

NIW NERR Site Metadata Form
January - December 1996
Updated: August 23, 2001

I. Data Set & Research Descriptors

1. Principal investigator(s) & contact persons

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2. Entry verification

The data are uploaded to the PC from the YSI dataloggers. Data plots were produced and examined using the PC6000 software. Files were also uploaded to a

PC in a comma delimited format. Comma delimited files are opened in EXCEL 5.0

software and edited by removing unnecessary headers, footers and spaces. Suspect data are evaluated, edited, and documented. Missing data due to YSI

maintenance (down time) are inserted into the spreadsheet and are denoted by

periods (.). Edited and raw files are archived using a SUN Sparc II workstation. Edited files are merged to contain one full month of data. All 1996

Thousand Acre and Oyster Landing files have been verified using Microsoft Excel

5.0 macro programs which discover outliers (values which fall outside the range

that the instrument is designed to measure - see section II.8 of this document)

and other erroneous data. Outliers were determined according to the instruments' manufacturers manual. After macros were run, files with suspicious

data were charted in Microsoft Excel to determine problems with probes. The

dissolved oxygen (DO) probe was most problematic. In instances When the plot of

DO increased in an exponential fashion and or (DO) also intermittently went

outside the design specifications for that instrument and never returned to

normal readings, the data were considered bad and removed from the data file.

These macros are available on the NERRS CDMO home page. Paul Kenny, Chris

Aadland and Rick Clutter edited and archived the 1996 data for Thousand Acre and Oyster Landing.

3. Research Objectives

Measurements were taken every 30 minutes over two week periods at the Oyster Landing and Thousand Acre stations.

4. Research methods (YSI dataloggers)

Prior to the YSI Datalogger deployment, a 4" diameter PVC pipe was strapped to a treated 2" X 6" board; this board was then nailed into a pier piling at the Thousand Acre and Oyster Landing site. Each YSI Datalogger is lowered into a PVC pipe which 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 maintains the YSI Datalogger at each site exactly one foot (30 cm) above the creek bottom. Every half hour over a two week period, measurements of specific conductivity, salinity, percent saturation, dissolved oxygen, water temperature, pH, turbidity, and water level were recorded at each site. Sampling intervals were selected due to biofouling of the dissolved oxygen membrane and expected battery life. At the end of each sampling interval, the YSI Datalogger is brought back into the laboratory for downloading, cleaning and recalibration. These procedures are carried out according to the methods as described in the YSI Operating Manual (see sections 3 and 7). After approximately 24 hours of down time for cleaning and overnight recalibration (if necessary), the YSI dataloggers are redeployed. If necessary, a Hydrolab datalogger may be substituted for a YSI. All maintenance downtimes and membrane cleaning periods are recorded in a log book.

5. Site location and character

The North Inlet-Winyah Bay National Estuarine Research Reserve is located on the southeastern coast of the United States on the Atlantic Ocean 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)¹. 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)¹, 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 two sampling stations are as follows:

1) Thousand Acre (TA) - (lat. 33:18:22; long. 79:15:4) The Thousand Acre monitoring site is located in Thousand Acre marsh tidal creek approximately 30 meters northeast of the west bridge of Thousand Acre marsh. 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. Georgetown, 5 km upstream from the Thousand Acre site and on the southern side of Winyah Bay, is the home port 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 is also located in Georgetown.

2) Oyster Landing (OL) - (lat 33:21:03; long. 79:11:24). The Oyster Landing monitoring site is located in the upper reaches of Crabhaul Creek in the mid western portion of North Inlet.

6. Data collection period
Thousand Acre data collection began January 1, 1995, and Oyster Landing data collection began on January 1st, 1995.
All sampling is ongoing.

7. 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). TA is our permanent monitoring station for the NERR National Monitoring Program. This station is also included in our NIW core monitoring program.

II. Physical Structure Descriptors

8. Variable sequence, column format, range of measurements, units, resolution, accuracy (for YSI)

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 1 tab.

9. Coded variable indicator and variable code definitions
Site definitions: OL = Oyster Landing; TA = Thousand Acre

10. Data anomalies (suspect data)

Any questionable outlying data points between January 1, 1996 and October 31, 1996, not addressed below, have been checked and correspond to probable rainfall events.

OYSTER LANDING (OL)

Jan-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable	
Reason						
01/16/96	18:00:00	---/ /			Turb.	neg
01/16/96	19:00:00	---/ /		19:30:00	Turb.	neg
01/17/96	01:30:00	---/ /			Turb.	neg
01/17/96	04:00:00	---/ /			Turb.	neg
01/17/96	08:30:00	---/ /			Turb.	neg
01/17/96	09:30:00	---/ /		10:00:00	Turb.	neg
01/17/96	13:00:00	---/ /		14:30:00	Turb.	neg
01/24/96	22:00:00	---/ /			Turb.	neg
01/24/96	23:00:00	---/ /	01/24/96	23:30:00	Turb.	
neg						
01/25/96	01:30:00	---/ /		02:00:00	Turb.	neg
01/25/96	09:00:00	---/ /			Turb.	
sltly						
neg						
01/25/96	11:00:00	---/ /			Turb.	
sltly						
neg						
01/25/96	14:00:00	---/ /			Turb.	
sltly						
neg						
01/25/96	15:00:00	---/ /			Turb.	
sltly						
neg						
01/25/96	16:30:00	---/ /			Turb.	
sltly						
neg						
01/25/96	17:30:00	---/ /		18:30:00	Turb.	
sltly						
neg						
01/25/96	19:30:00	---/ /			Turb.	
sltly						
neg						
01/26/96	00:00:00	---/ /			Turb.	
sltly						
neg						
01/26/96	02:00:00	---/ /		02:30:00	Turb.	
sltly						
neg						
01/26/96	05:00:00	---/ /			Turb.	
sltly						
neg						

01/26/96	06:00:00	---/ /		08:00:00	Turb.
sltly					
neg					
01/26/97	09:00:00	---/ /		10:30:00	Turb.
sltly neg					
01/26/96	13:00:00	---/ /		13:30:00	Turb.
sltly					
neg					
01/26/96	15:00:00	---/ /		16:00:00	Turb.
sltly					
neg					
01/26/96	18:00:00	---/ /			Turb.
sltly					
neg					
01/26/96	19:00:00	---/ /	01/27/96	01:00:00	Turb.
sltly					
neg					
01/27/96	02:00:00	---/ /			Turb.
sltly					
neg					
01/27/96	03:00:00	---/ /			Turb.
sltly					
neg					
01/27/96	04:00:00	---/ /		04:30:00	Turb.
sltly					
neg					

Feb-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
Reason					
02/10/96	11:00:00	---	02/10/96	13:00:00	Turb. neg
02/14/96	12:00:00	---	02/26/96	08:30:00	Turb.
water in					
cable connection					

Mar-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
Reason					
03/11/96	17:00:00	---	03/13/96	10:30:00	DO%, mg/l suspect DO
deleted					
03/17/96	13:30:00	---	03/17/96	14:30:00	Turb. neg
03/18/96	08:00:00	---/ /			Turb. neg

April-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
Reason					
04/05/96	15:30:00	---/ /			Turb.
neg					

May-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
05/31/96	12:30:00	---/ /			Turb.
Reason neg					

June-96 (OL)
Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
06/21/96	11:00:00	---/ /			Turb.
Reason >1000					

Aug-96
Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
08/08/96	10:00:00	---/ /		10:30:00	Turb.
Reason neg					
08/11/96	09:00:00	---/ /			Turb.
Reason neg					
08/14/96	07:00:00	---/ /			Turb.
Reason neg					
08/29/96	01:30:00	---/ /			Turb.
Reason >1000					
08/31/96	15:00:00	---/ /			Turb.
Reason neg					

Oct-96
Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
10/05/96	07:00:00	---	10/14/96	14:00:00	DO%, mg/l suspect DO
Reason deleted					

THOUSAND ACRE (TA)

Jan-96
Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
01/22/96	20:00:00	---/ /			Turb. neg
01/27/96	03:00:00	---/ /			Turb. neg
01/27/96	10:00:00	---/ /			Turb. neg

Feb-96 (TA)
Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
02/01/96	05:30:00	---/ /			Turb. neg
Reason					

02/02/96	13:00:00	---/ /				Turb.	neg
02/04/96	06:00:00	---/ /				Turb.	neg
02/04/96	08:00:00	---/ /				Turb.	neg
02/06/96	00:30:00	---/ /				Turb.	neg
02/06/96	08:00:00	---/ /				Turb.	neg
02/06/96	09:30:00	---/ /				Turb.	neg
02/06/96	18:00:00	---/ /				Turb.	neg
02/06/96	19:30:00	---/ /				Turb.	neg
02/07/96	06:30:00	---/ /				Turb.	neg
02/07/96	07:30:00	---/ /				Turb.	neg
02/07/96	08:30:00	---/ /				Turb.	neg
02/07/96	09:30:00	---	02/07/96	10:00:00		Turb.	neg
02/07/96	11:30:00	---/ /				Turb.	neg
02/07/96	20:30:00	---/ /				Turb.	neg
02/08/96	08:30:00	---/ /				Turb.	neg

Mar-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
03/13/96	10:00:00	---	03/31/96	23:30:00	Turb. Turbidity data
is considered suspect for the whole month due to many negative values and values >1000.					

April-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
04/08/96	16:00:00	---/ /			Turb. neg

May-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
5/10/96	16:00:00	---	5/27/96	16:00:00	DO%, DOmg/L
DO is considered suspect because of probe failure and was deleted.					

June-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
06/11/96	16:00:00	---/ /			Turb. neg
06/12/96	10:30:00	---	06/12/96		Turb. >1000
06/12/96	05:00:00	---/ /			Turb.
>1000					
06/12/96	10:00:00	---	06/12/96	11:00:00	Turb. >1000
06/12/96	19:30:00	---/ /			Turb.
>1000					
06/15/96	00:00:00	---/ /			Turb.
>1000					
06/16/96	04:00:00	---/ /			Turb. neg

06/16/96	08:00:00	---/ /	Turb.	
	>1000			
06/16/96	23:30:00	---/ /	Turb.	neg
06/17/96	00:30:00	---/ /	Turb.	neg
06/17/96	01:30:00	---/ /	Turb.	neg
06/17/96	05:00:00	---/ /	Turb.	neg
06/17/96	07:00:00	---/ /	Turb.	neg
06/17/96	08:00:00	---/ /	Turb.	neg
06/19/96	02:00:00	---/ /	Turb.	neg
06/19/96	05:30:00	---/ /	Turb.	neg
06/19/96	09:30:00	---/ /	Turb.	neg
06/19/96	18:00:00	---/ /	Turb.	
	>1000			
06/22/96	16:30:00	---/ /	Turb.	
	>1000			
06/22/96	23:00:00	---/ /	Turb.	neg
06/26/96	23:30:00	---/ /	Turb.	neg
06/27/96	11:30:00	---/ /	Turb.	neg
06/28/96	11:30:00	---/ /	Turb.	neg
06/28/96	14:30:00	---/ /	Turb.	neg
06/28/96	15:00:00	---/ /	Turb.	
	>1000			
06/28/96	17:00:00	---/ /	Turb.	neg
06/29/96	16:00:00	---/ /	Turb.	neg
06/30/96	12:30:00	---/ /	Turb.	neg
06/30/96	17:30:00	---/ /	Turb.	neg

From 06/07/96-06/30/96 Turbidity considered suspect do to many neg. values and values >1000.

Jul-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
07/01/96	00:00:00	---	07/31/96	23:30:00	Turb.
questionable					
data					
due to negative values					
and values >1000.					
07/10/96	14:00:00	---	07/22/96	09:00:00	DO%,mg/L suspect DO
deleted					
07/25/96	14:30:00	---	07/31/95	23:30:00	Depth Mud in
sensor.					

Aug-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
08/01/96	00:00:00	---	08/05/96	16:00:00	Depth Mud in
sensor.					
08/07/96	15:00:00	---	08/31/96	23:30:00	Turb. data
suspect					
do to					
many neg. values and values >1000.					

Sept-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
09/01/96	00:30:00	---	09/01/96	01:00:00	Turb. neg
09/01/96	03:00:00	---/ /			Turb. neg
09/01/96	11:30:00	---/ /			Turb. neg
09/01/96	13:00:00	---/ /			Turb. neg
09/03/96	06:30:00	---/ /			Turb.
>1000					
09/04/96	16:00:00	---	09/04/96	16:30:00	Turb. neg
09/04/96	18:00:00	---	09/05/96	04:30:00	Turb. >1000
09/06/96	09:30:00	---	09/06/96	15:00:00	Turb. Lots of
neg					
and >1000 spikes.					
09/21/96	13:00:00	---/ /		13:00:00	Turb. neg

Oct-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
10/12/96	21:00:00	---/ /			Turb.
neg					
10/13/96	14:00:00	---/ /			Turb.
neg					
10/23/96	21:30:00	---/ /			Turb.
neg					

Nov-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
11/19/96	23:00:00	---/ /			Turb.
neg					
11/22/96	00:00:00	---/ /			Turb. neg
11/28/96	17:30:00	---/ /			Turb.
neg					

Dec-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
12/07/96	07:00:00	---/ /			Turb.
neg					
12/10/96	23:30:00	---	12/12/96	13:00:00	all low
battery power					
12/22/96	16:00:00	---/ /			Turb.
neg					
12/22/96	17:00:00	---/ /			Turb.
neg					
12/25/96	05:30:00	---/ /			Turb.
neg					
12/25/96	08:00:00	---/ /			Turb.

neg
 From 12/10/96 23:30:00 to 12/12/96 13:00:00 all data is considered
 suspect due
 to low battery power.

11. Missing Data

Every two weeks at TA and OL, there is a period of approximately 24 hours
 of missing data due to maintenance and calibration requirements.

OYSTER LANDING (OL)

Jan-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
01/01/96	00:00:00	---	01/04/96	08:30:00	ph,Turb. Hydrolab
01/04/96	09:00:00	---	01/04/96	11:30:00	all
01/22/96	09:30:00	---	01/24/96	09:00:00	all

The Hydrolab and YSI data have been combined into one file. Hydrolab
 recorded

data from 01/01/96, 00:00:00-

01/04/96, 08:30:00. YSI recorded data from this point through the end of
 the
 month.

Feb-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
02/08/96	10:00:00	---	02/09/96	12:30:00	all
02/14/96	12:00:00	---	02/26/96	08:30:00	turb.
02/26/96	09:00:00	---	02/29/96	23:30:00	all

Mar-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
03/01/96	00:00:00	---	03/01/96	13:30:00	all
03/11/96	17:00:00	---	03/13/96	10:30:00	DO%, mg/l suspect DO
03/13/96	11:00:00	---	03/14/96	14:30:00	all
03/28/96	09:30:00	---	03/29/96	15:30:00	all

Apr-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
------	------	---------	------	------	----------

Reason

04/11/96	09:00:00	---	04/12/96	12:30:00	all
----------	----------	-----	----------	----------	-----

maintenance

04/25/96	10:30:00	---	04/26/96	15:30:00	all
----------	----------	-----	----------	----------	-----

maintenance

May-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
------	------	---------	------	------	----------

Reason

05/09/96	09:00:00	---	05/30/96	12:30:00	all
----------	----------	-----	----------	----------	-----

instrm.

dead

Jun-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
------	------	---------	------	------	----------

Reason

06/11/96	08:30:00	---	06/12/96	13:30:00	all
----------	----------	-----	----------	----------	-----

maintenance

06/25/96	11:30:00	---	06/26/96	13:00:00	all
----------	----------	-----	----------	----------	-----

maintenance

06/26/96	14:00:00	---	06/30/96	23:30:00	Turb.
----------	----------	-----	----------	----------	-------

water in

bulkhead

Jul-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
------	------	---------	------	------	----------

Reason

07/01/96	00:00:00	---	07/22/96	09:00:00	turb.
----------	----------	-----	----------	----------	-------

water in

bulkhead

07/08/96	09:30:00	---	07/10/96	13:30:00	all
----------	----------	-----	----------	----------	-----

maintenance

07/22/96	09:00:00	---	07/25/96	14:00:00	all
----------	----------	-----	----------	----------	-----

maintenance

07/25/96	14:30:00	---	07/31/96	23:30:00	depth
----------	----------	-----	----------	----------	-------

mud in

sensor

Aug-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
------	------	---------	------	------	----------

Reason

08/01/96	00:00:00	---	08/05/96	16:00:00	depth
----------	----------	-----	----------	----------	-------

sensor

mud in

08/05/96	16:30:00	---	08/07/96	14:30:00	all
----------	----------	-----	----------	----------	-----

maintenance

08/19/96	10:30:00	---	08/20/96	16:00:00	all
----------	----------	-----	----------	----------	-----

maintenance

Sep-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
09/03/96	14:30:00	---	09/04/96	14:30:00	all
maintenance					
09/18/96	14:30:00	---	09/19/96	12:30:00	all
maintenance					
09/30/96	09:30:00	---	09/30/96	23:30:00	all
maintenance					

Oct-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
10/01/96	00:00:00	---	10/01/96	10:00:00	all
maintenance					
10/05/96	07:00:00	---	10/14/96	14:00:00	DO%, mg/l suspect DO
deleted					
10/14/96	14:30:00	---	10/29/96	15:30:00	all
maintenance					

Nov-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
11/12/96	14:30:00	---	11/14/96	11:30:00	all
maintenance					
11/26/96	12:30:00	---	11/27/96	11:00:00	all
maintenance					

Dec-96

Oyster Landing (OL)

Date	Time	through	Date	Time	Variable
12/12/96	15:30:00	---	12/13/96	14:00:00	all
maintenance					

THOUSAND ACRE (TA)

Jan-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
01/01/96	00:00:00	---	01/05/96	11:30:00	all
unit					
01/05/96	12:00:00	---	01/22/96	14:00:00	turb.
unit					
01/22/96	14:30:00	---	01/22/96	15:00:00	all
maintenance					

Feb-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
02/08/96	09:30:00	---	02/09/96	12:30:00	all
maintenance					
02/27/96	13:30:00	---	02/29/96	23:30:00	all
maintenance					
Mar-96					
Thousand Acre (TA)					
Date	Time	through	Date	Time	Variable
Reason					
03/01/96	00:00:00	---	03/01/96	13:30:00	all
maintenance					
03/13/96	10:30:00	---	03/14/96	15:00:00	all
maintenance					
03/28/96	09:00:00	---	03/29/96	15:00:00	all
maintenance					
Apr-96					
Thousand Acre (TA)					
Date	Time	through	Date	Time	Variable
Reason					
04/11/96	09:00:00	---	04/12/96	12:30:00	all
maintenance					
04/17/96	17:00:00	---	04/30/96	23:30:00	Turb.
water in					
bulkhead					
04/25/96	09:30:00	---	04/26/96	15:30:00	all
maintenance					
May-96					
Thousand Acre (TA)					
Date	Time	through	Date	Time	Variable
Reason					
05/01/96	00:00:00	---	05/27/96	16:00:00	Turb.
water in					
bulkhead					
05/09/96	10:30:00	---	05/10/96	15:30:00	all
maintenance					
05/10/96	16:00:00	---	05/27/96	16:00:00	DO%, DOmg/l probe
failure, deleted					
05/27/96	16:30:00	---	05/31/96	23:30:00	all
maintenance					
Jun-96					
Thousand Acre (TA)					
Date	Time	through	Date	Time	Variable
Reason					
06/01/96	00:00:00	---	06/07/96	09:00:00	all
maintenance					
redeployment delayed due to wait for turbidity sensor replacement					
06/25/96	11:00:00	---	06/26/96	12:30:00	all
maintenance					

Jul-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
07/08/96	09:30:00	---	07/10/96	13:30:00	all
maintenance					
07/10/96	14:00:00	---	07/22/96	09:00:00	pH no probe
07/10/96	14:00:00	---	07/22/96	09:00:00	DO%,mg/L suspect DO
deleted					
07/22/96	09:30:00	---	07/23/96	14:30:00	all
maintenance					
07/23/96	15:30:00	---	07/31/96	23:30:00	pH probe
broken					

Aug-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
08/01/96	00:00:00	---	08/19/96	10:30:00	pH probe
broken					
08/06/96	09:30:00	---	08/07/96	14:30:00	all
maintenance					
08/19/96	11:00:00	---	08/20/96	15:30:00	all
maintenance					

Sep-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
09/03/96	11:00:00	---	09/04/96	14:30:00	all
maintenance					
09/18/96	15:00:00	---	09/19/96	13:00:00	all
maintenance					
09/30/96	10:30:00	---	09/30/96	23:30:00	all
maintenance					

Oct-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
10/01/96	00:00:00	---	10/01/96	14:30:00	all
maintenance					
10/14/96	13:00:00	---	10/16/96	13:00:00	all
maintenance					
10/28/96	10:30:00	---	10/31/96	23:30:00	all
maintenance					

Nov-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
11/01/96	00:00:00	---	11/14/96	12:30:00	all Water in unit

11/26/96	12:30:00	---	11/27/96	11:30:00	all
maintenance					

Dec-96

Thousand Acre (TA)

Date	Time	through	Date	Time	Variable
Reason					
12/11/96	22:00:00	---/ /			all low
battery					
12/12/96	06:00:00	---	12/12/96	06:30:00	all low
battery					
12/12/96	08:30:00	---/ /			all low
battery					
12/12/96	10:00:00	---	12/12/96	11:30:00	all low
battery					
12/12/96	12:30:00	---/ /			all low
battery					
12/12/96	13:30:00	---	12/13/96	15:30:00	all
maintenance					
12/30/96	17:00:00	---	12/31/96	23:30:00	all water in
battery compartment					

12. Other Remarks

Deployment and Retrieval Log:

Oyster Landing

Retrieval Date/Time	Deployment Date/Time
1/4/96 9:00:00	1/4/96 11:30:00
1/22/96 9:30:00	1/24/96 9:00:00
2/8/96 10:00:00	2/9/96 12:30:00
2/26/96 9:00:00	3/1/96 13:30:00
3/13/96 11:00:00	3/14/96 14:30:00
3/28/96 9:30:00	3/29/96 15:30:00
4/11/96 9:30:00	4/12/96 12:30:00
4/25/96 10:30:00	4/26/96 15:30:00
5/9/96 10:30:00	5/30/96 12:30:00
6/11/96 9:00:00	6/12/96 13:30:00
6/25/96 11:30:00	6/26/96 12:30:00
7/8/96 9:30:00	7/10/96 13:30:00
7/22/96 9:00:00	7/25/96 8:00:00
8/5/96 16:30:00	8/7/96 14:30:00
8/19/96 10:30:00	8/20/96 15:30:00
9/3/96 14:30:00	9/4/96 14:30:00
9/18/96 14:30:00	9/19/96 12:30:00
9/30/96 9:30:00	10/1/96 10:00:00
10/14/96 14:30:00	10/29/96 15:30:00
11/12/96 14:30:00	11/14/96 11:30:00
11/26/96 12:30:00	11/27/96 11:00:00
12/12/96 15:30:00	12/13/96 14:00:00

Thousand Acres

Retrieval Date/Time	Deployment Date/Time
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		1/5/96	11:30:00
1/22/96	14:30:00	1/22/96	14:30:00
2/8/96	9:30:00	2/9/96	12:30:00
2/27/96	13:30:00	3/1/96	13:30:00
3/13/96	11:00:00	3/14/96	15:00:00
3/28/96	9:00:00	3/29/96	15:00:00
4/11/96	9:00:00	4/12/96	12:30:00
4/25/96	9:30:00	4/26/96	15:30:00
5/9/96	10:30:00	5/10/96	15:30:00
5/27/96	16:30:00	6/7/96	9:00:00
6/25/96	11:00:00	6/26/96	12:30:00
7/8/96	9:30:00	7/10/96	13:30:00
7/22/96	9:30:00	7/23/96	15:00:00
8/6/96	9:30:00	8/7/96	14:30:00
8/19/96	11:00:00	8/20/96	15:30:00
9/3/96	11:00:00	9/4/96	14:30:00
9/18/96	15:00:00	9/19/96	13:00:00
9/30/96	10:30:00	10/1/96	14:30:00
10/14/96	13:00:00	10/16/96	13:00:00
10/28/96	10:30:00	11/14/96	12:30:00
11/26/96	12:30:00	11/27/96	11:30:00
12/12/96	13:30:00	12/13/96	15:30:00
12/30/96	17:00:00	1/8/97	14:00:00