdmo.baruch.sc.edu>. Data are available in text tab-delimited format, Microsoft Excel spreadsheet format and comma-delimited format.

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 identified to species, measured and weighed.

The ACE Basin NERR received funding from the U.S. Environmental Protection Agency to establish a National Atmospheric Deposition Program site in the Reserve. Sampling efforts began on January 1, 2002 and will continue for five years. Weekly precipitation samples are collected and analyzed for atmospheric pollutants. The precipitation collector is located on Bear Island, a Wildlife Management Area inside the NERR.

In August of 2003, the Reserve participated in a beta test of the new YSI flat glass pH probe, Model #6561FG. The ACE Basin was one of five estuarine sites, selected by Mike Lizotte at ENDECO/YSI, to collect pH data using this new probe. The new probes design has two significant advantages to the current pH probe, Model #6561. First, when used in conjunction with the YSI 6600EDS data sonde, the probes glass face is cleaned much more efficiently, and second, the glass on the face of the probe is thicker, which eliminates most mechanisms for breakage. YSI offered this new pH probe in June of 2004.

Information about other studies conducted in the ACE Basin may be obtained from the Research Coordinator.

II. Physical Structure Descriptors

9. Sensors specifications

YSI 6600EDS datalogger

Parameter: Temperature

Units: Celsius (C)

Sensor Type: Thermistor

Model #: 6560

Range: -5 to 45 °C

Accuracy: +/-0.15 °C

Resolution: 0.01 °C

Parameter: Conductivity

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

Sensor Type: 4-electrode cell with auto-ranging

Model #: 6560

Range: 0-100 mS/cm

Accuracy: +/-0.5% of reading +0.001mS/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 or 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;
200-500% 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 per Liter (mg/L)

Sensor Type: Rapid Pulse – Clark type, polarographic

Model #: 6562

Range: 0 to 50mg/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: Non-Vented Level –Shallow (Depth)

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

Parameter: pH
 Units: units
 Sensor Type: Glass combination electrode; flat glass electrode
 Model #: 6561; 6561FG
 Range: 0-14 units
 Accuracy: +/- 0.2 units
 Resolution: 0.01 units

Parameter: Turbidity
 Units: nephelometric turbidity units (NTU)
 Sensor Type: Optical, 90 ° scatter, with mechanical cleaning
 Model #: 6136
 Range: 0 to 1000 NTU
 Accuracy: +/-5% reading or 2 NTU (whichever is greater)
 Resolution: 0.1 NTU

The reliability of the dissolved oxygen (DO) data 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. 200*). Many reserves have upgraded to YSI 6600EDS data sondes, which increase DO accuracy and longevity by reducing the environmental effects of fouling. The user is therefore advised to consult the metadata and to exercise caution when utilizing the DO data beyond the initial 96-hour period. However, this potential drift is not always problematic for some uses of the data, i.e. periodicity analysis. It should be noted that the amount of fouling is site specific and that not all data are affected. The Research Coordinator at the specific NERR site should be contacted concerning the reliability of the DO data because of the site and seasonal variation in the fouling of the DO sensor. All data sondes used at ACE NERR sites in 2004 were EDS models.

The NERRS System-Wide Monitoring Program utilizes YSI data sondes that can be equipped with either depth or water level sensors. Both sensors measure water depth, but not by convention, level sensors refer to atmospherically vented measurements and depth refers to non-vented measurements. Standard calibration protocols for the non-vented sensor use the atmosphere pressure at the time of calibration. Therefore, 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. The error is eliminated for level sensors because they are vented to the atmosphere throughout the deployment time interval. If proper atmospheric pressure data is available, non-vented sensor depths can be corrected for deployments between calibrations. Readings for vented and non-vented sensors are automatically compensated for water density changes due to variations in temperature and salinity. The Research Coordinator at the

specific NERR site should be contacted in order to obtain information regarding atmospheric pressure data availability. All data sondes used at the ACE NERR sites in 2004 were non-vented models.

Probe Identification:

Turbidity 6136 Probe

pH 116031 Probe

pH 6561FG Probe

Specific Conductivity 6030 Probe

Chlorophyll 99L Probe

Standards for Calibration:

Advanced Polymer System Inc.
123 NTU

Micro Essential Laboratory Inc.
Hydrion Buffer 7.00 and 10.00

Micro Essential Laboratory Inc.
Hydrion Buffer 7.00 and 10.00

J.T. Baker, Potassium Chloride Crystal
58.64 mS/cm

Rhodamine B
0.05 grams in 500 milliliters of DI water

10. Coded variable definitions:

Sampling Station:	Sampling site code:	Station Code:
St. Pierre	SP	acespwq
Big Bay	BB	acebbwq
Fishing Creek	FC	acefewq
Mosquito Creek	MC	acemcwq

11. Anomalous/Suspect Data:

January 1-31, 2004 Sampling Period

Big Bay

No anomalous data

St. Pierre

No anomalous data

Fishing Creek

No anomalous data

Mosquito Creek

a) At 19:00:00 on January 15, the turbidity spiked (1530 NTU).

February 1-28, 2004 Sampling Period

Big Bay

a) At 01:30:00 on February 14, the turbidity spiked (1109 NTU).

St. Pierre

a) During the following periods, the dissolved oxygen (DO) data are suspect because readings were above 120% air saturation.

02/13/04 16:00:00-18:30:00

b) During the following periods, the salinity and specific conductivity readings were not within the normal polyhaline/euhaline salinity range (18-40 ppt) observed at this site. Low salinity readings mostly occurred when the South Edisto River was above flood stage (> 10 ft). The maximum gage height recorded by USGS during these times was ~11.2 feet.

02/20/04	04:00:00-04:30:00;	17:00:00-17:30:00
02/21/04	04:30:00-06:00:00;	16:30:00-18:30:00
02/22/04	00:30:00-07:00:00;	14:30:00-19:30:00
02/23/04	01:30:00-07:30:00;	14:00:00-20:00:00
02/24/04	02:30:00-08:00:00;	15:00:00-20:00:00
02/25/04	05:00:00-08:30:00;	21:00:00-21:30:00
02/26/04	05:30:00-08:00:00;	18:30:00

Fishing Creek

No anomalous data

Mosquito Creek

a) During the following periods, the turbidity spiked; readings ranged from 1069 NTU to 1561 NTU.

02/11/04	04:30:00; 13:30:00
02/21/04	04:00:00
02/27/04	11:30:00

March 1-31, 2004 Sampling Period

Big Bay

No anomalous data

St. Pierre

a) During the following periods, the salinity and specific conductivity readings were not within the normal polyhaline/euhaline salinity range (18-40 ppt) observed at this site. Low salinity readings mostly occurred when the South Edisto River was above flood stage (> 10 ft). The maximum gage height recorded by USGS during these times was 10.9 feet.

03/05/04	03:30:00
03/06/04	03:30:00-04:30:00; 15:30:00-17:30:00; 22:30:00-23:30:00
03/07/04	00:00:00-01:30:00; 03:00:00-05:30:00; 11:30:00-17:30:00
03/08/04	00:00:00-06:30:00; 12:00:00-18:30:00
03/09/04	01:30:00-06:30:00; 14:30:00-18:30:00
03/10/04	19:30:00
03/11/04	19:30:00-20:00:00

b) During the following periods, the depth readings were zero and/or negative. The depth data were not deleted because the salinity and dissolved oxygen readings indicate the data logger was submerged during these periods.

03/08/04	02:00:00-03:30:00
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Fishing Creek

No anomalous data

Mosquito Creek

a) At 01:30:00 on March 02, the turbidity spiked (1537 NTU).

April 1-30, 2004 Sampling Period**Big Bay**

No anomalous data

St. Pierre

a) During the following periods, the turbidity data are suspect because the readings were higher than normally observed at this site. ACE NERR staff noted when the data sonde was retrieved that the bottom of the YSI guard was covered with toadfish eggs. The period where the turbidity readings are constantly elevated likely corresponds with the female toadfish laying her eggs.

04/02/04 at 03:00:00 to 04/06/04 at 13:00:00

Fishing Creek

a) During the following periods, the dissolved oxygen (DO) data are suspect because the readings were above 120% air saturation. The highest DO readings ranged from 136.3 to 148.3 percent saturation for five consecutive afternoons each revolving around low tides. ACE NERR staff believe that the high DO readings corresponded with an algal bloom.

04/17/04	15:00:00		
04/18/04	14:00:00;	15:00:00-15:30:00	
04/19/04	14:30:00-15:00:00;	16:00:00-16:30:00	
04/20/04	14:30:00-15:30:00;	16:30:00-17:00:00;	18:00:00
04/21/04	13:00:00-14:30:00;	15:30:00;	17:00:00-18:30:00
04/22/04	15:00:00-16:30:00;	17:30:00-19:00:00	

b) During the following periods, the turbidity spiked; readings ranged from 1069 NTU to 1587 NTU.

04/28/04	13:00:00;	14:30:00;	16:00:00
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Mosquito Creek

No anomalous data

May 1-31, 2004 Sampling Period**Big Bay**

a) During the following periods, the turbidity spiked; readings ranged from 1005 NTU to 2426 NTU.

05/06/04	17:30:00		
05/13/04	01:00:00;	07:00:00	
05/27/04	02:00:00;	12:30:00-14:00:00;	17:30:00; 22:30:00

05/28/04	00:30:00; 05:00:00; 17:30:00; 21:30:00
05/29/04	20:30:00-21:30:00
05/30/04	00:00:00-01:00:00; 02:30:00; 17:00:00-17:30:00; 21:30:00; 22:30:00; 23:30:00
05/31/04	03:30:00; 12:00:00-12:30:00

St. Pierre

a) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during low slack tides.

05/15/04	13:00:00
05/20/04	01:30:00; 02:30:00; 03:30:00
05/21/04	01:30:00–05:00:00
05/22/04	02:30:00–03:30:00
05/24/04	04:30:00–05:00:00; 06:00:00–07:00:00
05/25/04	05:00:00–08:30:00
05/26/04	06:00:00–07:00:00; 08:30:00
05/27/04	07:30:00–08:00:00
05/29/04	09:30:00; 23:30:00
05/30/04	23:30:00

Fishing Creek

a) At 16:00:00 on May 6, the dissolved oxygen (DO) reading was less 28% air saturation; the low DO reading occurred during a low slack tide.

b) During the following periods, the dissolved oxygen (DO) data are suspect because the readings were above 120% air saturation. The highest DO readings ranged from 136.3 to 148.3 percent saturation for five consecutive afternoons each revolving around low tides. ACE NERR staff believe that the high DO readings corresponded with an algal bloom.

05/22/04	16:30:00
05/24/04	16:30:00–18:00:00
05/25/04	16:00:00–21:00:00
05/26/04	17:30:00–18:30:00; 20:00:00–21:00:00

Mosquito Creek

a) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during low slack tides.

05/18/04	02:30:00
05/25/04	19:00:00
05/26/04	07:30:00
05/27/04	08:30:00

b) At 03:30:00 on May 14, the turbidity spiked (2010 NTU).

June 1-30, 2004 Sampling Period

Big Bay

a) During the following periods, turbidity spiked; readings ranged from 1008 NTU to 2413

NTU. ACE NERR staff noted at the data sondes retrieval the presence of crabs in the guard, and the protective bag was torn and wrapped around the turbidity wiper, which probably caused the elevated turbidity readings.

06/01/04	05:30:00; 09:00:00-09:30:00; 16:00:00; 19:00:00; 20:00:00; 21:30:00; 22:30:00
06/02/04	04:00:00; 05:00:00-05:30:00; 09:00:00; 10:30:00; 20:00:00
06/03/04	05:00:00-06:30:00; 14:00:00; 17:00:00-17:30:00; 18:30:00; 21:00:00; 23:00:00-23:30:00
06/04/04	00:00:00-00:30:00; 02:00:00-03:00:00; 04:00:00-04:30:00; 06:00:00-08:00:00; 09:00:00-10:00:00; 13:30:00-23:30:00
06/05/04	00:00:00; 02:00:00; 03:30:00; 05:00:00-07:30:00; 08:30:00-10:30:00; 11:30:00; 12:30:00; 13:30:00-19:30:00; 21:30:00-22:00:00; 23:00:00
06/06/04	00:00:00; 01:00:00; 02:30:00-03:00:00; 04:30:00-05:00:00; 07:30:00-10:00:00; 12:00:00-13:00:00; 14:00:00; 17:00:00; 18:00:00-18:30:00; 19:30:00; 22:00:00-22:30:00; 23:30:00
06/07/04	00:00:00; 01:00:00; 02:30:00-04:00:00; 05:30:00-07:00:00; 09:30:00-17:00:00; 18:00:00-20:00:00; 21:00:00-23:00:00
06/08/04	03:30:00; 04:30:00; 14:00:00; 15:30:00-16:00:00; 17:00:00; 18:00:00-21:00:00; 22:00:00-23:00:00
06/09/04	01:00:00; 03:00:00; 04:00:00; 05:30:00-12:30:00; 13:30:00-14:30:00; 15:30:00; 16:30:00; 17:30:00-23:30:00
06/10/04	00:00:00-07:00:00; 08:00:00-11:30:00; 12:30:00-23:30:00
06/11/04	00:00:00-03:30:00; 05:30:00; 07:00:00; 11:30:00
06/12/04	05:00:00-06:00:00
06/25/04	15:30:00
06/26/04	23:30:00
06/28/04	13:30:00; 21:00:00

St. Pierre

a) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during rain events and low tides.

06/01/04	11:30:00; 12:30:00
06/14/04	00:00:00
06/15/04	01:00:00
06/16/04	14:00:00; 23:30:00
06/17/04	00:30:00; 01:30:00-03:00:00; 12:30:00-13:30:00
06/18/04	01:00:00-02:00:00; 03:00:00; 04:00:00; 13:30:00-14:30:00
06/19/04	01:30:00-05:00:00; 09:00:00-11:00:00; 13:30:00-15:30:00
06/20/04	02:30:00-05:00:00; 14:00:00-16:00:00
06/21/04	04:00:00-06:30:00; 16:00:00-18:00:00
06/22/04	05:00:00-05:30:00; 15:30:00; 16:30:00
06/23/04	05:00:00-06:30:00
06/24/04	06:00:00-06:30:00

06/25/04 08:00:00
 06/26/04 07:00:00-08:00:00
 06/27/04 21:30:00; 23:00:00
 06/28/04 09:00:00; 10:00:00-10:30:00
 06/30/04 00:00:00-00:30:00

b) During the following periods, the turbidity spiked; readings ranged from 1004 NTU to 3329 NTU. Although the recorded turbidity readings are extremely high, the probe post calibrated within range. The NTU standard 0.0 post-calibrated to -1.1, and the NTU standard 123.0 post-calibrated to 125.1.

06/04/04 20:00:00-20:30:00
 06/05/04 07:30:00-08:00:00; 20:30:00
 06/06/04 09:00:00-09:30:00; 20:30:00; 21:30:00-22:00:00
 06/07/04 02:00:00; 03:00:00-03:30:00; 06:30:00; 07:30:00;
 11:00:00; 14:30:00; 19:00:00; 20:00:00; 21:00:00;
 22:00:00; 23:00:00
 06/08/04 00:00:00; 01:00:00; 03:30:00; 04:30:00; 05:30:00;
 06:30:00; 07:30:00; 08:30:00; 09:30:00; 10:30:00;
 11:30:00; 12:30:00; 13:30:00; 14:30:00; 15:30:00;
 17:30:00; 18:30:00; 19:30:00; 21:30:00; 22:30:00;
 23:30:00
 06/09/04 00:30:00; 01:30:00; 05:00:00; 06:30:00; 08:30:00;
 09:30:00; 10:30:00; 11:30:00; 12:30:00; 13:30:00;
 14:30:00; 15:30:00; 18:00:00; 19:00:00; 20:00:00;
 21:00:00; 22:00:00; 23:00:00
 06/10/04 00:00:00; 01:00:00; 02:00:00; 03:00:00-03:30:00;
 04:30:00; 09:00:00
 06/11/04 07:30:00
 06/12/04 07:30:00; 08:30:00; 09:30:00; 14:00:00; 15:00:00;
 16:00:00; 22:30:00
 06/13/04 03:30:00; 07:00:00; 10:30:00; 14:00:00; 15:00:00;
 18:00:00
 06/14/04 06:00:00; 07:00:00; 08:00:00; 09:00:00; 11:30:00;
 14:00:00; 16:30:00; 17:30:00; 19:00:00; 21:30:00;
 22:30:00
 06/15/04 00:00:00; 01:00:00; 02:30:00; 05:00:00; 06:00:00;
 07:30:00; 08:30:00; 10:00:00; 11:00:00
 06/27/04 14:00:00-15:00:00; 17:00:00
 06/28/04 02:30:00-03:00:00; 11:00:00; 12:30:00; 13:30:00;
 16:00:00; 17:00:00-17:30:00
 06/29/04 00:30:00; 02:00:00-02:30:00; 04:30:00; 07:30:00;
 09:30:00; 11:00:00; 12:00:00-12:30:00; 13:30:00

Fishing Creek

a) During the following periods, the turbidity spiked; readings ranged from 1031 NTU to

1951 NTU.

06/03/04	04:00:00				
06/04/04	18:30:00-19:00:00				
06/05/04	03:00:00;	14:30:00;	15:30:00;	19:00:00;	20:00:00
06/06/04	00:30:00;	04:30:00			
06/11/04	22:30:00				
06/27/04	23:00:00				

Mosquito Creek

a) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during low tides.

06/18/04	15:00:00
06/22/04	06:00:00

b) During the following periods, the turbidity spiked; readings ranged from 1063 NTU to 2061 NTU.

06/13/04	12:00:00
06/14/04	09:00:00; 12:00:00
06/22/04	08:30:00

July 1-31, 2004 Sampling Period

Big Bay

a) During the following periods, the turbidity spiked; readings ranged from 1011 NTU to 2500 NTU. ACE NERR staff noted that when the data sonde was retrieved, a crab was present in the guard, which could account for the elevated turbidity readings.

07/09/04	07:30:00;	11:30:00;	12:30:00-13:00:00;	14:30:00;	19:30:00-20:00:00
07/10/04	01:30:00;	06:00:00-06:30:00;	10:00:00-10:30:00;	14:00:00-15:00:00;	17:30:00-18:00:00;
				21:30:00-22:00:00	
07/11/04	02:00:00;	03:30:00;	06:30:00;	07:30:00-08:00:00;	09:00:00;
					11:00:00;
					12:30:00-13:00:00;
					15:00:00-15:30:00;
					17:00:00;
					19:30:00-20:00:00;
					21:30:00
07/12/04	00:00:00-00:30:00;	02:00:00;	04:30:00-05:00:00;	06:30:00;	07:30:00
07/14/04	19:00:00				
07/21/04	06:00:00;	09:30:00;	11:30:00;	15:30:00	
07/22/04	05:00:00;	10:00:00;	16:00:00		
07/23/04	09:30:00;	11:00:00;	17:00:00;	18:30:00;	23:00:00
07/24/04	09:30:00;	23:00:00			
07/25/04	00:00:00;	12:00:00;	19:00:00;	21:00:00	
07/26/04	01:00:00				
07/27/04	08:30:00				

St. Pierre

a) At 14:00:00 on July 16, the dissolved oxygen (DO) datum is suspect because the reading

was above 120% air saturation.

b) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during rain events and low tides.

07/01/04	01:00:00-01:30:00	
07/02/04	02:00:00-03:00:00	
07/03/04	03:00:00-04:00:00	
07/04/04	04:00:00-04:30:00	
07/05/04	04:30:00-05:30:00	
07/06/04	05:00:00-07:00:00	
07/07/04	06:00:00-07:00:00	
07/08/04	07:00:00-08:00:00	
07/09/04	07:30:00-08:00:00;	09:00:00
07/10/04	08:30:00	
07/11/04	09:00:00-10:00:00;	22:00:00-23:30:00
07/12/04	00:00:00-00:30:00	
07/17/04	01:30:00-02:30:00	
07/18/04	02:00:00-03:00:00;	04:00:00-04:30:00
07/21/04	04:30:00	
07/22/04	05:00:00-06:30:00	
07/23/04	05:30:00-06:30:00	
07/24/04	06:30:00-08:00:00	
07/25/04	07:30:00-08:30:00	
07/26/04	08:00:00-09:30:00	
07/27/04	10:30:00;	22:30:00-23:30:00
07/28/04	00:00:00;	11:30:00; 23:30:00
07/29/04	00:00:00-01:00:00	
07/30/04	01:00:00	
07/31/04	02:00:00	

b) During the following periods, the turbidity spiked; readings ranged from 1005 NTU to 3421 NTU. ACE NERR staff noted excessive shell growth on the interior and exterior of the mount when the data logger was retrieved, which could account for the elevated turbidity readings. The shell growth was removed from the mount before deploying a newly calibrated data logger.

07/18/04	14:30:00-15:00:00	
07/23/04	22:30:00-23:30:00	
07/24/04	00:00:00-01:30:00;	10:30:00-23:30:00
07/25/04	00:00:00-23:30:00	
07/26/04	00:00:00-16:30:00;	19:00:00-23:30:00
07/27/04	00:00:00-18:00:00	
07/29/04	14:30:00;	17:30:00
07/30/04	04:30:00-05:00:00;	06:30:00; 07:30:00; 11:00:00;
	12:00:00;	13:00:00; 14:00:00; 18:00:00; 20:00:00
07/31/04	02:00:00;	03:00:00; 07:00:00; 14:00:00; 15:00:00;
	19:30:00;	20:30:00; 21:30:00; 22:30:00; 23:30:30

Fishing Creek

- a) At 10:00:00 on July 12, the dissolved oxygen (DO) reading was below 28% air saturation; the low DO reading occurred during a low tide.
- b) At 22:30:00 on July 27, the turbidity spiked (1466 NTU).

Mosquito Creek

- a) At 02:00:00 on July 1, the dissolved oxygen (DO) was reading below 28% air saturation; the low DO reading occurred during a low tide.

August 1-31, 2004 Sampling Period**Big Bay**

- a) During the following periods, the turbidity spiked; readings ranged from 1039 NTU to 2932 NTU.

08/04/04	16:30:00
08/17/04	10:30:00
08/19/04	01:00:00-02:00:00
08/21/04	08:30:00-13:30:00
08/25/04	12:30:00-13:30:00; 16:00:00-16:30:00

St. Pierre

- a) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during rain events and low tides.

08/01/04	03:00:00-03:30:00
08/02/04	03:30:00-04:00:00
08/03/04	04:30:00-05:30:00; 16:30:00
08/04/04	05:00:00-06:00:00; 17:00:00
08/05/04	05:30:00-07:00:00
08/06/04	05:30:00-07:30:00; 18:30:00
08/07/04	07:00:00-09:00:00; 19:30:00-20:00:00; 21:00:00-21:30:00
08/08/04	07:00:00-09:30:00; 20:00:00-20:30:00
08/09/04	08:00:00-11:00:00; 23:00:00-23:30:00
08/10/04	09:00:00-10:30:00; 22:00:00-22:30:00
08/11/04	00:00:00; 09:30:00-11:00:00; 12:00:00; 23:00:00
08/12/04	00:30:00-01:00:00; 11:30:00
08/15/04	01:00:00-01:30:00
08/16/04	02:00:00-02:30:00; 14:00:00
08/17/04	02:30:00-03:30:00
08/18/04	03:30:00-04:30:00
08/19/04	03:30:00-05:30:00; 16:30:00
08/20/04	04:00:00-06:00:00; 17:00:00
08/21/04	04:30:00-07:00:00
08/22/04	05:00:00-07:30:00
08/23/04	06:00:00-06:30:00; 19:30:00

08/24/04	08:00:00-08:30:00; 21:30:00
08/25/04	08:30:00-10:30:00; 22:30:00-23:30:00
08/26/04	00:00:00; 11:30:00; 23:00:00
08/27/04	11:00:00-11:30:00
08/28/04	00:00:00-02:00:00; 12:00:00-14:00:00
08/29/04	02:00:00-03:30:00
08/30/04	01:30:00; 02:30:00
08/31/04	03:00:00

b) During the following periods, the turbidity spiked; readings ranged from 1001 NTU to 2901 NTU. ACE NERR staff noted excessive shell growth on the interior and exterior of the mount when the data logger was retrieved, which could account for the elevated turbidity readings. The extensive shell growth was removed from the interior and exterior of the mount.

08/01/04	05:00:00; 06:00:00; 12:30:00; 13:30:00; 18:00:00; 19:00:00; 20:00:00
08/02/04	01:30:00; 05:00:00; 08:30:00; 09:30:00; 22:00:00; 23:00:00
08/03/04	01:00:00; 04:30:00; 08:00:00; 11:30:00; 12:30:00; 13:30:00; 18:00:00; 19:00:00; 20:00:00; 23:30:00
08/04/04	02:00:00; 06:30:00; 11:00:00; 20:30:00; 21:30:00-22:00:00; 23:30:00
08/05/04	03:00:00; 04:00:00; 07:30:00; 11:00:00; 12:00:00
08/06/04	00:30:00; 01:30:00; 06:00:00; 12:30:00; 15:30:00; 16:30:00; 22:00:00
08/07/04	02:30:00; 07:00:00; 08:00:00; 10:30:00; 11:30:00-12:30:00; 13:30:00; 14:30:00; 15:30:00; 16:30:00; 17:30:00; 18:30:00
08/08/04	02:00:00; 03:00:00; 04:00:00; 05:30:00; 07:30:00; 08:30:00; 09:30:00; 10:30:00; 11:30:00; 14:30:00; 15:30:00; 16:30:00; 17:30:00; 18:30:00; 19:30:00; 20:30:00; 21:30:00
08/09/04	03:00:00; 07:30:00; 14:00:00; 15:00:00; 19:30:00; 20:30:00; 21:30:00; 22:30:00; 23:30:00
08/10/04	00:30:00; 01:30:00; 02:30:00; 03:30:00; 04:30:00; 08:00:00; 09:00:00; 10:00:00; 11:00:00; 14:30:00; 15:30:00; 16:30:00; 19:00:00; 20:00:00; 21:00:00; 23:30:00
08/11/04	00:30:00; 01:30:00; 04:00:00; 05:00:00; 06:00:00; 08:30:00; 09:30:00; 10:30:00; 12:00:00; 13:00:00; 14:00:00; 16:30:00; 17:30:00; 22:00:00; 23:00:00
08/12/04	01:30:00; 02:30:00; 03:30:00; 06:00:00; 07:00:00; 08:00:00; 10:30:00; 11:30:00; 12:30:00; 13:30:00; 14:30:00; 15:30:00; 16:30:00; 22:00:00-22:30:00
08/14/04	08:00:00; 18:00:00
08/15/04	05:30:00

08/22/04	11:00:00	
08/25/04	03:00:00;	16:30:00

Fishing Creek

a) At 07:00:00 on August 23, the dissolved oxygen (DO) reading was below 28% air saturation; the low DO reading occurred during a low tide.

Mosquito Creek

a) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during rain events and low tides.

08/04/04	06:00:00	
08/05/04	06:30:00	
08/12/04	12:00:00	
08/13/04	02:00:00	
08/17/04	04:00:00	
08/18/04	04:30:00;	16:30:00
08/19/04	05:00:00;	17:30:00
08/20/04	05:30:00	
08/21/04	06:30:00	
08/22/04	07:00:00-07:30:00	
08/23/04	07:30:00-08:00:00;	21:00:00
08/24/04	09:00:00-09:30:00;	22:30:00
08/25/04	10:00:00;	23:30:00
08/27/04	00:30:00	
08/31/04	04:00:00	

September 1-30, 2004 Sampling Period

Big Bay

a) During the following periods, the turbidity spiked; readings ranged from 1000 NTU to 2788 NTU. ACE NERR staff found a stone crab in the guard and there was growth on the probes, which could account for the elevated turbidity readings.

09/04/04	14:30:00	
09/07/04	14:00:00	
09/12/04	11:00:00	
09/13/00	23:00:00-23:30:00	
09/14/04	01:30:00;	02:30:00-03:30:00; 07:30:00-14:00:00; 18:30:00-23:30:00
09/15/04	00:00:00-03:30:00;	07:30:00-08:30:00; 09:30:00-14:00:00; 15:30:00-20:30:00; 22:00:00-22:30:00
09/16/04	03:00:00-03:30:00;	10:30:00-11:00:00; 16:00:00; 19:00:00-20:00:00
09/18/04	20:00:00	
09/19/04	01:30:00;	12:30:00
09/20/04	12:00:00-23:30:00	

09/21/04	00:00:00-23:30:00	
09/22/04	00:00:00-14:30:00;	15:30:00-23:30:00
09/23/04	00:00:00-00:30:00;	01:30:00-08:30:00
09/24/04	10:00:00	
09/27/04	18:30:00;	22:30:00-23:30:00
09/28/04	00:00:00-06:00:00;	08:30:00-09:00:00; 13:30:00-14:00:00
09/29/04	19:30:00;	21:30:00-22:00:00
09/30/04	06:30:00; 08:30:00;	09:30:00-10:30:00; 12:30:00-15:00:00;
	16:00:00-18:30:00;	20:00:00; 21:00:00-23:30:00

St. Pierre

a) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during rain events and low tides.

09/01/04	03:30:00-04:30:00	
09/02/04	03:30:00-05:30:00;	17:00:00
09/03/04	05:00:00-06:30:00;	18:00:00
09/04/04	05:00:00	
09/05/04	06:00:00-07:00:00;	08:00:00
09/06/04	08:00:00	
09/10/04	10:00:00-11:30:00;	23:30:00
09/11/04	11:30:00;	23:30:00
09/12/04	00:00:00-00:30:00;	01:30:00; 11:30:00-12:00:00
09/13/04	00:30:00-01:00:00;	13:00:00; 14:00:00
09/14/04	01:30:00-03:00:00	
09/15/04	02:30:00-03:30:00	
09/16/04	02:30:00-04:00:00	
09/17/04	03:30:00-04:00:00	
09/18/04	03:30:00-04:30:00	
09/22/04	09:00:00	
09/28/04	02:30:00	

Fishing Creek

a) During the following periods, the depth readings were zero and/or negative. The depth data were not deleted because the salinity and dissolved oxygen readings indicate the data logger was submerged during these periods.

09/28/04	15:00:00-15:30:00
09/29/04	02:30:00-03:00:00

Mosquito Creek

a) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during rain events and low tides.

09/12/04	01:00:00
09/13/04	02:00:00

October 1-31, 2003 Sampling Period

Big Bay

a) During the following periods, the turbidity readings spiked; readings ranged from 1008 NTU to 1949 NTU. ACE NERR found a stone crab in the guard and there was growth on the probes, which could account for the elevated turbidity readings.

10/01/04	00:00:00-23:30:00
10/02/04	00:00:00-23:00:00
10/03/04	00:00:00-23:00:00
10/04/04	00:00:00-23:00:00
10/05/04	00:00:00-18:00:00; 19:00:00-20:00:00; 22:00:00
10/06/04	01:00:00-01:30:00; 05:00:00; 07:30:00; 10:00:00-12:30:00; 14:30:00; 17:30:00; 18:30:00-19:30:00; 21:30:00; 22:30:00
10/07/04	01:00:00-01:30:00; 02:30:00; 04:30:00; 05:30:00; 06:30:00; 07:30:00-08:00:00; 10:00:00-11:30:00; 12:30:00-16:30:00
10/08/04	03:30:00; 04:30:00-05:00:00; 07:00:00-08:30:00; 09:30:00-11:00:00; 12:00:00; 13:30:00; 16:00:00-23:30:00
10/09/04	00:00:00-05:00:00; 06:00:00-06:30:00; 09:00:00-23:30:00
10/10/04	00:00:00-19:30:00; 21:00:00-22:00:00; 23:00:00-23:30:00
10/11/04	00:00:00; 01:00:00-02:00:00; 03:00:00-13:30:00; 14:30:00-15:00:00; 16:30:00-23:00:00
10/12/04	04:30:00-12:00:00; 16:30:00-23:30:00
10/13/04	00:00:00; 05:00:00-10:30:00; 13:30:00-15:30:00; 17:00:00-18:00:00; 19:30:00-23:30:00
10/14/04	00:00:00-23:30:00
10/15/04	00:00:00-04:00:00; 05:00:00-16:30:00; 19:00:00-23:30:00
10/16/04	00:00:00-01:00:00; 03:00:00-23:30:00
10/17/04	00:00:00-21:00:00; 23:30:00
10/18/04	00:00:00-21:00:00; 22:30:00-23:30:00
10/19/04	00:00:00-20:30:00
10/20/04	00:30:00-01:00:00; 02:30:00; 04:00:00-04:30:00; 05:30:00; 07:30:00-15:00:00; 16:30:00
10/21/04	00:30:00-02:00:00; 12:00:00; 13:00:00; 14:30:00-19:00:00; 20:00:00; 21:00:00-21:30:00; 23:00:00
10/22/04	01:00:00; 02:30:00-05:00:00; 13:30:00; 14:30:00-19:30:00
10/23/04	06:30:00; 14:30:00-20:00:00
10/24/04	03:00:00-08:00:00; 15:30:00-19:30:00; 20:30:00-21:00:00
10/25/04	03:30:00-08:00:00

St. Pierre

a) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the low DO readings occurred during rain events and low tides.

10/01/04	03:30:00-04:00:00
10/02/04	03:30:00-05:30:00

10/03/04	03:30:00-06:00:00
10/04/04	04:30:00-05:30:00
10/05/04	06:00:00-06:30:00
10/06/04	06:30:00-08:00:00
10/07/04	09:30:00-10:00:00

b) During the following periods, the turbidity spiked; readings ranged from 1243 NTU to 2319 NTU.

10/15/04	11:30:00			
10/16/04	08:30:00;	13:00:00;	21:30:00	
10/17/04	01:00:00;	03:00:00;	04:30:00;	06:00:00

Fishing Creek

a) At 08:30:00 on October 20, the turbidity spiked (1740 NTU).

Mosquito Creek

a) During the following periods, the turbidity spiked; readings ranged from 1060 NTU to 1893 NTU.

10/23/04	14:00:00-14:30:00;	17:30:00
10/24/04	07:30:00	
10/26/04	03:30:00;	08:00:00; 09:00:00

November 1-30, 2004 Sampling Period

Big Bay

a) During the following periods, the turbidity readings spiked; readings ranged from 1031 NTU to 2585 NTU. During these periods, the YSI submersible deployment mount was wrapped around a piling, and the sonde had to be retrieved by a scuba diver. The sonde was possibly lying horizontally on the creek bottom, which could account for the elevated turbidity readings.

11/26/04	02:00:00-03:30:00
11/28/04	20:00:00-23:30:00
11/29/04	00:00:00-02:00:00; 16:30:00-17:00:00; 18:00:00-23:30:00
11/30/04	00:00:00-06:30:00; 08:30:00; 15:30:00-23:30:00

St. Pierre

b) During the following periods, the turbidity readings spiked; readings ranged from 1451 NTU to 2133 NTU.

11/21/04	00:30:00; 15:30:00
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Fishing Creek

a) During the following periods, the depth readings were negative. The depth data were not deleted because the salinity and dissolved oxygen readings indicate the data logger was submerged during these periods.

11/25/04	13:30:00-14:00:00
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Mosquito Creek

No anomalous data

December 1-31, 2004 Sampling Period**Big Bay**

a) During the following periods, the turbidity readings spiked; readings ranged from 1024 NTU to 2507 NTU. The spikes that occurred on 12/01/04 could have been a result of the YSI being wrapped around a piling.

12/01/04 00:00:00-01:00:00; 04:00:00-06:30:00; 10:00:00-11:30:00; 12:30:00
12/08/04 02:30:00

St. Pierre

a) During the following periods, the depth readings were negative. The depth data were not deleted because the salinity and dissolved oxygen readings indicate the data logger was submerged during these periods.

12/24/04 00:00:00-00:30:00

Fishing Creek

a) During the following periods, the turbidity readings spiked; readings ranged from 1001 NTU to 2455 NTU.

12/12/04 13:00:00; 14:00:00-15:00:00; 16:00:00; 23:00:00
12/13/04 00:00:00; 01:00:00; 02:30:00; 23:00:00
12/14/04 00:00:00; 01:30:00; 02:30:00-03:00:00; 04:00:00;
05:00:00-05:30:00; 06:30:00; 08:00:00-08:30:00
12/18/04 11:00:00-11:30:00; 13:00:00
12/19/04 01:30:00; 09:30:00; 11:30:00; 14:00:00-14:30:00;
20:00:00; 21:00:00-21:30:00; 23:30:00
12/20/04 00:00:00-00:30:00; 01:30:00-03:00:00; 04:30:00-05:00:00;
09:00:00-10:00:00; 12:30:00; 21:00:00
12/21/04 03:30:00
12/25/04 08:00:00; 20:30:00
12/31/04 11:00:00

b) During the following periods, the dissolved oxygen (DO) readings were below 28% air saturation; the readings were very low, ranging from 1.4 to 9.0% air saturation for four consecutive afternoons. The low DO readings are not suspect because they occurred during low tide events. Other parameters were affected by this event, and include a leveling of pH, and a decrease in salinity which indicates a influx of fresh water.

12/13/04 11:00:00-13:00:00; 14:00:00-16:00:00
12/14/04 11:30:00-15:00:00; 16:00:00-18:30:00
12/15/04 13:00:00-19:30:00; 20:30:00; 21:30:00
12/16/04 00:00:00-03:00:00; 04:00:00; 13:00:00-17:30:00;
18:30:00-20:00:00
12/17/04 01:30:00

c) During the following periods, the depth readings were negative. The depth data were not

deleted because the salinity and dissolved oxygen readings indicate that the data logger was submerged during these times.

12/10/04	13:30:00
12/11/04	00:30:00-01:00:00, 02:00:00 - 02:30:00; 13:30:00- 14:00:00, 15:00:00
12/12/04	01:00:00, 02:00:00 -03:00:00; 15:00:00-15:30:00
12/13/04	02:30:00, 03:30:00; 15:30:00-16:00:00, 17:00:00
12/19/04	21:30:00

Mosquito Creek

No anomalous data

12. Deleted Data

January 1-31, 2004 Sampling Period

Big Bay

No deleted data

St. Pierre

No deleted data

Fishing Creek

a) During the following periods, the turbidity readings were negative; the data were deleted. During post-deployment calibration check, the turbidity sensor read -24.6 NTU in the zero NTU standard (NTU 0 = -24.6). Under the advisement of YSI, the sensor was replaced.

01/19/04	12:30:00- 17:00:00; 19:30:00-20:00:00; 21:30:00-23:30:00
01/20/04	00:00:00-04:30:00; 09:30:00; 14:30:00-18:00:00; 21:00:00; 23:00:00-23:30:00
01/21/04	00:00:00-06:00:00; 10:00:00-12:30:00; 15:30:00-19:00:00; 21:00:00-23:30:00
01/22/04	00:00:00-07:00:00; 10:30:00-13:30:00; 15:00:00; 16:00:00-20:00:00; 22:30:00; 23:30:00
01/23/04	00:00:00-08:00:00; 11:00:00-11:30:00; 13:00:00-20:30:00; 23:30:00
01/24/04	01:00:00-08:30:00; 12:00:00-12:30:00; 14:00:00-21:30:00
01/25/04	00:00:00; 02:00:00-09:00:00; 13:00:00-13:30:00; 14:30:00; 18:00:00-21:30:00
01/26/04	00:30:00-02:30:00; 03:30:00; 06:30:00-10:00:00; 13:00:00-15:30:00
01/27/04	01:30:00-02:00:00; 10:30:00; 14:00:00; 22:30:00-23:00:00
01/28/04	01:30:00-02:00:00; 04:00:00; 11:30:00-23:30:00
01/29/04	00:00:00-23:30:00
01/30/04	00:00:00-23:30:00
01/31/04	00:00:00-23:30:00

Mosquito Creek

No deleted data

February 1-29, 2004 Sampling Period

Big Bay

No deleted data

St. Pierre

No deleted data

Fishing Creek

a) During the following periods, the turbidity readings were negative; the data were deleted. During post-deployment calibration check, the turbidity sensor read -24.6 NTU in the zero NTU standard (NTU 0 = -24.6). Under the advisement of YSI, the sensor was replaced.

02/01/04	00:00:00-04:00:00;	05:30:00-23:30:00		
02/02/04	00:00:00-01:00:00;	02:30:00-04:00:00;	07:00:00-07:30:00;	
	08:30:00-17:00:00;	19:00:00-19:30:00;	20:30:00-23:30:00	
02/03/04	00:00:00-05:00:00;	07:30:00-08:00:00;	09:30:00-10:30:00;	
	11:30:00-23:30:00			
02/04/04	00:00:00-06:00:00;	10:00:00-10:30:00;	11:30:00-12:00:00;	
	13:00:00-14:00:00;	15:00:00-17:00:00;	18:00:00-18:30:00;	
	20:00:00-23:30:00			
02/05/04	00:00:00-06:00:00;	09:00:00-10:00:00;	14:00:00-18:30:00;	22:00:00
02/06/04	00:00:00-06:30:00;	10:00:00-10:30:00;	15:00:00-19:30:00;	22:00:00
02/07/04	01:00:00-08:00:00;	10:00:00-10:30:00;	12:00:00-12:30:00;	
	14:00:00-15:00:00;	16:30:00-17:00:00;	18:00:00-19:30:00;	
	20:30:00-21:00:00;	22:00:00-23:30:00		
02/08/04	00:00:00-08:30:00;	13:30:00;	16:30:00-19:30:00	
02/09/04	03:30:00-04:00:00;	05:00:00-07:30:00;	18:00:00-21:30:00	
02/10/04	00:30:00;	03:00:00-08:30:00;	15:00:00-17:30:00;	
	18:30:00-22:00:00			
02/11/04	00:00:00-01:00:00;	03:00:00-11:00:00;	13:00:00;	
	14:30:00-23:00:00			
02/12/04	02:00:00-02:30:00;	04:00:00-11:30:00		
02/13/04	03:00:00-03:30:00;	09:30:00-12:30:00;	17:00:00-23:30:00	
02/14/04	00:00:00-00:30:00;	04:00:00-04:30:00;	08:00:00-13:00:00;	
	15:30:00-16:00:00;	17:30:00-23:30:00		
02/15/04	00:00:00-01:30:00;	05:30:00-06:30:00;	10:30:00-14:30:00;	
	16:00:00-17:30:00;	18:30:00-23:30:00		
02/16/04	00:00:00-03:00:00;	07:00:00-07:30:00;	11:30:00-16:00:00;	
	17:00:00-19:00:00;	20:00:00-23:30:00		
02/17/04	00:00:00-03:30:00;	07:30:00-09:30:00		

Mosquito Creek

No deleted data

March 1-31, 2004 Sampling Period**Big Bay**

No deleted data

St. Pierre

No deleted data

Fishing Creek

No deleted data

Mosquito Creek

No deleted data

April 1-30, 2004 Sampling Period**Big Bay**

a) During the following periods, the dissolved oxygen (DO) readings were deleted because the DO membrane was punctured during the deployment.

04/18/04 at 15:30:00 to 04/30/04 at 23:30:00

St. Pierre

No deleted data

Fishing Creek

No deleted data

Mosquito Creek

No deleted data

May 1-31, 2004 Sampling Period**Big Bay**

a) During the following periods, the dissolved oxygen (DO) readings were deleted because the DO membrane was punctured during the deployment.

05/01/04 at 00:00:00 to 05/13/04 at 08:30:00

b) During the following periods, the pH readings were deleted because the sensor broke during the deployment.

05/09/04 at 21:30:00 to 05/13/04 at 08:30:00

St. Pierre

No deleted data

Fishing Creek

No deleted data

Mosquito Creek

- a) During the following periods, the depth data were deleted. The depth readings dropped rapidly (2 m from previous reading). The reason for the anomalous readings is unknown at this time.

05/07/04 16:00:00; 17:00:00-17:30:00

05/08/04 09:30:00

June 1-30, 2004 Sampling Period**Big Bay**

- a) At 05:00:00 on June 1, the turbidity reading was negative; the datum was deleted.
 b) During the following periods, the pH readings were deleted because the sensor broke during the deployment.

06/04/04 at 05:30:00 to 06/15/04 at 10:30:00

- c) At 11:00:00 on June 15, the depth reading was deleted. The first depth reading of the deployment was unusually low (0.07 m), compared to the preceding readings (2.64 to 4.8 m). ACE NERR staff contacted YSI and were advised that an air bubble could have been trapped in the depth sensor chamber.

St. Pierre

No deleted data

Fishing Creek

- a) During the following periods, the dissolved oxygen (DO) readings were deleted because the DO membrane was punctured during the deployment.

06/14/04 at 09:30:00 to 06/15/04 at 12:30:00

Mosquito Creek

- a) During the following periods, the dissolved oxygen (DO) readings were deleted because the DO membrane was punctured during the deployment.

06/10/04 at 11:30:00 to 06/15/04 at 10:30:00

July 1-31, 2004 Sampling Period**Big Bay**

No deleted data

St. Pierre

No deleted data

Fishing Creek

No deleted data

Mosquito Creek

No deleted data

August 1-31, 2004 Sampling Period**Big Bay**

a) During the following periods, the turbidity readings were negative; the data were deleted.

08/21/04	22:00:00-23:30:00		
08/22/04	00:00:00-14:30:00;	16:30:00-18:30:00;	20:30:00-23:30:00
08/23/04	00:00:00-01:00:00;	03:00:00-05:00:00;	09:30:00-17:30:00;
	19:00:00-23:30:00		
08/24/04	00:00:00-05:00:00;	09:30:00-10:00:00	
08/25/04	21:00:00-21:30:00		
08/26/04	02:00:00;	03:00:00;	04:00:00; 06:00:00-07:00:00

St. Pierre

No deleted data

Fishing Creek

No deleted data

Mosquito Creek

No deleted data

September 1-30, 2004 Sampling Period**Big Bay**

a) During the following periods, the salinity, specific conductivity, dissolved oxygen (DO) mg/L, and depth readings were deleted because the conductivity probe malfunctioned during the deployment.

09/23/04 at 09:00:00 to 09/30/04 at 23:30:00

St. Pierre

No deleted data

Fishing Creek

No deleted data

Mosquito Creek

a) During the following periods, the turbidity readings were negative; the data were deleted.

09/21/04	16:30:00;	21:30:00-23:30:00
09/22/04	00:30:00-06:00:00;	07:00:00-13:30:00; 14:30:00;
	16:30:00-17:30:00;	18:30:00; 19:30:00-23:30:00
09/23/04	00:00:00-00:30:00;	01:30:00-14:00:00; 15:30:00;
	17:00:00-18:30:00;	20:30:00; 21:30:00-23:30:00
09/24/04	00:00:00-01:00:00;	02:30:00-04:00:00; 05:00:00-14:30:00;
	15:30:00;	19:00:00-19:30:00; 23:30:00
09/25/04	00:00:00-02:30:00;	04:00:00-05:00:00; 06:00:00-06:30:00;
	07:30:00-08:00:00;	09:30:00-10:00:00; 11:00:00-14:30:00;

	16:00:00-16:30:00;	20:30:00
09/26/04	01:00:00-03:30:00;	05:00:00-05:30:00; 09:00:00;
	13:00:00-15:30:00;	17:30:00; 21:30:00
09/27/04	02:30:00;	15:00:00-15:30:00; 22:00:00-22:30:00
09/28/04	14:30:00-16:00:00;	22:00:00-22:30:00
09/29/04	02:30:00-04:00:00;	15:00:00-16:30:00; 22:30:00
09/30/04	03:00:00-04:30:00;	16:00:00-17:30:00; 23:00:00-23:30:00

October 1-31, 2004 Sampling Period

Big Bay

a) During the following periods, the dissolved oxygen (DO) readings were deleted because the DO membrane was torn during the deployment.

10/15/04 at 02:00:00 to 10/25/04 at 09:30:00

b) During the following periods, the salinity, specific conductivity, dissolved oxygen (DO) mg/L, and depth readings were deleted because the conductivity probe malfunctioned during the deployment.

10/01/04 at 00:00:00 to 10/25/04 at 09:30:00

St. Pierre

No deleted data

Fishing Creek

No deleted data

Mosquito Creek

a) During the following periods, the turbidity readings were negative; the data were deleted.

10/01/04 03:30:00-05:30:00; 12:00:00; 16:30:00-18:00:00

10/02/04 00:00:00-00:30:00; 03:30:00-06:00:00; 12:30:00;
17:00:00-18:30:00; 22:00:00-23:30:00

10/03/04 00:00:00-02:00:00; 03:00:00-10:00:00; 11:30:00;
13:00:00-14:00:00; 15:00:00; 16:00:00-23:30:00

10/04/04 00:00:00-11:30:00; 12:30:00-23:30:00

10/05/04 00:00:00-23:30:00

10/06/04 00:00:00-23:30:00

10/07/04 00:00:00-23:30:00

10/08/04 00:00:00-23:30:00

10/09/04 00:00:00-23:30:00

10/10/04 00:00:00-23:30:00

10/11/04 00:00:00-23:00:00

10/12/04 00:00:00-05:30:00; 08:30:00-09:00:00; 10:30:00-15:30:00;
17:30:00; 21:00:00; 23:30:00

10/13/04 00:00:00-04:00:00; 09:00:00-09:30:00; 13:00:00-16:00:00; 21:30:00

10/14/04 01:30:00-04:00:00; 10:00:00; 14:30:00-16:30:00; 22:00:00

10/15/04 02:00:00-04:30:00; 15:30:00-17:00:00; 22:30:00

10/16/04	02:30:00-05:00:00;	16:30:00-17:30:00;	23:00:00-23:30:00
10/17/04	03:00:00-06:30:00;	12:30:00;	17:00:00-18:30:00
10/18/04	00:00:00;	03:30:00-07:00:00;	13:30:00; 18:00:00-20:00:00
10/19/04	00:30:00-01:30:00;	04:30:00-07:30:00;	08:30:00; 14:30:00;
	18:30:00-20:30:00		
10/20/04	00:30:00-03:00:00;	05:00:00-09:00:00;	15:00:00;
	19:00:00-23:00:00		
10/21/04	00:00:00-02:00:00;	03:00:00-04:00:00;	06:30:00-10:00:00;
	16:30:00-17:00:00;	21:00:00-23:00:00	
10/22/04	01:00:00; 05:00:00;	09:00:00-11:00:00;	18:00:00-18:30:00;
	22:30:00-23:30:00		
10/23/04	00:00:00-01:00:00;	02:00:00;	03:00:00-03:30:00;
	12:30:00-13:00:00;	23:00:00	
10/24/04	00:00:00-01:00:00;	12:00:00-13:00:00;	20:00:00
10/25/04	00:30:00-01:00:00;	02:00:00;	14:00:00; 20:30:00
10/26/04	00:00:00;	01:00:00-03:00:00;	04:00:00

November 1-30, 2004 Sampling Period

Big Bay

No deleted data

St. Pierre

No deleted data

Fishing Creek

No deleted data

Mosquito Creek

No deleted data

December 1-31, 2004 Sampling Period

Big Bay

a) At 09:30:00 on December 21, a duplicate record was recorded. The clock time on the retrieved and deployed data loggers were not synchronized, and both data loggers recorded a 0930 reading. The 0930 reading taken by the retrieved data logger was deleted and the 0930 reading from the newly deployed datalogger was used.

St. Pierre

No deleted data

Fishing Creek

Data were deleted for the following dates and times due to sensors being out of the water during deployment. All data were deleted.

12/11/04 01:30:00, 14:30:00

12/12/04 01:30:00 – 02:30:00
 12/13/04 03:00:00, 16:30:00
 12/14/04 03:30:00

Mosquito Creek

No deleted data

13. Missing Data

Missing data are denoted by a period in the data set. Data are missing due to equipment failure, probes not installed, maintenance/calibration of equipment, elimination of obvious outliers, or elimination of data due to calibration (both pre and post) problems. For more details on deleted data, see *Section 11 – Anomalous Data*. To find out more details about missing data, contact the Research Coordinator at the site submitting the data.

14. Post Deployment Information

A. Control sonde End of Deployment Readings:

(* Broken pH bulb and/or punctured D.O. membrane)

Site ID	Date	DO (mg/l) (Std: Variable)	Salinity (Std: 18-40 ppt)	pH (Std: 7.00)
<u>Big Bay</u>				
	01/19/04	8.22	27.04	7.95
	02/17/04	9.20	25.50	7.93
	03/16/04	6.94	24.40	7.81
	04/15/04	6.59	26.44	7.64
	05/13/04	*	28.60	*
	06/15/04	*	29.83	*
	06/29/04	5.24	31.56	7.60
	07/12/04	3.30	33.60	7.30
	07/29/04	3.54	29.42	7.37
	08/26/04	3.74	28.44	7.44
	09/09/04	4.62	23.44	7.48
	09/23/04	5.01	26.86	7.57
	10/25/04	*	*	7.86
	12/02/04	8.03	31.80	8.23
	12/21/04	7.68	28.71	8.05
	01/20/05	9.95	27.95	8.07
<u>St. Pierre</u>				
	01/19/04	7.54	27.11	7.72
	02/17/04	9.03	22.98	8.24
	03/16/04	5.60	20.45	7.45
	04/15/04	6.48	26.07	7.81
	05/13/04	3.84	27.01	7.31

	06/15/04	2.66	30.78	7.19
	06/29/04	5.22	28.64	7.40
Site ID	Date	DO (mg/l)	Salinity	pH
		(Std: Variable)	(Std: 18-40 ppt)	(Std: 7.00)
	07/12/04	2.44	32.40	7.07
	07/29/04	3.02	30.92	7.36
	08/26/04	2.55	29.44	7.04
	09/09/04	3.35	24.99	7.38
	09/23/04	3.16	26.53	7.52
	10/25/04	5.33	27.75	7.58
	11/23/04	5.40	29.16	7.75
	12/21/04	8.29	25.82	7.86
	01/20/05	8.66	26.90	8.26

Fishing Creek

01/19/04	9.81	4.06	7.22
02/17/04	9.96	4.03	6.98
03/16/04	5.96	2.85	6.87
04/15/04	5.21	3.23	7.16
05/13/04	3.24	4.54	6.64
06/15/04	*	7.71	6.74
06/29/04	3.40	4.92	6.73
07/12/04	2.10	5.20	6.59
07/29/04	3.64	7.77	6.88
08/26/04	2.88	7.29	6.71
09/09/04	3.25	4.53	6.76
09/23/04	4.16	7.60	6.85
10/25/04	5.70	9.74	6.93
11/23/04	6.56	7.78	6.97
12/21/04	9.37	4.86	7.71
01/20/05	10.79	6.63	7.17

Mosquito Creek

01/19/04	9.83	16.81	7.53
02/17/04	9.57	12.31	7.38
03/16/04	8.49	8.49	7.53
04/15/04	No data available, data storage component destroyed during deployment		
05/13/04	5.22	17.90	7.34
06/15/04	*	22.82	7.42
06/29/04	5.15	17.12	7.27
07/02/04	3.88	17.02	7.03
07/29/04	No data available, data storage component destroyed during deployment		
08/26/04	2.86	17.48	7.13
09/14/04	4.98	21.17	7.48

Site ID	09/21/04	5.36	17.67	7.31
Date		DO (mg/l)	Salinity	pH
		(Std: Variable)	(Std: 18-40 ppt)	(Std: 7.00)
	10/26/04	5.45	23.77	7.45
	11/23/04	7.31	23.30	7.62
	01/25/05	10.37	20.05	8.07

B. End of Deployment Post-Calibration Readings in Standard Solutions:
 (* Broken pH bulb and/or punctured D.O. membrane)

Site ID	Date	Sp. Conductivity (Std: 58.54 mS/cm)	DO (mg/l) (Std: Variable)	pH (Std: 7.00)	pH (Std: 10.00)
<u>Big Bay</u>					
	01/19/04	57.43	96.6	7.09	10.11
	02/17/04	57.29	102.5	7.10	10.07
	03/16/04	57.00	98.5	7.05	10.03
	04/15/04	58.82	99.9	7.10	10.04
	05/13/04	58.52	*	*	*
	06/15/04	55.96	*	*	*
	06/29/04	60.78	102.6	7.00	10.04
	07/12/04	59.10	100.7	6.98	10.01
	07/29/04	58.52	102.8	6.99	9.97
	08/26/04	60.91	95.8	7.08	9.86
	09/09/04	60.61	99.6	7.01	9.96
	09/23/04	53.78	99.9	7.08	10.08
	10/25/04	*	*	7.12	9.99
	12/02/04	57.99	99.7	7.14	10.14
	12/21/04	58.72	95.2	6.96	9.94
	01/20/05	57.04	105.8	6.92	9.91
	01/19/04	58.28	92.7	6.97	10.01
	02/17/04	58.30	102.7	7.09	10.07
	03/16/04	57.64	96.6	*	*
	04/15/04	58.46	106.2	7.16	10.15
	05/13/04	59.38	105.4	7.07	10.07
<u>St. Pierre</u>					
	06/15/04	57.19	93.6	6.96	9.94
	06/29/04	59.08	102.8	7.00	10.00
	07/12/04	58.79	101.7	6.93	9.96
	07/29/04	58.74	102.9	7.03	10.02
	08/26/04	61.2	101.4	6.88	9.83
	09/09/04	60.71	97.9	7.02	10.01
	09/23/04	53.28	103.5	7.19	10.23
	10/25/04	59.92	99.4	7.05	10.03

Site ID	Date	Sp. Conductivity (Std: 58.54 mS/cm)	DO (mg/l) (Std: Variable)	pH (Std: 7.00)	pH (Std: 10.00)
	11/23/04	58.51	102.1	7.01	9.98
	12/21/04	58.32	99.5	6.99	10.01
	01/20/05	58.89	101.7	6.89	9.86

Fishing Creek

01/19/04	57.15	96.30	7.07	10.07
02/17/04	58.68	101.4	6.95	9.98
03/16/04	58.59	102.8	7.13	10.09
04/15/04	57.53	101.6	7.14	10.15
05/13/04	58.16	107.4	7.12	10.13
06/15/04	56.93	*	7.10	9.99
06/29/04	59.51	104.3	7.02	10.05
07/12/04	58.02	99.9	6.96	10.02
07/29/04	58.43	102.8	7.13	10.09
08/26/04	61.37	104.7	6.99	10.07
09/09/04	60.98	102.6	7.01	10.02
09/23/04	52.12	105.0	7.12	10.13
10/25/04	60.19	97.3	7.02	10.01
11/23/04	58.72	102.9	7.04	10.09
12/21/04	58.20	102.2	7.02	10.04
01/20/05	57.96	104.2	7.02	9.08

Mosquito Creek

01/19/04	56.91	102.8	6.82	9.91
02/17/04	57.59	101.3	7.02	9.97
03/16/04	59.15	102.0	7.16	10.12
04/15/04	No data available, data storage component destroyed during deployment			
05/13/04	57.32	102.3	7.18	9.99
06/15/04	57.64	*	7.31	9.23
06/29/04	59.32	106.9	7.04	10.09
07/12/04	58.50	95.8	6.99	10.10
07/29/04	No data available, data storage component destroyed during deployment			
08/26/04	60.77	101.7	7.14	10.25
09/14/04	57.58	100.0	7.06	10.10
09/21/04	59.43	98.5	7.09	10.09
10/26/04	59.55	101.8	7.11	10.10
11/23/04	58.14	102.2	7.04	10.04
01/25/05	55.78	104.2	6.97	9.93

15. Other Remarks

On 08/28/2023 this dataset was updated to include embedded QAQC flags for

anomalous/suspect data. System-wide monitoring data beginning in 2007 were processed to allow for QAQC flags and codes to be embedded in the data files rather than detailed in the metadata alone (as in the anomalous/suspect, deleted, and missing data sections above). Prior to 2006, rejected data were deleted from the dataset so they are unavailable to be used at all, but suspect data were only noted in the metadata document. Suspect data flags <1> were embedded retroactively in order to allow suspect data to be easily identified and filtered from the dataset if desired for analysis and reporting purposes. No other flags or codes were embedded in the dataset and users should still refer to the detailed explanations above for more information.

Salinity Blanket Statement: South Carolina experienced several meteorological rain events throughout the year. Decreased salinity values were recorded at the SWMP YSI stations because of the freshwater input and/or the amount of river discharge from the South Edisto River. During late February and early March, the upstate of SC was frequently inundated with rainfall, which caused the South Edisto River to rise above flood stage (Crest at 10+ feet). In early May and mid July, the coastal regions of SC experienced short-term high rainfall events, which cause variations in salinity reading. Some accumulations were greater than three inches in a two-day period. Finally, the entire eastern coast of the United States, including South Carolina, was affected by five tropical disturbances, all occurring within forty-five days of each other.

Hurricane Charley	August 12-17	rain accumulation – 5.36 inches
Tropical Storm Gaston	August 29-30	rain accumulation – 1.95 inches
Hurricane Frances	September 6-8	rain accumulation – 4.21 inches
Hurricane Ivan	September 15-16	rain accumulation – 0.37 inches
Hurricane Jeanne	September 26-27	rain accumulation – 0.56 inches

Real Time Data Telemetry Blanket Statement: In October of 2003, the ACE Basin NERR completed the installation of the Marisys telemetry system. This system enabled one YSI data logger (Mosquito Creek) and one weather station (Bennett's Point) to have real time data output to the World Wide Web, via a Lenox computer installed at the Bennett's Point Field Station. The system worked fine until March 2004, when the YSI data logger via the Marisys field communication cable experienced a power surge, which was most likely caused by a lightning strike. This surge caused the YSI data storage motherboard to fail, and ACE staff lost all the data for an entire month (3/16/04 to 4/15/04). Marisys traveled to the Reserve and installed an upgraded surge protector to alleviate future problems. From 5/13/04 to 6/15/04 and again from 6/29/04 to 7/12/04, it is suspected that the Marisys system was experiencing power issues. ACE staff suspected that the Marisys system was drawing its power from the internal batteries of the YSI data logger (8-C batteries). This caused too great of a demand on the internal batteries of the data logger, finally causing the data logger to shut down and conserve its remaining battery life to sustain the data stored to memory. The site experienced another suspected lightning strike during the 7/12/04 to 7/29/04 deployment, which enviably caused the YSI data storage motherboard to fail and the data from the deployment was lost. Because of the substantial amount of lost data, most likely caused by the Marisys real-time system, the system was disconnected from the Mosquito Creek YSI data logger on 7/29/04.

Dissolved Oxygen (DO) Blanket Statements:

- a) DO readings below 28% air saturation (hypoxia) are frequently observed in the ACE Basin NERR during the warmer months, especially from May to September; hypoxia events also was recorded at St. Pierre Creek, Fishing Creek, and Mosquito Creek during March and April. Hypoxia events are common in the salt march environment and typically occur during late ebb, low slack, and early flood tides. Natural factors contribute to these low DO measurements including insufficient water circulation, elevated water temperature, and the lack of stratification in shallow estuarine habitats.
- b) Dissolved oxygen (DO) measurements between 100% and 120% air saturation are not listed in the metadata. High DO readings commonly occur in the ACE Basin NERR during the colder months, especially January to March and November to December, and they are not considered as suspect. The corresponding DO, expressed as mg/l, is a calculated value that based on percent air saturation; therefore, they also are not listed in the metadata.
- c) DO readings above 120% air saturation (supersaturation) are observed during the colder months, especially in February, but are not common. The high readings usually occur during afternoon daylight hours as water temperature rises, thus elevating primary productivity. The supersaturation event in February also corresponded with the highest water levels.

Depth (meters) Blanket Statement: Negative depth readings were recorded in both St. Pierre and Big Bay Creeks. The data are not deleted if salinity and dissolved oxygen readings indicated that the data logger was submerged during these periods. Changes in barometric pressure while the data sonde is deployed may result in negative depth values, especially at low tides or during storm events.

Turbidity (NTU) Blanket Statement: Turbidity readings greater than 1000 NTU are recorded at all YSI sites. Turbidity spikes occur when an animal, a clump of plant matter or sediment passes across the sensor optics, or during rain events and low tides. Environmental factors, such as rainfall events, also may contribute to the turbidity spiking.

pH Blanket Statement: The average pH reading between two consecutive deployments may differ by 0.5 standard units, but the difference is not significant. The two probes calibrated and post-calibrated within range indicating that the difference is probably due to variability between the pH probes.

ACESPWQ

During the following periods, the salinity and specific conductivity readings were not within normal polyhaline/euhaline salinity range (18 and 40 ppt). The low readings correspond with a significant rainfall event and a low tide.

05/01/04 21:00:00–22:00:00

During the following periods, the salinity and specific conductivity readings are not within normal polyhaline/euhaline salinity range (18 and 40 ppt). The low readings were possibly

due to low tides and rainfall events.

07/18/04 14:30:00-17:00:00

During the following periods, the salinity and specific conductivity readings were not within normal polyhaline/euhaline salinity range (18 and 40 ppt). These events were directly related to the rainfall events associated with Hurricane Charley (August 13-15) and tropical storm Gaston (Aug 29-30).

08/12/04 22:00:00-22:30:00

08/29/04 12:30:00-14:30:00

During the following periods, the salinity and specific conductivity readings were not within normal polyhaline/euhaline salinity range (18 and 40 ppt). These events were directly related to the rainfall events associated with Hurricane Frances (September 6-8).

09/06/04 17:30:00-19:00:00