North Inlet-Winyah Bay (NIW) NERR Water Quality Metadata
January - December 2000
Latest Update: June 30, 2021

I. Data Set & Research Descriptors

1. Principal investigator(s) & contact persons
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2. Entry verification
The .dat and .csv versions of the raw data files were uploaded to a PC from YSI 6000 or 6600 dataloggers. Raw data was uploaded and plotted using EcoWatch software. CDMO macros were also used in EXCEL 5.0 to identify anomalous or problem data in the files. The CDMO cdmomac3.xls macro allows the user to automatically format column widths to the correct number of decimal places based on YSI sensor specifications. It also allows the user to QA/QC each data logger generated file for missing data points, fill all cells that do not contain data with periods, and find all data points that fall outside the range of what the data logger is designed to measure (i.e. outliers). The CDMO import.xls macro will allow PC users with 30-minute data to automatically create a monthly Excel file from a two-week deployment and insert periods for missing data. In addition, in November 1999 a graphing capability was added to this macro allowing users to produce single parameter and missing data point graphs on a monthly basis.

Comma delimited files are opened in Microsoft EXCEL 5.0 and edited by removing unnecessary headers, footers or spaces and any data which corresponds to the instrument being out of the water for maintenance. Next, data plots were produced and examined for any anomalies using the CDMO graphing Macro for each

variable. Suspect data were evaluated as to being either good or bad based on criteria outlined in the CDMO manual version 3.0/4.0. If the data were determined to be bad, they were deleted from the final edited .txt file and then documented in the metadata. If it could not be determined whether or not suspect data were bad (as was often the case with turbidity) the data was left in the final edited .txt file and noted in the metadata as anomalous. The dissolved oxygen (DO) and Turbidity (Turb) probes were the most problematic. In instances where data values increased or decreased in an exponential fashion and or intermittently went outside the accepted range for that instrument and never returned to normal, the data was considered suspect, noted in the metadata, and removed from the final edited data file. Missing data due to equipment failure or maintenance were replaced with periods (.). The date/hour and column reformat macros were then run on the data files before being saved in their final edited form (.txt). Edited (.txt) and raw (.csv) files were then FTP'd to the Sun Sparc II server and archived. The most current CDMO macros are available on the NERRS CDMO home page. Dave White and Jennifer Jarrell edited and archived the 2000 data for Thousand Acre, Debidue Creek, and Oyster Landing.

3. Research Objectives

The principal objective of this study is to record long-term water quality data for North Inlet/Winyah Bay in order to observe any physical changes or trends in water quality over time. Three sites were chosen; one to represent our pristine site and the other two to represent impacted sites. The Oyster Landing site is located near the center of the Reserve and is considered pristine. Debidue Creek and Thousand Acre are both located in waterways that receive run-off from heavily developed areas. Measurements were taken every 30 minutes over roughly two week collecting periods at the Oyster Landing, Debidue Creek and Thousand Acre sites.

4. Research methods (YSI 6000 dataloggers)

YSI dataloggers are currently mounted in a 4" diameter PVC pipe which is strapped to a treated 2" X 6" board; and then attached via stainless steel bands

to a piling at the Thousand Acre, Debidue Creek and Oyster Landing sites. The PVC pipe which houses the data loggers has two large windows cut out near the bottom for the probes to have direct contact with the water column. A stop bolt placed through the PVC pipe below the cut out windows keeps the datalogger exactly one foot (30 cm) above the creek bottom. Every 30 minutes measurements of specific conductivity, salinity, percent saturation, dissolved oxygen, water temperature, pH, turbidity, and water level are recorded. The two-week sampling interval has been selected due to biofouling of the individual probes and expected battery life. At the end of each sampling interval, the dataloggers were brought back to the laboratory to be downloaded, cleaned and recalibrated following procedures in YSI Service Manual and the Standard Operating Procedures V3.0 provided by NERR SWMP. Downtime for this maintenance is roughly 24 hrs.
Before the instruments were cleaned and recalibrated a post calibration reading was taken from each instrument in fresh standard to see if any of the instruments exhibited drift (see II-13). The pH probe was calibrated using a two point method and either 4,7 or 7,10 standards. The turbidity probe calibration also used a two-point method using 0 &100 NTU standards. Specific Conductivity was calibrated using a one-point method and a 10 ms/cm standard which was purchased through Fisher Scientific. The turbidity wiper and DO membrane were changed after each deployment. After approximately 24 hours of down time for cleaning and overnight relaxing of the DO membrane, the YSI dataloggers were re-deployed.

5. Site location and character

The North Inlet-Winyah Bay National Estuarine Research Reserve is located on the Southeastern Atlantic coast of the United States in two tidal estuaries, North Inlet and Winyah Bay, near Georgetown, South Carolina. The North Inlet estuary, located approximately 10 km east of Georgetown, is a bar-built Class C type estuary (Pritchard, 1955). The North Inlet estuary is composed of numerous winding tidal creeks, and is considered a pristine tidal estuary due to minimal

anthropogenic impacts. The watershed drains a 24.8 km2 area of mostly pine forest and a moderately developed residential watershed to the north. The Winyah Bay estuary, classified as a Class B type estuary by Pritchard (1955), which originates in the Blue Ridge Mountains of North Carolina, is one of the largest river-estuary ecosystems on the Eastern Seaboard. It is located 14.4 km south of North Inlet. Winyah Bay drains the sub-basins of 6 major rivers, which are heavily impacted by agriculture, mining, and industry. The rivers drain approximately 46,736 km2 of uplands and marshes. Descriptions of the three sampling stations are as follows:

A) Thousand Acre (TA) - (lat. 33:17:57; long. 79:15:36) The Thousand Acre monitoring site is located in Thousand Acre marsh tidal creek and is on the NW corner of the west bridge of Thousand Acre marsh (this site was relocated 07-19-99 to the current location due to heavy siltation and degrading data quality). The present site is about 15m from the mouth of the creek. At the sampling site, creek depth is approximately 2 m MHW and creek width is approximately 10 m. The creek empties into the northeastern side of the mid portion of Winyah Bay and directly drains pine forested upland and wetlands. Salinity ranges from 0 to 15 ppt. and tidal flux is approximately 1m. The bottom is most composed of fine sediments and detritus. Georgetown, 5 km upstream from the Thousand Acre site and on the southern side of Winyah Bay, is the homeport for a number of heavy industries including a steel plant, paper mill, chemical plant, and a coal fired power plant. A public sewage treatment plant, which discharges into the bay, is also located in Georgetown.

B) Oyster Landing (OL) - (lat. 33:20:58; long. 79:11:34). The Oyster Landing monitoring site is considered a fairly pristine and undisturbed area located at the end of the Oyster Landing pier which is also where the NI-WB Bay NERR weather station site is located. The pier stretches into the upper reaches of Crabhaul Creek in the mid western portion of North Inlet. The sampling site is

located approximately 2.8 km from the headwaters of Crabhaul Creek. The creek directly drains pine forested uplands and wetlands. Salinity can range from 0-32 ppt. and average tidal flux is approximately 1.4m. The creek has an average depth of ~2 m MHW and average width of ~150m MHW. The bottom mostly is comprised of oyster shell hash with some fine sediment and detritus.

C) Debidue Creek (DC) - (lat 33:21:37, long 79:10:05). The Debidue Creek monitoring site is considered an impacted site that is located approximately 1 km south of the Debidue Colony. The Colony is a large development built on man-made canals that directly drain into the northern portion of Debidue Creek. The DC site is also located in an ocean-dominated Spartina marsh that was formerly surrounded by pine-dominated uplands. Salinity can range from 0 to full strength sea water and an average tidal flux of approximately 2 meters. The approximate depth and width at MHW at the site is 2.2 and 70 m respectively. The bottom is mostly comprised of oyster shell hash with some fine sediment and detritus.

6. Data collection period

Thousand Acre data collection began January 1, 1995. Debidue Creek sampling began March 5, 1998. Oyster Landing data collection began in 1995, however, it was not considered a SWMP site until 1996 when the collection site was switched from Caledonia to Oyster Landing. All sampling is ongoing.

Deployment dates and times for 2000 follow:

BEGAN	ENDED
Site: Debidue Creek	
01/01/00, 00:00:00	01/11/00, 10:00:00
01/14/00, 14:00:00	02/03/00, 08:00:00
02/09/00, 14:00:00	02/28/00, 14:00:00
03/01/00, 16:30:00	03/20/00, 13:00:00
03/23/00, 11:30:00	04/11/00, 13:30:00
04/14/00, 10:00:00	04/27/00, 14:00:00
05/04/00, 13:30:00	05/17/00, 07:30:00
05/19/00, 13:00:00	05/31/00, 01:00:00
06/10/00, 14:30:00	06/22/00, 10:30:00
06/23/00, 12:30:00	07/05/00, 09:30:00
07/06/00, 13:00:00	07/17/00, 08:00:00
07/18/00, 10:00:00	07/31/00, 08:00:00

08/01/00, 08:00:00
08/11/00, 17:30:00
08/22/00, 15:30:00
08/31/00, 09:00:00
09/15/00, 09:00:00
09/23/00, 16:30:00
10/05/00, 12:30:00
10/20/00, 14:00:00
11/09/00, 11:30:00
11/28/00, 10:30:00
12/20/00. 10:00:00
08/10/00, 16:00:00
08/22/00, 10:30:00
08/30/00, 07:30:00
09/14/00, 08:00:00
09/22/00, 13:00:00
10/04/00, 12:00:00
10/19/00, 10:00:00
11/08/00, 09:30:00
11/27/00, 09:00:00
12/19/00, 11:00:00
12/31/00, 24:00:00

Oyster Landing

01/01/00, 00:00:00
01/14/00, 13:30:00
02/09/00, 15:00:00
03/01/00, 16:00:00
03/23/00, 11:00:00
04/14/00, 15:00:00
05/04/00, 15:30:00
05/19/00, 15:30:00
06/10/00, 14:00:00
06/23/00, 15:30:00
07/06/00, 15:00:00
08/01/00, 08:00:00
08/11/00, 17:30:00
08/22/00, 14:30:00
08/31/00, 11:00:00
09/15/00, 08:30:00
09/23/00, 16:30:00
10/05/00, 14:00:00
10/20/00, 13:30:00
11/09/00, 17:00:00
11/28/00, 14:30:00
12/19/00, 16:00:00
01/11/00, 10:30:00
02/03/00, 08:00:00
02/28/00, 12:00:00
03/20/00, 13:00:00
04/11/00, 09:30:00
04/27/00, 14:30:00
05/17/00, 08:00:00
06/07/00, 13:00:00
06/22/00, 10:30:00
07/05/00, 09:00:00
07/17/00, 09:00:00
08/10/00, 16:30:00
08/22/00, 06:30:00
08/30/00, 08:00:00
09/14/00, 07:00:00
09/22/00, 13:00:00
10/04/00, 07:30:00
10/19/00, 13:30:00
11/04/00, 03:00:00
11/27/00, 14:30:00
12/18/00, 11:30:00
12/31/00, 24:00:00

Thousand Acres

01/01/00, 00:00:00
01/14/00, 11:30:00
02/09/00, 16:00:00
03/02/00, 16:00:00
03/22/00, 16:00:00
04/14/00. 14:30:00
05/04/00, 16:00:00
05/19/00, 14:00:00
06/10/00, 15:00:00
06/23/00, 14:30:00
07/06/00, 14:00:00
07/18/00, 10:30:00
08/01/00, 09:00:00
08/11/00, 17:00:00
08/22/00, 15:00:00
01/11/00, 11:30:00
02/03/00, 04:00:00
02/28/00, 11:30:00
03/20/00, 09:30:00
04/07/00, 03:00:00
05/01/00, 14:30:00
05/17/00, 09:00:00
06/07/00, 13:30:00
06/22/00, 09:30:00
07/05/00, 08:30:00
07/17/00, 07:00:00
07/31/00, 09:00:00
08/10/00, 16:30:00
08/22/00, 07:00:00
08/30/00, 09:00:00

08/31/00, 10:30:00	09/14/00, 09:30:00
09/15/00, 08:00:00	09/22/00, 12:30:00
09/23/00, 16:00:00	10/04/00, 08:30:00
10/05/00, 13:00:00	10/19/00, 10:00:00
10/20/00, 14:30:00	11/08/00, 10:30:00
11/09/00, 16:00:00	11/27/00, 10:30:00
11/28/00, 14:00:00	12/18/00, 10:30:00
12/19/00, 15:30:00	12/31/00, 24:00:00

7. Distribution

According to the Ocean and Coastal Resource Management Data Dissemination Policy for the NERRS System-wide Monitoring Program, 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/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 (please see section 1. Principal investigators and contact persons), from the Data Manager at the Centralized Data Management Office (please see personnel directory under the general information link on CDMO homepage) and online at the CDMO homepage http://inlet.geol.sc.edu/cdmohome.html. Data are available in text tab-delimited format, Microsoft Excel spreadsheet format and comma-delimited format.

8. Associated researchers and projects

A water chemistry program is associated with the NIW core-monitoring program.
Variables sampled include: chlorophyll, dissolved organic carbon, nitrate-nitrite, orthophosphate, and ammonia. (See documentation on the NIW WWW home page for further details). Thousand Acre is our permanent monitoring station for the NERR monitoring program, but Oyster Landing and Debidue Creek were also sampled beginning in 1998. These stations are also included in our NIW core-monitoring program.

A long-term fish survey is also done at the Oyster Landing site bi-weekly. Species present, total weight, individual weights and standard lengths of fish that utilize the marsh at low tide are recorded. In the spring/summer/fall month's fish utilizing the marsh at high tide are also sampled.

The NERR weather station is also located at the Oyster Landing site. Air temperature and humidity, barometric pressure, solar radiation (total and PAR), wind speed and direction, and precipitation are measured.

II. Physical Structure Descriptors

9. Variable sequence, column format, range of measurements, units, resolution, and accuracy

YSI 6000/6600 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.

10. Coded variable indicator and variable code definitions
Site definitions: OL = Oyster Landing; TA = Thousand Acre, DC = Debidue Creek

11. Data anomalies (suspect data)

Note: Beginning on 04/14/00 data at OL was collected with a new 6600 data logger. Due to a warm-up period, this logger time-stamps the data at 52 seconds past the 30-minute interval. Therefore the data required changes to the time stamp in order to use the CDMO macros and generate a finalized text file. For example, data in final text files recorded at 10:30:00 was actually collected at 10:30:52. Other miscellaneous time stamp changes are recorded in section 14 (Other remarks).

JANUARY 2000

DEBIDUE CREEK
a) For the following dates and times all data was removed as readings were consistent with the probes being out of the water (i.e. negative depth values and inconsistent salinity/Sp. Cond. Values):
01/05/00 01:00:00
01/16/00 21:00:00 - 23:00:00
01/25/00 18:00:00

b) For the following dates and times turbidity data was removed as the readings were less than zero:
01/15/00 21:00:00-21:30:00

01/16/00 03:30:00, 10:30:00, 11:00:00, 19:00:00, 20:00:00, 21:00:00-
23:00:00

c) For the following dates and times all turbidity data was removed due to
values greater than 1000 NTU that were attributed to a stuck wiper blade:
01/19/00 19:00:00 thru 01/31/00 23:30:00
d) For the following dates and times depth data was removed due to values less
than zero:
01/20/00 14:00:00 - 14:30:00

OYSTER LANDING
None

THOUSAND ACRES
None

FEBRUARY 2000

DEBIDUE CREEK
a) The following dates turbidity data was deleted due to measurements greater
than 1000 NTU (these were determined to be caused by a stuck wiper blade):
02/01/00 00:00:00 thru 02/03/00 08:00:00
b) For the following dates and times all data was deleted as depth and Sp.
Cond/Salinity data were consistent with the probes being out of the water:
02/11/00 17:30:00 thru 18:30:00
02/14/00 20:00:00 thru 22:30:00
02/16/00 23:00:00 thru 02/17/00 00:00:00
02/19/00 01:30:00, 02:00:00, 14:30:00, 15:00:00
02/20/00 02:00:00 thru 03:30:00

OYSTER LANDING
a) For the following time period all turbidity data was removed as the probe
failed and was being replaced:
02/09/00 15:00:00 thru 04/11/00 09:30:00

b) For the following date s and times DO values were high and should be considered suspect. Barnacles were found on probe at post deployment. Data
retained.
02/26/00 14:00:00 - 02/27/00 02:30:00

THOUSAND ACRES
a) For the following time period turbidity, DO, pH, and Spec. Conductivity
values were anomalous, however these data were retained as they may indicate a

siltation event:
02/19/00 14:30:00 thru 02/28/00 11:30:00

MARCH 2000

DEBIDUE CREEK
a) For the following dates turbidity data was high, possibly from algal fouling,
and readings remained high most of the deployment. This data was retained.
03/13/00 08:30:00 thru 03/20/00 13:00:00

b) For the following dates and times all data was deleted as the readings were
consistent with the probes being out to the water:
03/06/00 02:00:00
03/08/00 03:30:00, 15:30:00 thru 16:30:00
03/09/00 04:00:00, 04:30:00, 16:30:00 - 17:00:00
03/10/00 05:00:00 - 05:30:00, 17:00:00 - 17:30:00
03/12/00 06:30:00 - 08:00:00, 17:30:00 - 19:30:00
03/17/00 12:00:00 - 13:00:00
c) For the following dates all turbidity data were deleted due to probe failure:
03/23/00 11:30:00 thru 05/17/00 07:30:00

OYSTER LANDING
a) For the following time period all turbidity data was removed as the probe
failed and was being replaced:
02/09/00 15:00:00 thru 04/11/00 09:30:00

THOUSAND ACRES
a) For the following date and time there was a turbidity reading of greater
than 1000 and the data was deleted. A crab was found in the probe guard and it
could have caused the high individual reading.
03/30/00 12:00:00

b) For the following time period turbidity (>1000), DO, pH, and Spec. Conductivity values were anomalous, however these data were retained as they may
indicate a siltation event:
03/09/00 20:00:00 - 03/20/00 09:30:00

APRIL 2000

DEBIDUE CREEK
a) For the following time period the turbidity data was deleted due to a
probe failure. The probe was replaced for the 05/19/00 deployment.
03/23/00 11:30:00 thru 05/17/00 07:30:00

b) For the following dates and times all data was deleted due to readings
which indicated that the probes were out of the water (i.e. depth <0, inconsistent salinity and Sp. Cond. Readings):
04/04/00 02:00:00
04/04/00 13:30:00 - 15:00:00
04/05/00 01:30:00 - 03:00:00
04/05/00 14:30:00 - 15:00:00
04/06/00 15:00:00 - 16:00:00
04/07/00 04:00:00 - 04:30:00
04/07/00 16:00:00 - 16:30:00
04/08/00 17:00:00 - 17:30:00
04/09/00 05:00:00 - 07:00:00

OYSTER LANDING
a) For the following time period all turbidity data was removed as the probe
failed and was being replaced:
02/09/00 15:00:00 thru 04/11/00 09:30:00

THOUSAND ACRES
a) For the following dates turbidity values were greater than 1000 NTU and were
not consistent with any other readings or weather events. The turbidity data
was deleted.
04/02/00 07:00:00

b) For the following time period turbidity values were high, some greater than
1000 NTU, however these data were retained as they coincide with low pH and
salinities and may indicate a siltation event:
04/18/00 00:30:00 thru 04/22/00 12:30:00

c) For the following time period the DO readings were deleted, as DO readings
were negative indicating a probe failure.
04/18/00 04:30:00 thru 04/30/00 23:30:00

d) For the following time period all turbidity readings were deleted due to high
readings due to a stuck wiper blade:
04/22/00 18:00:00 thru 05/01/00 14:30:00

MAY 2000

DEBIDUE CREEK
a) For the following time period the turbidity data was deleted due to a
probe failure. The probe was replaced for the 05/19/00 deployment.
03/23/00 11:30:00 thru 05/17/00 07:30:00

OYSTER LANDING

a) For the following dates and times turbidity values were greater than 1000 NTU
and were not consistent with any other readings or weather events. The turbidity data was deleted.

05/10/00	03:00:00
05/25/00	16:30:00
05/26/00	16:30:00
05/28/00	20:30:00
05/29/00	09:30:00
05/31/00	11:30:00

THOUSAND ACRES

a) For the following time period turbidity values were high, some greater than 1000 NTU, however these data were retained as they coincide with low pH and salinities and may indicate a siltation event:
05/25/00 20:00:00 thru 05/25/00 21:00:00

b) For the following dates and times turbidity values were greater than 1000 NTU and were not consistent with any other readings or weather events. The turbidity data was deleted.

05/26/00	21:30:00
05/27/00	19:00:00
05/29/00	05:00:00
05/29/00	10:30:00
05/30/00	02:00:00
05/30/00	04:00:00
05/30/00	12:30:00

JUNE 2000

DEBIDUE CREEK

a) For the following dates and times all data was deleted due to readings which indicated that the probes were out of the water (i.e. depth <0, inconsistent salinity and Sp. Cond. Readings):

06/29/00	12:00:00

OYSTER LANDING

a) For the following dates and times turbidity values were greater than 1000 NTU
and were not consistent with any other readings or weather events. The turbidity data was deleted.

06/02/00	01:00:00
06/03/00	13:00:00
06/05/00	09:30:00
06/05/00	12:30:00
06/05/00	13:30:00
06/05/00	15:30:00
06/05/00	16:00:00
06/05/00	19:00:00

06/05/00 20:30:00
06/06/00 13:00:00
06/06/00 15:00:00
06/06/00 15:30:00
06/07/00 10:00:00
06/12/00 21:30:00
06/16/00 12:00:00
06/20/00 04:00:00
06/21/00 16:30:00 thru
06/21/00 18:00:00
06/22/00 07:00:00
06/23/00 16:30:00
06/24/00 19:30:00
06/25/00 08:30:00
06/25/00 18:00:00
06/26/00 08:00:00
06/28/00 08:30:00
06/28/00 11:00:00
06/28/00 11:30:00
06/30/00 14:30:00

THOUSAND ACRES
a) For the following dates and times turbidity values were greater than 1000 NTU
and were not consistent with any other readings or weather events. The turbidity data was deleted.
06/01/00 06:00:00
06/20/00 20:00:00

b) For the following time period turbidity, DO, pH, and Spec. Conductivity
values were anomalous, however these data were retained as they may indicate a
siltation event:
06/26/00 23:00:00 thru 06/30/00 23:30:00

JULY 2000

DEBIDUE CREEK
a) For the following dates and times DO values should be considered suspect.
Post deployment readings looked fine. Reason for high values unknown.
07/18/00 19:30:00 - 07/31/00 08:00:00

OYSTER LANDING
a) For the following dates and times turbidity was greater than 1000 NTU. The
data was retained, as the events may have been rain related.
07/02/00 06:00:00
07/02/00 12:30:00
07/03/00 22:00:00
07/08/00 18:00:00
07/16/00 17:00:00
07/16/00 18:00:00

07/17/00 06:00:00

THOUSAND ACRES
a) For the following dates and times turbidity values were greater than 1000
NTU and were not consistent with any other readings or weather events. The
turbidity data was deleted.
07/11/00 23:00:00

b) For the following time period turbidity values were high, some greater
than 1000 NTU, however these data were retained as they coincide with low pH and
salinities and may indicate a siltation event:
07/25/00 13:00:00
07/28/00 23:00:00
07/29/00 03:00:00
07/30/00 01:30:00
07/31/00 01:00:00

c) High DO spike on 7/18 10:30:00 most likely caused by new deployment and
change in temperature.

AUGUST 2000

DEBIDUE CREEK
a) For the following dates and times turbidity was greater than 1000 NTU.
The data was retained, as the events may have been rain related
08/11/00 20:00:00
08/12/00 21:00:00

b) For the following dates and times the DO was deleted. All readings were
skewed and the membrane was cut up upon retrieval.
08/11/00 17:30:00 thru 08/22/00 10:30:00

c) For the following dates and times the pH readings were deleted due to
calibration constants being off. Suspected probe failure.
08/22/00 15:30:00 thru 08/30/00 07:30:00

d) For the following dates and times turbidity was deleted due to readings
below 0 NTU:
08/26/00 05:30:00
08/28/00 20:00:00

OYSTER LANDING
a) For the following time period turbidity data was removed as readings were

greater than 1000 NTU and high amounts of fouling and animals in the guard could
have caused the anomalies:
08/20/00 00:30:00 thru 08/22/00 06:30:00

THOUSAND ACRES
a) For the following dates and times DO was deleted. The readings started very
high at the beginning of the deployment and drifted down. This indicated a
problem with the membrane before deployment.
08/01/00 09:00:00 thru 08/10/00 16:30:00

b) For the following dates and times turbidity was greater than 1000 NTU. The
data was retained, as the events may have been rain related:
08/01/00 20:00:00

SEPTEMBER 2000

DEBIDUE CREEK

OYSTER LANDING
a) For the following dates and times turbidity was greater than 1000 NTU.
The data was retained, as the events may have been rain related:
09/02/00 04:30:00
09/16/00 14:30:00
09/28/00 11:00:00

b) For the following time period pH data was deleted due to a probe failure.
The probe was replaced.
09/06/00 02:00:00 thru 09/14/00 07:00:00

c) For the following time period the DO data was deleted due to a probe
malfunction:
09/15/00 08:30:00 thru 10/04/00 07:30:00

d) For the following time period the pH data was deleted due to probe failure:
09/17/00 13:30:00 - 09/22/00 13:00:00

THOUSAND ACRES
a) For the following dates and times turbidity values were high with some
greater than 1000 NTU, this was probably due to the rain event on 9/25 and all
values were retained:
09/25/00 14:30:00 thru 09/29/00 08:30:00

OCTOBER 2000

DEBIDUE CREEK

a) For the following dates and times turbidity values were less than 0 NTU. The
values were retained.
10/14/00 09:00:00, 15:30:00

OYSTER LANDING
a) For the following date and time, turbidity reported a negative and/or zero
value; data was retained.
10/18/00 12:30:00

b) All readings except DO were a little skewed, a failing battery could have
affected the readings but all were retained.
10/20/00 13:30:00- 10/31/00 23:30:00

c) For the following dates and times the DO values were deleted as the probe was
not functioning properly - reading were about twice the normal reading:
10/20/00 13:30:00 thru 10/31/00 23:30:00

d) For the following time period the DO data was deleted due to a probe
malfunction:
09/15/00 08:30:00 thru 10/04/00 07:30:00

THOUSAND ACRES

a) For the following dates and times, turbidity readings were negative and/or
zero and all values were retained:
10/08/00 19:30:00
10/10/00 08:00:00
10/10/00 20:30:00

NOVEMBER 2000

DEBIDUE CREEK

a) For the following dates and time the Specific conductivity readings were low.
Data was retained.
11/21/00 23:30:00
11/23/00 00:00:00

b) For the following dates and time, turbidity data was deleted. Readings were
greater than 1000 and probably due to growth of filamentous algae on probe;
wiper was also not 180 degrees upon retrieval.
11/01/00 00:00:00 thru 11/08/00 09:30:00

c) For the following dates and time the turbidity data was deleted as the wiper

blade fell off during the deployment:
11/09/00 11:30:00 thru 11/27:00 09:00:00

OYSTER LANDING
a) For the following time period all DO values were deleted. The readings
looked anomalous and post-deployment check read 140% and the membrane was torn.
11/01/00 00:00:00 thru 11/04/00 03:00:00

b) For the following time period pH was removed as the probe did not calibrate
at deployment and was subsequently replaced:
11/09/00 17:00:00 thru 11/27/00 14:30:00

THOUSAND ACRES
a) For the following dates and times turbidity was greater than 1000 NTU. Data
was retained as it was probably related to rain events at the end of November.
11/23/00 18:00:00
11/24/00 21:30:00
11/25/00 05:00:00 - 07:00:00

DECEMBER 2000

DEBIDUE CREEK
a) For the following dates and times all data was deleted due to readings which
indicated that the probes were out of the water (i.e. depth <0, inconsistent
salinity and Sp. Cond. Readings):
12/15/00 05:30:00
12/17/00 19:00:00 thru 20:00:00
12/23/00 00:00:00 thru 00:30:00

OYSTER LANDING
a) For the following dates the turbidity readings were low consistently for the
entire month. The data was not deleted.
12/05/00-12/31/00

THOUSAND ACRES

12. Missing Data

Missing data are denoted by a period in the data set. Data are missing due to
equipment failure where no probes were deployed, maintenance/calibration of
equipment, elimination of obvious outliers or elimination of data due to
calibration problems (both pre and post). For more details on deleted data, see

the Data Anomalies Section. To find out more details about missing data, contact the Research Coordinator at the site submitting the data.

13. Post Deployment Information

End of Deployment Post-calibration Readings in Standard Solutions:
NA = no data available for that particular standard

Site Date Cond(mS)(Std 10 or 0mS) Salinity(ppt)(Std: 0 ppt) DO(air sat)(Std:
100%) pH(Std: 7) Depth(Std: 0) Turb(Std: 0)

DC 12/22/99 No Data available
01/14/00 9.68 NA 97.3 7.02 0.142 0
02/09/00 NA NA 91.4 7.19 0.012
15.1
03/01/00 10 NA 100 7.21 -0.022
28.3
03/22/00 10.7 NA 106.1 7.15 0.018
NA
04/13/00 9.81 NA 100.4 7.37 0
0.7
05/04/00 9.26 NA 85 6.60 -0.032
NA
05/19/00 8.75 NA 62 7.4 0.02
7.3
06/10/00 9.38 NA 105.9 7.5 -0.056
0
06/23/00 9.2 NA 109.2 7.07 -0.079
0
07/06/00 9.9 NA 93.1 7.42 0.026
0
07/17/00 0.02 NA 95.2 6.88 0.048
5.4
07/31/00 NA 0.03 82.6 7.31 -0.05
0.2
08/11/00 9.49 NA 116 6.9 0.113
1.4
08/22/00 0.28 NA 66 7.5 -0.1 -
0.8
08/30/00 0.09 NA 60 6.6 0.06 -
0.4
09/14/00 0.13 NA 93 7.0 0.04 -
1.0
09/22/00 0.09 NA 81 7.51 0.056
0.5
10/04/00 0.69 NA 82.4 7.26 0.001 -
2.2
10/20/00 0.1 0.04 100 7.1 -0.131
114
11/09/00 0.50 0.25 98 7.07 -0.011
46

	11/28/00	0.82	0.40	103	6.97	-0.08
2.2						
	12/20/00	0.55	0.26	100	6.94	-0.124
0						
OL						
	12/22/99	No data available				
	01/14/00	10.10	NA	109.3	7.02	0.114
0						
	02/09/00	9.9	NA	109.8	7.01	0.022
NA						
	02/29/00	10.17	NA	108.4	7.12	-0.013
NA						
	03/21/00	10.39	NA	104.9	6.97	-0.02
NA						
	04/14/00	9.99	NA	95.9	7.0	-0.02
1.0						
	05/04/00	9.59	NA	97.4	6.98	-0.005
-0.2						
	05/19/00	8.29	NA	83	6.96	0.04
1.3						
	06/10/00	10	NA	69.7	6.86	-0.069
3.2						
	06/23/00	9.8	NA	105	7.14	-0.047
1.5						
	07/05/00	6.416	NA	100.1	7.21	0.003
1.0						
	07/17/00	Programming error				
	07/31/00	NA	0.11	105.1	7.06	-0.057
2.0						
	08/11/00	NA	0.02	90	7.14	0.08
80						
	08/22/00	0.01	NA	88	7.05	-0.1
0.7						
	08/30/00	0	NA	90	7.07	0.041
-2.0						
	09/14/00	0.3	NA	148	6.6	0.042
0						
	09/22/00	0.35	NA	NA	7.15	0.009
0						
	10/04/00	0.345	NA	81	7.04	0.046
-0.9						
	10/20/00	0.31	0.15	140	7.23	-0.085
-0.3						
	11/09/00	0.76	0.36	103	7.9	0.017
-0.1						
	11/28/00	0.5	0.24	105.8	7.17	0.008
0.2						
	12/19/00	0.48	0.23	101.8	7.13	0.196
0.4						
TA						

12/22/99	9.77	NA	80.8	7.35	-0.025	1.3
01/14/00	9.79	NA	108.1	7.14	0.123	4.1
02/09/00	9.69	NA	117.8	7.14	0.053	-0.3
03/01/00	9.88	NA	91.9	7.31	-0.06	0.5
03/22/00	10	NA	100.9	7.13	0.004	0.5
04/13/00	9.96	NA	112.1	7.21	-0.005	1840
05/04/00	8.88	NA	53.4	6.88	-0.031	5.6
05/19/00	8.39	NA	7.5	6.37	0.04	0
06/10/00	9.58	NA	98	6.92	-0.086	30.3
06/23/00	9.93	NA	98.4	7.0	-0.057	-0.3
07/06/00	9.66	NA	88	7.32	-0.007	1.0
07/17/00	0.05	NA	88.1	7.26	0.055	1.6
07/31/00	NA	0	86.7	6.83	-0.028	-0.2
08/11/00	NA	0.2	105	7.39	0.1	1.3
08/22/00	0.6	NA	88	7.2	-0.1	0.7
08/30/00	0.04	NA	86	6.6	0.05	1.0
09/14/00	0.02	NA	110	6.8	0.03	-0.06
09/22/00	0.02	NA	87	7.07	0.05	1.5
10/04/00	0.05	0	122.7	6.98	0.081	-6.3
10/20/00	0.08	0.03	82	7.23	-0.081	0.4
11/09/00	0.102	0.05	89	7.19	-0.024	2.5
11/27/00	0.093	0.04	100.4	7.08	-0.004	2.5
12/19/00	0.37	0.17	108.4	7.09	0.234	-0.4

14. Other Remarks:

On 06/30/2021 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.

DEBIDUE CREEK

Cold temperatures from 01/14/00 14:00:00 to 02/03/00 08:00:00 caused increase in DO for this time. Data retained.

Cold temperatures from 01/14/00 14:00:00 to 02/03/00 08:00:00 caused increase in DO for this time. Data retained.

Salinity and specific conductivity values were low for the following time period probably due to rain periodically thru the end of the month. Data was retained.
09/18/00 17:30:00 thru 09/27/00 04:00:00

06/10/00-06/22/00Bad time stamp Changed times (for example 14:30:00 is actually 14:15:49)

10/05/00-10/19/00Bad time stamp Changed times (for example 10:00:00 is actually 10:12:00)

For the following dates salinity values were unusually high. Extremely low rainfall for the entire month of October was probably responsible and values were retained.
10/15/00 thru 10/30/00

d) DO increase on 11/21/00 23:30:00 possibly due to cold temperatures at this time. Data retained.

OYSTER LANDING
06/07/00 Probes fouled, small toadfish in guard

THOUSAND ACRES

08/11/00 Lots of rain 2+"

08/22/00 -08/30/00 Bad time stamp, changed times (for example 15:00:00 is
actually 14:56:21)

08/30/00 Water really turbid

For the following dates and time the DO readings were low, however these coincide with high turbidity readings and were probably rain event related so
the data was retained:
09/26/00 12:00:00- 09/28/00 21:00:00

For the following dates and times the Specific Conductivity and pH readings
were low due to rain event. Data retained.
09/18/00 16:30:00 - 09/28/00 09:00:00

10/08/00 Small crab in guard may be responsible for turbidity spikes.

10/05/00 -10/19/00 Bad time stamp, changed times (for example 10:00:00 is
actually 09:56:10)

10/20/00-11/08/00Bad time stamp, changed times (for example 11:00:00 is actually 10:55:24)

10/20/00 Turbidity probe may not have been functioning properly - data may be
suspect.

11/30/00 Controlled burn and rain/snow may have influenced some turbidity
data this month and into December.

For the following dates and times DO, pH, Specific Conductivity data were a
little off due to rain event. Data retained.
12/17/00 16:00:00 - 12/18/00 10:30:00

Any time a reference is made to turbidity data being negative and/or zero, it
was recorded as a negative in the raw data file and a zero in the edited data
file due to the formatting of Excel. The technician edited none of these data
points by hand nor did he/she delete any of them.