

NOC NERR Metadata Form
January - December 1997
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I. Data Set & Research Descriptors

1) Principal Investigator(s) and Contacts:

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2) Entry Verification Process:

The data are reviewed using the computer program PC6000 that accompanies the YSI 6000 datalogger. After the file is uploaded from the water quality instrument, PC6000 is used to plot the data and perform basic statistical analysis (i.e., min., max., mean, std. dev.). This information is printed out and attached to the Field Log for the particular deployment. This printout is used during file review to detect any gross outliers such as data taken when the water quality instrument was removed from the water or those caused by instrument failure. The data are imported into a Microsoft Excel file that contains the current month's cumulative recordings. When a complete month of data has been recorded the file is ready for review. The data review includes several steps. The first step is to format the data so that the parameter columns are in the correct order and the data have the correct number of decimal place holders. The CDMO 5.0 Excel macro is used to check for any dates and times that data were not recorded due to maintenance, battery failure, or other causes. Missing dates and times are inserted into the file and a period is inserted into the cells where data would normally be. An explanation for

the missing data is recorded onto the Water Quality Editing Log. Next, the data are filtered using an Excel macro to find readings outside the instrument measurement range and the "normal" range for the site in question. Data outside the instrument range are removed from the file and a period is inserted into the cell(s). An explanation for the missing dates and times are recorded onto the Water Quality Editing Log. Data outside the "normal" range of water quality for a particular site were investigated for validity based on weather data, field observations, QC checks, PC6000 printouts, and instrument diagnostics. If the data are rejected from the file a period is inserted into the cell(s) and an explanation for the missing dates and times are recorded onto the Water Quality Editing Log. The information recorded on the Water Quality Editing Log is transferred to the metadata form. The metadata form is then submitted with the data file to the CDMO. Paul Grimshaw, Research Technician, was responsible for data management during 1997.

3) Research Objectives:

Water quality instruments are deployed at the Masonboro Island and Zeke's Island components of North Carolina's National Estuarine Research Reserve and are anchored to the bottom of the selected sites. Measurements are taken at 30 minute intervals for approximately two week periods. These sites are relatively unimpacted by manmade perturbations and are considered long term monitoring locations.

4) Research Methods:

The Estuarine Water Quality Monitoring Program began on 2 March 1992 at the Masonboro Island component, and 19 May 1994 at the Zeke's Island component. The procedures described below were instituted in June 1995 and thus do not cover data recorded previously. At this time we are only performing long term water quality monitoring and not a specific experiment.

Before each YSI 6000 is deployed, calibration and maintenance is performed following the manufacturer's instructions (YSI Manual addendum 7/94, sections 3,4, and 7). Calibration standards are only required for pH, turbidity and salinity; all other parameters are done as described in the manual. Buffer solutions for 3 point pH calibration (pH 4,7 and 10) are purchased premade from a scientific supply house. The salinity standard is obtained from filtered seawater taken from Masonboro Sound and analyzed at the Center for Marine Science Research (CMSR) in Wilmington, NC using an osmometer. The dissolved oxygen membranes are replaced before deployment and are allowed to sit at least 24 hrs prior to deployment.

During deployment the weather conditions and tide stage are

recorded in the field observation log. Measurements of DO, pH, salinity, specific conductance, and temperature are taken with a calibrated YSI 6000 or other field instruments to check the accuracy of the instrumentation before deployment (as of October 1995). The water quality instrument is placed inside a locked steel cage, then anchored approximately 10cm off the bottom, and chained to a post at the monitoring site. Every 30 minutes during the sampling period measurements are taken for temperature, specific conductance, salinity, dissolved oxygen saturation, dissolved oxygen concentration, depth, pH, and turbidity.

At the end of the sample period the water quality instrument is either brought back to the laboratory or serviced in the field. If the water quality instrument is serviced in the field, the DO sensor is either replaced with one that has a new membrane or the old membrane is wiped with lens paper moistened with tap water to remove biofouling. The weather and water quality measurements are again noted in the field observation log. The calibration drift and the effect of biofouling on the water quality instrument are checked by comparing data readings in calibration standards or against a recently calibrated YSI 6000. The water quality data are then uploaded, and the instrument is cleaned and calibrated as noted previously. The water quality instrument is then ready for deployment.

5) Site Location and Character:

The four components of North Carolina's National Estuarine Research Reserve (from north to south) are: Currituck Banks, Rachel Carson, Masonboro Island and Zeke's Island. They are located along the southeastern coast of the United States in the Atlantic Ocean. Currently, only data from Masonboro and Zeke's Island components are transferred to the CDMO. The two sites are:

1. Research Creek, Masonboro Island

The Masonboro Island site is 0.72 km north east from the mouth of Whiskey Creek, and east of the Intracoastal Waterway (ICW), in a small navigable channel called Research Creek at 34 deg 09'21.7" latitude and 77 deg 50'59.9" longitude (GPS position). The site has a salinity range of 18-35 ppt and a tidal range that averages 1.2 meters.

2. East Cribbing, Zeke's Island

The Zeke's Island site is located 1.8 km south of Federal Point boat launch in a tidal basin estuary at 33 deg 56'23.5" latitude and 77 deg 56'28.1" longitude (GPS position). This site receives minimal freshwater input from leakage of the Cape Fear River through the 5.6 km rock jetty that separate the two bodies of water. Thus, the ocean tidal input through New Inlet is a major factor in maintaining the high salinity; however, during rainy periods major drops in salinity may occur. The site has a salinity range of 15-35 ppt and a tidal range that averages 2 meters.

6)Data Collection Period

Research Creek data collection began on 2 March 1992, while East Cribbing data collection commenced on 19 May 1994. All monitoring is considered long term.

7)Associated Researchers and Projects

Lancaster, J./UNC Chapel Hill

Ross, S./NOC NERR

Masonboro Island surf zone fish survey

NOC NERR

Climatological monitoring

Ross, S./NOC NERR

Grimshaw, P./NOC NERR

Effects of non-point source pollution on estuarine water quality

Ross, S./NOC NERR

Grimshaw, P./NOC NERR

Bichy, J./NOC NERR

Water quality & nekton monitoring

Ross, S./NOC NERR

Stokesbury, K./NOC NERR

EMAP - Estuaries

Mallin, M./UNC-Wilmington

Tidal creek survey

II. Physical Structure Descriptors

8) Sensor specifications, range of measurements, units, resolution, and accuracy:

YSI 6000 datalogger

Variable	Range of Measurements	Resolution	
Accuracy			
Date	1-12, 1-31, 00-99 (Mo,Day,Yr)	1 mo, 1 day, 1 yr	NA
Time	0-24, 0-60, 0-60 (Hr,Min,Sec)	1 hr, 1 min, 1 s	NA
Temp	-5 to 45 (c)	0.01 C	+/-
0.15C			
Sp COND	0-100 (mS/cm)	0.01mS/cm	+/-0.5%
Of			
reading + 0.001mS/Cm			
Salinity	0-70 Parts per thousand (ppt)	0.01 ppt	+/- 1%
of			

Reading or 0.1 ppt, (whichever is greater)			
DO	0-200 (% air saturation)	0.1% @air sat	+/-2%
@air			
Saturation			
DO	200-500 (% air saturation	0.1% @ air sat	+/- 6%
@			
Saturation			
DO	0-20 (mg/l)	0.01 mg/l	+/-
0.2mg/l			
DO	20-50 (mg/l)	0.01 mg/l	+/-
0.6mg/l			
Depth (shallow)	0-9.1 (m)	0.001m	+/-
0.018m			
PH	2-14 units	0.01 units	+/-
0.2units			
Turb	0-1000 NTU	0.1 NTU	+/- 5%
of			
Reading or 2 NTU (whichever is greater)			

Data columns are separated by tabs. Each file contains a two line column header at the top of the page which identifies measurements and units for each column.

9) Coded variable indicator and variable code definitions:

Site definitions: RC= South Research Creek, Masonboro Island*
EC= East Crib, Zeke's Island*

File definitions: site/month/year (ex.: ZI0895 = Zeke's Island data from August of 1995).

*The RC site was formerly designated as Masonboro Island (MS) and EC was formerly designated as Zeke's Island (ZI). Name changes were made on 1/11/2011 to be consistent with later station designations made necessary by the addition of an additional station in each component, and to clearly indicate that the station location throughout the North Carolina Reserve's historical data set. Raw file names were not changed. Please contact the Reserve directly or the NERRS Centralized Data Management Office for more information on this update.

10) Data anomalies (suspect data):

This section list data that are extreme for the aquatic system being monitored or are outside the measurement range of the instrument. The cause of such anomalies maybe a bad calibration, boat traffic disturbances, or a malfunction of the instrument.

February 1997

MS0297

2/10 1400 High turbidity event, see section 12.

ZI0297

2/1 0000-2/26 1600 The pH data were removed because the probe malfunctioned.
2/1 2200-2/26 1600 Sporadic missing data during this period was due to the removal of data taken during exposure of the datalogger at low tide. Datalogger was probably moved by fishermen to shallow water. Data removed.
2/8 0000 High turbidity event, see section 12.

March 1997

MS0397

3/2 1900, 2300 High turbidity event, see section 12.
3/5 0330 High turbidity event, see section 12.
3/6 1430 High turbidity event, see section 12.
3/8 2000-2030 Depth data removed because the depth sensor malfunctioned.
3/9 0030-0330, 1830, 2030-2330 Depth data removed because the depth sensor malfunctioned.
3/10 0000-0500, 2000-2330 Depth data removed because the depth sensor malfunctioned.
3/11 0000-0030, 2100-2330 Depth data removed because the depth sensor malfunctioned.
3/11 0630 High turbidity event, see section 12.
3/11 1400-3/19 1000 Turbidity wiper was parked over the optics at the end of the deployment, all suspect data removed
3/13 0600-0700 Depth data removed because the depth sensor malfunctioned.

April 1997

MS0497

4/15 1930 High turbidity event, see section 12.
4/21 1530 High turbidity event, see section 12.

ZI0497

4/30 0830-2330 Turbidity wiper was parked over the optics at the end of the deployment, all suspect data removed.

May

MS0597

5/8 0630 High turbidity event, see section 12.
5/12 1030 All data was removed because the YSI 6000 was exposed at low tide.
5/12 1700-1900 All data was removed because the YSI 6000 was exposed at low tide.
5/13 0700-0730 All data was removed because the YSI 6000 was exposed at low tide.
5/14 0730 All data was removed because the YSI 6000 was exposed at low tide.
5/25 1800-5/31 2330 DO membrane ripped. DO data removed.

ZI0597

5/1 0000-5/2 1100 Turbidity wiper was parked over the optics at the end of the deployment, all suspect data removed.
5/17 0400-5/28 1000 The pH data were removed because the probe malfunctioned.

June 1997

MS0697

6/1 0000-6/9 0930 The DO % and DO mg/l data were removed because of a puncture in the DO probe membrane.
6/15 1400-6/30 2330 The DO % and DO mg/l data were removed because of sensor malfunction.
6/18 1130-1300 All data were removed because the YSI 6000 was exposed at low tide.
6/22 1830-1900 Erratic turbidity probe function. Data removed.
6/23 1800 Erratic turbidity probe function. Data removed.
6/25 2030, 2230 Erratic turbidity probe function. Data removed.
6/27 0000 Erratic turbidity probe function. Data removed.
6/29 1030-6/30 2330 The Specific conductivity cell was blocked with sand at the end of the deployment. Suspect specific conductance and salinity data were removed.
6/30 1000-1130, 1230, 1330 Erratic turbidity probe function. Data removed.

6/1 0600-2330 probe	All data removed because of erratic temperature operation.
6/2 0000-0430, 0830-1700,2200-2330 probe operation	All data removed because of erratic temperature probe operation
6/3 0000-0530, 0930- 1700,2300-2330 operation.	All data removed because of erratic temperature probe operation.
6/4 0000-0530, 1100-1730 probe operation.	All data removed because of erratic temperature probe operation.
6/5 0100-0600, 1230-1800 probe operation.	All data removed because of erratic temperature probe operation.
6/6 0200-0700, 1300-1830 probe operation.	All data removed because of erratic temperature probe operation.
6/7 0200-0730, 1430-1930 probe operation.	All data removed because of erratic temperature probe operation.
6/8 0300-0800, 1500-1930 probe operation.	All data removed because of erratic temperature probe operation.
6/9 0400-0900, 1530-2030 probe operation	All data removed because of erratic temperature probe operation
6/10 0430-0930, 1600-2130 probe operation.	All data removed because of erratic temperature probe operation.
6/11 0430-1400 operation.	All data removed because of erratic temperature probe operation.

MS0797

7/1 0000-7/9 1600 The DO %, DO mg/l, specific conductivity, and salinity
were removed because the DO/specific

conductivity/salinity sensor malfunctioned. Turbidity data removed due to erratic function of the probe.
 7/16 1000-1030 Sonde exposed at low tide. Data removed.
 7/17 1100-1130 Sonde exposed at low tide. Data removed.
 7/19 0100, 0130, 1230-1330 Datalogger exposed at low tide. Data removed.
 7/19 1400-7/20 1930 The pH data were removed because the probe malfunctioned.
 7/20 0200-0230 Sonde exposed at low tide. Data removed.

ZI0797

7/3 0900-7/31 2330 DO data erratic and lower than normal. Possible probe failure or burial of the sonde in sediments. Data left in file.
 7/15 1831-7/17 1000 The specific conductivity and salinity data experienced rapid drop; however, the post calibration check was within range.
 7/9 1730-7/10 2030 The DO % and DO mg/l data were removed because the DO probe malfunctioned.
 7/11 0030, 0130-0530 1200-1400, 1500-1730 The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 7/12 0000-7/13 0730 The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 7/14 0600-0630, 0800-0830, 0930-1230, 1730-2130 The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 7/15 0200-0300, 0500-0700 The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 7/17 1030-1130 Maintenance.
 7/27 2130-2330, DO The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 7/28 0400-0430, DO The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 0630-0730, 0830-1100, 1200, 1500-7/29 1430 The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 7/29 2130, 2330-7/30 0200 The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 7/30 0600, 1130-1400, DO The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 1800 The DO% and DO mg/l data were removed because the DO probe malfunctioned.
 7/31 0230 DO The DO% and DO mg/l data were removed because the DO probe malfunctioned.

probe malfunctioned.

August 1997

MS0897

8/1 1500-8/7 1230 The DO % and DO mg/l data were removed because they were outside of the instrument measurement range.

ZI0897

8/3 0800-8/8 1400 The DO % and DO mg/l data were removed because the readings jumped from 65% to 212 % within 30 minute period. Probable probe failure or burial of the sonde in sediments.

8/26 1630-8/31 2330 The pH data were removed because probe malfunctioned.

September 1997

MS0997

9/8 1400-9/23 1400 The DO % and DO mg/l data were removed because they were outside of the instrument measurement range.

ZI0997

9/1 0000-9/18 1100 The DO % and DO mg/l data may be biased low as indicated by a variance of the post calibration check. DO was 23 % (1.9 mg/l) less than the standard.

9/1 0000-9/18 1100 The pH data were removed because probe malfunctioned.

9/24 1400-9/29 1400 The DO % and DO mg/l data were removed because probe malfunctioned.

9/29 1200-1400 Small negative depth readings were recorded

October 1997

MS1097

10/1 0000-10/8 1000 The post calibration of specific conductivity indicated drift of ~3.5 us/cm or a salinity of 3 ppt.

10/22 0830-10/29 0800 The post calibration check of oxygen saturation indicated a drift.

10/29 1030-10/31 2330 The post calibration check of oxygen saturation indicated a drift. Membrane may have settled further during deployment.

ZI1097

10/8 1330-10/24 1400 The DO% and DO mg/l data were removed because the DO membrane was ripped.
10/16 2030 High turbidity event, see Section 12.

November 1997

MS1197

11/1 0000-11/6 1000 The post calibration check of oxygen saturation indicated a drift. Membrane may have settled further during deployment.
11/6 1030-11/12 1230 All pH data removed because the pH probe failed.
11/20 0900-11/26 0900 All pH data removed because the pH probe failed.

ZI1197

11/13 0930-11/20 1030 DO saturation and DO mg/l higher then deployments previous and subsequent to it. However, the post calibration check was within range.
11/13 0930-11/20 1030 Post calibration check of pH off in 10 standard by + 0.21.

December 1997

MS1297

12/2 1600-12/11 1400 The DO% and DO mg/l data were removed because the DO membrane was ripped.
12/5 1200-1230 Datalogger exposed at low tide.
12/19 0900-12/31 2330 The DO% and DO mg/l data were removed because the DO membrane was ripped.
12/28 0030 Depth readings negative, but salinity at normal level. It is possible that there was a slight calibration stray.
12/30 0130-0300, 1500-1530 Datalogger exposed at low tide.
12/30 0130-0300,1430 Depth readings negative, but salinity at normal level. It is possible that there was a slight calibration stray.
12/31 0200-0330,

1500-1600 Datalogger exposed at low tide.

ZI1297

12/15 2030-2100 High turbidity event, see section 12.

11) Missing data:

This section lists any missing data within the corresponding data files. Missing data maybe caused by many reasons including maintenance periods, power loss, and data that have been removed because of instrument malfunction. Approximately every 2-3 weeks, there is a period of between 1 to 24 hrs (occasionally longer) of missing data due to maintenance and calibration. During the maintenance period all parameters will be missing.

A record and explanation of missing data that are not related to routine maintenance is kept in the Field Log for the particular deployment. All parameters recorded when the water quality instrument is exposed to air during a sample, either by an extremely low tide or physical displacement from its original location, are removed. Special note should be made regarding missing dissolved oxygen (DO) saturation (%), DO concentration (mg/l), specific conductance, salinity, and temperature measurements. If the DO saturation (%) data are removed, due to sensor malfunction or other circumstances, the DO concentration (mg/l) will also be missing. The DO concentration (mg/l) is calculated from DO saturation (%) and temperature data. This is also true for specific conductance and salinity data. Salinity (ppt) is determined by the YSI 6000 using specific conductance and temperature data. If the temperature sensor malfunctions and the corresponding data are removed, all parameters requiring these data (DO saturation, DO concentration, specific conductance, salinity, and pH) for calculation or temperature compensation will also be removed.

January 1997

MS0197

1/22 1430 Maintenance.

ZI0197

1/7 1130 Maintenance.

1/31 1200-1330 Maintenance.

February 1997

MS0297

2/21 1530-2/28 2330 Power failure. No data collected.

ZI0297

2/1 0000-2/26 1600 The pH data were removed because of probe failure.

2/1 2200-2/26 1600 Sporadic missing data during this period was due to the

removal of data taken during exposure of the datalogger at low tide. Datalogger was probably moved by fisherman to shallow water.

2/26 1630-2/28 2330 Sonde programming error. No data collected.

March 1997

MS0397

3/8 2000-2030 Depth data removed because the depth sensor malfunctioned.

3/9 0030-0330, 1830, 2030-2330 Depth data removed because the depth sensor malfunctioned.

3/10 0000-0500, 2000-2330 Depth data removed because the depth sensor malfunctioned.

3/11 0000-0030, 2100-2330 Depth data removed because the depth sensor malfunctioned.

3/11 1400-3/19 1000 Turbidity data removed because the turbidity wiper was parked over the optics at the end of the deployment.

3/13 0600-0700 Depth data removed because the depth sensor malfunctioned.

ZI0397

3/11 1130 Maintenance

3/12 0200-3/31 2330 Power loss.

April 1997

MS0497

4/4 1200-1330 Maintenance.

4/5 1300-4/7 0400 Maintenance.

4/9 2130-4/10 0900 Power failure.

4/11 1830-4/12 0100 Telemetry system failure.

4/18 1730-4/19 0200 Telemetry system failure.

4/24 1500-4/30 2330 Power failure.

ZI0497

4/1 0000-4/8 1330 Power loss.

4/30 0830-2330 The turbidity data were removed because the turbidity wiper was parked over the optics at the end of the deployment.

May 1997

MS0597

5/1 0000-1330 Power loss.

5/1 1400-1430 Maintenance.

5/8 1200-1700 Maintenance.

5/12 1030, 1700-1900 YSI 6000 exposed at low tide.

5/13 0700-0730 YSI 6000 exposed at low tide.

5/14 0730 YSI 6000 exposed at low tide.

5/15 0230-5/23 1530 Power failure.

5/25 1800-5/31 2330 DO membrane ripped. DO data removed.

ZI0597

5/1 0000-5/2 1100 The turbidity data were removed because the turbidity wiper was parked over the optics at the end of the deployment.

5/2 1130-1230 Maintenance.

5/17 0400-5/28 1000 The pH data were removed because of probe failure.

5/28 1030 Maintenance.

June 1997

MS0697

6/1 0000-6/9 0930 The DO % and DO mg/l data were removed because of rip in the DO membrane.

6/9 1000-6/11 0600 Maintenance.

6/15 1400-6/30 2330 The DO % and DO mg/l data were removed because the DO probe malfunctioned.

6/18 1130-1300 All data removed because the YSI 6000 was exposed at low tide.

6/22 1830-1900 Erratic turbidity probe function. Data removed.

6/23 1800 Erratic turbidity probe function. Data removed.
 6/25 2030, 2230 Erratic turbidity probe function. Data removed.
 6/27 0000 Erratic turbidity probe function. Data removed.
 6/29 1030-6/30 2330 The Specific conductivity cell was blocked with
 sand at
 the end of the deployment. Suspect specific conductance
 and salinity data removed.
 6/30 1000-1130,
 1230, 1330 Erratic turbidity probe function. Data removed.

ZI0697

6/1 0600-2330 All data removed because of erratic temperature probe
 operation.
 6/2 0000-0430, 0830-
 1700, 2200-2330 All data removed because of erratic temperature probe
 operation.
 6/3 0000-0530, 0930-
 1700, 2300-2330 All data removed because of erratic temperature probe
 operation.
 6/4 0000-0530,
 1100-1730 All data removed because of erratic temperature
 probe
 operation.
 6/5 0100-0600,
 1230-1800 All data removed because of erratic temperature
 probe
 operation.
 6/6 0200-0700,
 1300-1830 All data removed because of erratic temperature
 probe
 operation.
 6/7 0200-0730,
 1430-1930 All data removed because of erratic temperature
 probe
 operation.
 6/8 0300-0800,
 1500-1930 All data removed because of erratic temperature
 probe
 operation.
 6/9 0400-0900,
 1530-2030 All data removed because of erratic temperature
 probe
 operation.
 6/10 0430-0930,
 1600-2130 All data removed because of erratic temperature
 probe
 operation.
 6/11 0430-1330 All data removed because of erratic temperature
 probe
 operation.
 6/11 1400-6/30 2330 Data could not be uploaded from datalogger.

July 1997

MS0797

7/1 0000-7/9 1600 DO %, DO mg/l, specific conductivity, and salinity data were removed because the DO/specific conductivity/salinity sensor malfunctioned.
7/1 0000-7/9 1600 The turbidity data were removed because of erratic functioning of the turbidity probe.
7/9 1630-7/14 0700 Power loss.
7/14 0730-0800 Maintenance.
7/14 0830-7/31 2330 Datalogger deployed without turbidity probe.
7/16 1000-1030 Sonde exposed at low tide. Data removed.
7/17 1100-1130 Sonde exposed at low tide. Data removed.
7/18 1130-1230 Maintenance.
7/19 0100, 0130, 1230-1330 Datalogger exposed at low tide. Data removed.
7/19 1400-7/20 1930 The pH data were removed because the sensor malfunctioned.
7/20 0200-0230 Sonde exposed at low tide. Data removed.
7/20 1330-1430 Unexplained sonde failure.
7/20 2000-7/24 0830 Power loss.
7/24 0900-1400 Maintenance.

ZI0797

7/1 0000-7/3 0900 Data could not be uploaded from datalogger.
7/1 0000-7/31 2330 Datalogger deployed without turbidity probe.
7/9 1730-7/10 2030 The DO % and DO mg/l data were removed because the DO probe malfunctioned.
7/11 0030, 0130-0530 1200-1400, 1500-1730 DO The DO% and DO mg/l data were removed because the probe malfunctioned.
7/12 0000-7/13 0730 DO The DO% and DO mg/l data were removed because the probe malfunctioned.
7/14 0600-0630, 0800-0830, 0930-1230, 1730-2130 DO The DO% and DO mg/l data were removed because the probe malfunctioned.
7/15 0200-0300, 0500-0700 DO The DO% and DO mg/l data were removed because the probe malfunctioned.
7/17 1030-1130 Maintenance.
7/27 2130-2330, DO The DO% and DO mg/l data were removed because the probe malfunctioned.
7/28 0400-0430, DO The DO% and DO mg/l data were removed because the probe malfunctioned.
0630-0730, 0830-1100, 1200, 1500-7/29 1430 DO probe malfunctioned.

7/29 2130, 2330-7/30 The DO% and DO mg/l data were removed because the
DO
0200 probe malfunctioned.
7/30 0600, 1130-1400, The DO% and DO mg/l data were removed because the
DO
1800 probe malfunctioned.
7/31 0230 The DO% and DO mg/l data were removed because the
DO
probe malfunctioned.

August 1997

MS0897

8/1 0000-8/7 1230 No turbidity probe deployed.
8/1 1500-8/7 1230 The DO % and DO mg/l data were removed because
they
were out of the instrument measurement range.
8/7 1300-1330 Maintenance.
8/8 0930-8/15 1630 There was power loss to the datalogger because the
seal
around the battery chamber leaked from a hairline crack
on the cap.
8/15 1700-8/28 1330 No turbidity probe deployed.
8/18 1330-8/28 1330 Sonde power failure. No data collected.

ZI0897

8/1 0000-8/22 1530 Datalogger deployed without turbidity sensor.
8/3 0800-8/8 1400 DO data removed due to a tear in the membrane.
8/8 1430 Maintenance.
8/22 1600-8/26 1600 Maintenance.
8/26 1630-8/31 2330 The pH data were removed because probe
malfunctioned.

September 1997

MS0997

9/4 1400-9/8 1330 Power loss.
9/8 1400-9/23 1400 The DO % and DO mg/l data were removed because the
data was outside the instrument measurement range.
9/23 1430-9/29 1400 No turbidity probe deployed.

ZI0997

9/1 0000-9/18 1100 The pH data were removed because probe
malfunctioned.
9/18 1130-9/29 1400 Datalogger deployed without turbidity sensor.
9/24 1400-9/29 1400 The DO % and DO mg/l data were removed because
probe

malfunctioned.
9/29 1430-1800 Maintenance.
9/29 1830-9/30 2330 No data collected due to improper sonde programming.

October 1997

MS1097

10/22 0800 Maintenance.
10/29 0830-1000 Maintenance.

ZI1097

10/8 1330-10/24 1400 DO % and DO mg/l data were removed because of DO probe membrane was ripped.
10/8 1300 Maintenance.
10/24 1430-1500 Maintenance.
10/31 1100 Maintenance.

November 1997

MS1197

11/6 1030-11/12 1230 All pH data removed because the pH probe failed.
11/12 1300 Maintenance.
11/20 0900-11/26 0900 All pH data removed because the pH probe failed.
11/26 0930 Maintenance.

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11/20 1100 Maintenance.

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12/1 0030-12/2 1630 The sample time was off by 6 minutes from the top and bottom of the hour. Data files corrected to read on the hour.
12/2 1530-12/11 1400 The sample time was off by 1 minutes from the top and bottom of the hour. Data files corrected to read on the hour.
12/28 0030-0100 Depth recorded was negative, however salinity did not change, depth probably near minimum recordable depth (depth within accuracy specification).
12/30 0130-0300, 1400-1430 Depth recorded was negative, however salinity did not change, depth probably near minimum recordable depth (depth within accuracy specification).

