Sapelo Island (SAP) NERR Water Quality Metadata
(January - December 1996)
Latest Update: November 12, 2001

I. Data Set and Research Descriptors
1. Principal Investigators and contact persons:
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2. Entry Verification:
The data are downloaded to an IBM compatible computer from the Hydrolab Datasonde I, Hydrolab Datasonde III, Hydrolab Recorder, or YSI 6000UPG as a raw file. The YSI 6000 data are reviewed using the YSI computer program PC6000 that accompanies the YSI 6000 data logger. After the file is uploaded from the datatlogger, PC6000 is used to plot the data and perform basic statistical analysis (i.e., min., max., mean, std. dev.) The information obtained from this printout is used during file review to detect any gross outliers such as data taken when the datalogger was removed from the water or those caused by instrument failure. Based on past measurements in the waters near Sapelo Island, it was determined that the following data should be checked:

Salinity < 5 ppt or >35 ppt
pH < 6.5 or > 8.5
Temperature < 10 C or >30 C

Upon close examination of the questionable data, the data that did appear accurate was kept in the data set while the rest was removed and classified as missing data. The edited data are formatted according to the guidelines given in the CDMO manual. 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 has the correct number of decimal place holders by
using the Column Reformat CDMO Excel 5.0 Macro. Secondly, the Date Hour Count
CDMO Excel 5.0 macro is used to determine if there are any dates and times that
data was 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. The reason for the missing data is
recorded on the Water Quality Editing Log. Next, the data are filtered using
the Find Variable Outlier CDMO Excel 5.0 macro to find readings outside the
instrument measurement range and the "normal" range for the site in question.
Data outside the instrument range is/are removed from the file and a period is
inserted to the cell(s). An explanation for the missing dates and times are
recorded onto the Water Quality Editing Log. Data that was outside the "normal"
range of water quality for a particular site is investigated for validity based
on weather data, field observations, QC checks, PC6000 printouts, and instrument
diagnostics. If the data is/are rejected from the file a period is inserted to
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 the
submitted with the data file to the CDMO. Greg Schultz, reserve fellow, was
responsible for the QA/QC of the database.

3. Research Objectives
The purpose of research was only to perform long-term water quality
monitoring and not a specific experiment. Sapelo Island is only accessible by
passenger ferry. Due to its isolation, the salt marsh and tidal waters of the
SINERR show little evidence of human impact. The Marsh Landing site receives a
large amount of boat traffic, as it is the primary access point for the
approximately 100 residents, commuters and daily visitors plus barge off

loading. The Barn Creek site receives moderate boat traffic, and is near a mechanic shop on land and several residences. The Flume Dock site is a relatively isolated location compared to the other two sites.

4. Research Methods:
Water quality monitoring began at the Flume Dock and Marsh Landing sites in August 1986. The Barn Creek site was added in May 1995. Monitoring units are hung vertically from a float or floating dock so they hang two meters below the water's surface. Hydrolab units were used exclusively until May 1995. After May 1995, YSI units were used as well as the Hydrolabs.

The sondes are calibrated prior to deployment following manufacturer's instructions. PH is calibrated using purchased 7.00 and 10.00 pH buffers. Conductivity is calibrated using a solution made from KCl. DO is calibrated by using current barometric pressure and % saturation and a new DO membrane is used for each deployment. The probes are cleaned three times weekly while deployed when the warmer months increase the rate of fouling. The dissolved oxygen probes are cleaned once weekly with a cotton swab and soaked in methanol, while the other probes are cleaned with cotton swabs or pipe cleaners and de-ionized water. After two weeks the units are returned to the lab for downloading, cleaning, and recalibration, according to the manufacturers manual. No post calibration verifications were performed. Because the sondes are deployed at a fixed depth, no depth data is reported. Data were collected at 30-minute intervals.

5. Site Location and Character:
The Sapelo Island National Estuarine Research Reserve is located in a tidal estuary on the western side of Sapelo Island off the Georgia coast. There are currently three monitoring stations, with a fourth to be added.
1)Marsh Landing - located on the lower Duplin River at 31?21’4” N, 81?17’46” W near where it meets Doboy Sound. Docking facilities for the ferry that runs to and from the mainland and other boats are located here. The site is influenced

by tidal currents from Doboy Sound and the Atlantic Ocean. Salinity ranges from
15 to 30 ppt.
2)Flume Dock - located on the upper Duplin River at 31?28'58"N, 81?16'3"W. It
is influenced by tidal currents which flood the marsh during high tide and
recede into the river channel or its side creeks at low tide. It receives far
less boat traffic than Marsh Landing. Salinity ranges from 10 to 25 ppt.
3)Barn Creek - located on a tributary of the Duplin River between the Marsh
Landing and Flume Dock sites at 31?26'21"N, 81?16'43"W. A small boat dock and
several houses are located nearby. Salinity ranges from 10 to 25 ppt.

6. Data collection period:
Data collection began at Flume Dock on August 23, 1986, at Marsh Landing on
August 27, 1986, and at the Barn Creek site on May 24, 1995.

7. Associated researchers and projects:
A variety of ecological research projects are conducted in the SINERR by
researchers associated with the University of Georgia Marine Institute. In
addition, the Marine Institute has conducted meteorological and hydrological
monitoring since 1986.

II. Physical Structure Descriptors

8. Variable sequence, column format, range of measurement, units:
Hydrolab Datasonde I

Variable Name	Range of measurement	Resolution	Accuracy
Date	1-12, 1-31, 00-99 (Mo., Day, Yr.)	1 month, 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 50 (C)	0.01 C	+/-0.15 C
Ph	2 to 14 (units)	0.01 unit	+/-0.2 units
SpCond	0 to 100 (mS/cm)	0.01 mS/cm	+/- 0.5%
Salinity	0 to 70 (ppt)	0.1 ppt	+/-0.2 ppt

Hydrolab Datasonde III

Variable Name	Range of measurement	Resolution	Accuracy
Date	1-12, 1-31, 00-99 (Mo., Day, Yr.)	1 month, 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 50 (C)	0.01 C	+/-0.15 C
SpCond	0 to 100 (mS/cm)	0.01 mS/cm	+/- 0.5%
Salinity	0 to 70 (ppt)	0.1 ppt	+/-0.2 ppt
DO	0-200 (%air Saturation)	0.1% @air sat	+/-2% @ air sat.
DO	0-20 (mg/L)	0.01 mg/L	+/-0.2 mg/L
Ph	2 to 14 (units)	0.01 unit	+/-0.2 units

Hydrolab Recorder

Variable Name	Range of Measurements	Resolution	Accuracy
Date	1-12, 1-31, 00-99 (mo, day, yr)	1 mon, 1 day, 1year	NA
Time	0-24, 0-60, 0-60 (hr, min, sec)	1 hr, 1 min, 1 sec	NA
Temp	-5 to 50 (degrees C)	0.01 C	+/- 0.15 C
SpCond	0 to 100 (mS/cm)	0.01 mS/cm	+/- 0.5%
Salinity	0-70 (ppt)	.1 ppt	+/- 0.2 ppt
DO%	0-200 (% air saturation)	0.1% air saturation	+/- 2%
DO	0-20 (mg/L)	0.01 mg/L	+/- 0.2 mg/L
pH	2-14 (units)	0.01 unit	+/- 0.2 units

YSI 6000UPG

Variable Name	Range of Measurements	Resolution	Accuracy
Date	1-12, 1-31, 00-99 (mo, day, yr)	1 mon, 1 day, 1year	NA
Time	0-24, 0-60, 0-60 (hr, min, sec)	1 hr, 1 min, 1 sec	NA
Temp	-5-45 (degrees C)	0.01 C	+/- 0.15 C
SpCond	0-100 (mS/cm)	0.01 mS/cm	+/- 0.5% of reading + 0.001mS/cm
Salinity	0-70 (ppt)	0.01 ppt	+/- 1.0% of reading or 0.1 ppt (whichever is greater)
DO%	0-200 (% air saturation)	0.1% air saturation	+/- 2%
DO%	200-500 (% air saturation)	0.1% air saturation	+/- 6%
DO	0-20 (mg/L)	0.01 mg/L	+/- 0.2 mg/L
DO	20-50 (mg/L)	0.01 mg/L	+/- 0.6 mg/L
pH	2-14 (units)	0.01 unit	+/- 0.2 units
Turbidity	0-1000 (NTU)	0.1 NTU	+/- 5% or

2 NTU (if larger)

9. Coded variable indicator and variable code definitions:
Site definitions: ML = Marsh Landing, FD = Flume Dock, BC = Barn Creek

10. Data Anomalies (suspect data):

January 1996

ML:	1/9 10:30 - 1/23 11:30	noisy turb removed
	1/23 12:00 - 1/31 23:30	sonde failure

February 1996

FD:	2/7 11:30 - 2/8 1:00	discontinuity in %DO, DO (high values); removed
	2/8 1:30 - 2/27 11:30	higher DO values with change in sondes
	2/11 15:30 - 17:30	discontinuity in %DO, DO (high values); removed
	2/17 6:30 - 2/27 11:30	conductivity, salinity (drift)
	2/20 11:00 - 2/25 5:30	discontinuity in %DO, DO (high values); removed
	2/25 16:00 - 22:00	discontinuity in %DO, DO (high values); removed
	2/26 17:30 - 20:30	discontinuity in %DO, DO (high values); removed
	2/27 10:00 - 11:30	discontinuity in %DO, DO (high values); removed
ML:	2/6 12:30 - 2/20 11:00	noisy turb
	2/6 12:30 - 2/20 11:00	timer or measurements off by 00:18:57; fixed
	2/14 21:30 - 2/25 6:30	noisy conductivity, salinity
	2/17 1:00:0 - 2/20 11:00:00	noisy turb removed

March 1996

FD:	3/12 13:30 - 14:00	%DO, DO spike (high values); removed
	3/25 6:00	%DO, DO spike (low values); removed
	3/25 17:30 - 19:00	%DO, DO spike (low values); removed
	3/25 21:00	turb spike (high value); removed
	3/26 11:30 - 16:00	turb spike (high values); removed
ML:	3/13 22:00 - 3/31 23:30	noisy conductivity, salinity
	3/19 12:30 - 03/31 23:30	DO%, DO values deleted due to calibration error

April 1996

BC:	4/5 20:00, 21:30	turb spike (negative value); removed
	4/6 22:00 - 23:00	turb spike (high values); removed
	4/7 22:30 - 4/8 1:00	turb spike (high values); removed
	4/9 00:00 - 00:30	turb spike (high values); removed
	4/15 18:00 - 20:30	turb spike (high values); removed

4/17 19:00 - 4/18 00:30 turb spike (high values); removed
4/18 20:00 - 21:30, 22:30 - 23:00 turb spike (high values); removed
4/22 6:00 turb spike (high values); removed
4/30 6:00 turb spike (high values); removed
4/30 14:30 - 22:00 turb spike (high values); removed
FD: 4/1 00:00 - 4/2 12:30 DO%, DO values deleted due to calibration error
4/1 00:00 - 4/9 10:00 noisy turb removed
4/23 10:00 - 4/30 23:30 discontinuity in conductivity, salinity
4/30 10:30 - 4/30 23:30 %DO, DO (drift to high values); removed
ML: 4/1 00:00 - 4/2 12:30 DO%, DO values deleted due to calibration error
4/1 00:00 - 4/24 8:30 noisy conductivity, salinity
4/2 13:00 - 4/4 3:30 noisy, out of range turb removed
4/4 3:30 - 4/16 11:00 noisy turb
4/4 5:00 - 5:30, 6:30 - 8:00, 9:00, 10:30 turbidity spikes (high values)removed

May 1996
BC: 5/1 2:00 - 4:00, 5:00 - 6:00, 7:30 - 8:00, 9:30, 11:00, 14:00, 15:30, 16:30,
17:30, 19:00, 22:00 turbidity spikes (high values); removed
5/2 4:00, 5:00, 6:00, 7:00, 8:00, 9:30, 11:30 - 12:30 turbidity spikes (high values); removed
5/2 14:00 - 5/3 12:00 turbidity spikes (high values); removed
5/3 13:00 - 5/18 1:30 noisy, discontinuous %DO, DO & noisy turb
5/17 11:30 - 5/18 1:30 noisy, discontinuous %DO, DO & noisy turb removed

FD: 5/1 00:00 - 5/8 15:30 %DO, DO (unreasonably high values);removed
5/9 10:00 - 5/15 15:00 downward drift in turb; removed
5/17 11:00 - 23:30 %DO, DO (unreasonably high values); removed
ML: 5/24 11:00 %DO, DO spike (high values); removed
5/26 19:00 - 5/31 11:00 %DO, DO (downward drift in values); removed
5/31 11:30 - 5/31 23:30 noisy turb removed

June 1996
BC: 6/1 00:00 - 23:30 turb spike (high values) removed
6/3 13:00 - 20:30 turb spike (high values) removed
6/12 11:30 - 6/14 10:30 DO,%DO (jump in values) removed
FD: 6/2 2:00 - 3:30, 9:30, 14:00 - 15:00 %DO, DO (low values) removed

	6/3 3:00 - 5:30, 10:30	%DO, DO (low values) removed
	6/3 11:30	conductivity, salinity and DOmg/l spike removed
	6/4 5:00	%DO, DO (low values) removed
	6/5 10:30 - 6/6 18:00	%DO, DO (high values) noisy turb (some negative values); removed
	6/6 18:30 - 6/19 10:30	sonde failure
	6/19 11:00 - 6/28 10:00	dip in values for cond, salinity
	6/28 13:00 - 6/30 23:30	%DO, DO possible membrane puncture; removed
ML:	6/1 00:00 - 6/12 11:00	noisy turb (some negative values) removed
	6/12 11:30 - 6/26 10:00	%DO, DO noisy and discontinuous removed

July 1996

FD:	7/1 00:00 - 7/3 9:30	noisy turb removed
	7/9 8:00 - 7/17 9:30	noisy %DO, DO, turb; removed
	7/31 10:00 - 23:30	jump in salinity, conductivity; removed
ML:	7/8 10:30 - 7/10 11:30	discontinuous %DO, DO (high values); removed
	7/17 11:00 - 7/18 12:00	pH probe failed (low values)

August 1996

BC:	8/31 4:00 - 8/31 23:30	noisy %DO, DO; removed
FD:	8/1 00:00 - 8/7 19:00	discontinuity in conductivity, salinity
	8/16 10:00	spike in conductivity, salinity removed
ML:	8/30 13:00 - 8/31 23:30	noisy turbidity removed

September 1996

BC:	9/1 00:00 - 9/4 9:00	noisy %DO, DO removed
	9/15 20:30 SpCond and Sal	apparent probe malfunction
	9/18 15:00 - 9/30 23:30	noisy turb removed
FD:	9/6 00:00 - 9/11 9:00	%DO, DO (downward drift) removed
	9/11 09:00 - 9/25 8:30	large, noisy turb
ML:	9/1 00:00 - 9/13 8:30	noisy turbidity removed

October 1996

BC:	10/1 00:00 - 10/2 8:30	noisy turb removed
	10/29 11:00 - 10/31 23:30	noisy turb removed
	10/30 3:30-5:30 DO%, DO mg/L	negative values
FD:	10/28 1:30	spike in conductivity, salinity removed
	10/31 17:30	spike in conductivity, salinity removed
ML:	10/11 11:30 - 10/24 9:30	noisy turb removed
	10/21 17:30 - 10/22 12:30	%DO, DO dip in values

November 1996

BC:	11/1 00:00 - 11/12 9:00	noisy %DO, DO, turb removed

FD: 11/20 3:00 spike in conductivity; salinity, cond and DOmg/l removed
11/20 16:30 spike in conductivity; salinity, cond and DOmg/l removed
11/20 17:30 - 11/21 00:00 spike in conductivity; salinity, cond and DOmg/l removed
11/21 22:00 - 22:30 spike in conductivity; salinity, cond and DOmg/l removed
11/22 10:30 spike in conductivity; salinity, cond and DOmg/l removed
11/24 19:30 spike in conductivity; salinity, cond and DOmg/l removed
11/25 20:00 - 20:30 spike in conductivity; salinity, cond and DOmg/l removed
11/27 3:30 spike in conductivity; salinity, cond and DOmg/l removed
11/28 5:30 - 6:00 spike in conductivity; salinity, cond and DOmg/l removed
ML: 11/8 10:30 - 11/22 11:30 noisy turb removed

December 1996
BC: 12/12 9:30 spike in conductivity, salinity removed
12/15 12:00 - 13:00 spike in conductivity, salinity removed
FD: 12/1 00:00 - 12/3 10:30 noisy %DO, DO removed
12/3 11:00 - 12/17 11:00 noisy turb removed
12/14 15:30 - 12/17 4:00 noisy %DO, DO

11. Missing Data:

Please note that in all cases, depth was fixed at approximately 2 meters.

January, 1996
BC: 1/1 00:00 - 1/31 23:30 turb not measured

1/26 10:30 - 1/31 23:30 %DO not measured
FD: 1/1 00:00 - 1/1 12:30 DO mg/L, turb not measured
1/1 13:00 - 1/16 11:00 no data recorded
1/16 11:30 - 1/30 11:00 turb not measured
1/30 11:30 - 1/31 23:30 turb not measured
ML: 1/1 00:00 - 1/2 12:30 %DO not measured
1/2 13:00 - 1/3 12:00 no data recorded
1/3 12:30 - 1/9 9:30 turb not measured
1/9 10:00 all - sonde out of water for maintenance
1/9 10:30 - 1/23 11:30 noisy turb removed
1/12 11:00 no data recorded
1/23 12:00 - 1/31 23:30 sonde failure

February, 1996
BC: 2/1 00:00 - 2/9 11:30 %DO, turb not measured
2/2 12:30 all - sonde out of water for maintenance
2/9 12:00 - 2/23 11:30 turb not measured

	2/23 12:00	all - sonde out of water for maintenance
FD:	2/1 00:00 - 2/29 23:30	turb not measured
	2/7 11:30 - 2/8 1:00	discontinuity in %DO, DO (high values); removed
	2/11 15:30 - 17:30	discontinuity in %DO, DO (high values); removed
	2/13 11:30 - 2/13 16:30	no data recorded
	2/20 11:00 - 2/25 5:30	discontinuity in %DO, DO (high values); removed
	2/25 16:00 - 22:00	discontinuity in %DO, DO (high values); removed
	2/26 17:30 - 20:30	discontinuity in %DO, DO (high values);removed
	2/27 10:00 - 11:30	discontinuity in %DO, DO (high values); removed
	2/27 12:00	all - sonde out of water for maintenance
ML:	2/1 00:00 - 2/6 12:00	no data recorded
	2/17 1:00:0 - 2/20 11:00:00	noisy turb removed
	2/20 11:30	all - sonde out of water for maintenance
	2/20 12:00 - 2/29 23:30	%DO, DO, turb not measured
	2/23 12:30	all - sonde out of water for maintenance

March, 1996

	3/8 11:00 - 3/31 23:30	turb not measured
FD:	3/1 00:00 - 3/12 13:00	turb not measured
	3/12 13:30 - 14:00	%DO, DO spike (high values); removed
	3/22 12:00	all - sonde out of water for maintenance
	3/25 6:00	%DO, DO spike (low values); removed
	3/25 17:30 - 19:00	%DO, DO spike (low values) removed
	3/25 21:00	turb spike (high value) removed
	3/26 11:30 - 16:00	turb spike (high values) removed
ML:	3/1 00:00 - 3/31 23:30	turb not measured
	3/1 00:00 - 3/5 11:00	%DO, DO not measured
	3/19 7:00	no data recorded
	3/19 12:00	all - sonde out of water for maintenance
	3/19 12:30 - 3/31 23:30	DO%, DO values deleted due to calibration error

April, 1996

BC:	4/1 00:00 - 4/5 10:30	turb not measured
	4/5 11:00	all - sonde out of water for maintenance
	4/5 20:00, 21:30	turb spike (negative value) removed
	4/6 22:00 - 23:00	turb spike (high values) removed

4/7 22:30 - 4/8 1:00 turb spike (high values) removed
4/9 00:00 - 00:30 turb spike (high values) removed
4/15 18:00 - 20:30 turb spike (high values) removed
4/17 19:00 - 4/18 00:30 turb spike (high values) removed
4/18 20:00 - 21:30, 22:30 - 23:00 turb spike (high values) removed
4/22 6:00 turb spike (high values) removed
4/30 6:00 turb spike (high values) removed
4/30 14:30 - 22:00 turb spike (high values) removed
FD: 4/1 00:00 - 4/9 10:00 noisy turb removed
4/9 10:30 - 4/30 23:30 turb not measured
4/26 9:00 all - sonde out of water for maintenance
4/30 10:30 - 4/30 23:30 %DO, DO (drift to high values) removed
ML: 4/1 00:00 - 4/2 12:30 turb not measured
4/1 00:00 - 4/2 12:30 DO%, DO values deleted due to calibration error
4/2 13:00 - 4/4 3:30 noisy, out of range turb removed
4/4 5:00 - 5:30, 6:30 - 8:00, 9:00, 10:30 turbidity spikes (high values) removed
4/9 11:00 all - sonde out of water for maintenance
4/16 11:30 all - sonde out of water for maintenance
4/19 11:00 all - sonde out of water for maintenance
4/26 11:00 all - sonde out of water for maintenance
4/29 11:00- 4/30 23:30 turb not measured

May, 1996
BC: 5/1 02:00 - 4:00, 5:00 - 6:00,7:30 - 8:00, 9:30, 11:00, 14:00,
15:30, 16:30, 17:30, 19:00, 22:00 turbidity spikes (high values) removed
5/2 4:00, 5:00, 6:00, 7:00, 8:00, 9:30, 11:30 - 12:30 turbidity spikes
(high values) removed
5/2 14:00 - 5/3 12:00 turbidity spikes (high values) removed
5/17 11:30 - 5/18 1:30 noisy, discontinuous %DO, DO & noisy turb removed
5/18 2:00 - 5/31 13:30 no data recorded
5/31 14:00 - 5/31 23:30 turb not measured
FD: 5/1 00:00 - 5/8 15:30 %DO, DO (unreasonably high values) turb not measured; removed
5/8 16:00 - 5/9 9:30 no data recorded
5/9 10:00 - 5/15 15:00 downward drift in turb removed
5/17 11:00 - 23:30 %DO, DO (unreasonably high values) removed
5/20 10:30 all - sonde out of water for maintenance

	5/22 10:30 - 12:30	all - sonde out of water, late probe turn on
	5/22 13:00 - 5/31 23:30	turb not measured
	5/24 9:30	all - sonde out of water for maintenanc
ML:	5/1 00:00 - 5/14 12:00	turb not measured
	5/6 11:30	all - sonde out of water for maintenance
	5/10 11:30	all - sonde out of water for maintenance
	5/14 12:30 - 5/15 10:30	all - sonde out of water for maintenance
	5/15 11:00 - 5/31 11:00	turb not measured
	5/24 10:30	no data recorded
	5/24 11:00	%DO, DO spike (high values) removed
	5/26 19:00 - 5/31 11:00	%DO, DO (downward drift in values)removed
	5/31 11:30 - 5/31 23:30	noisy turb removed

June, 1996

BC:	6/1 00:00 - 23:30	turb spike (high values) removed
	6/3 13:00 - 20:30	turb spike (high values) removed
	6/12 11:00	all - sonde out of water for maintenance
	6/12 11:30 - 6/14 10:30	DO,%DO (jump in values) removed
	6/14 11:00 - 18:00	all - sonde out of water for maintenance
	6/14 18:30 - 6/30 23:30	turb not measured
FD:	6/1 00:00 - 6/5 10:00	turb not measured
	6/2 2:00 - 3:30, 9:30, 14:00 - 15:00	%DO, DO (low values) removed
	6/3 3:00 - 5:30, 10:30	%DO, DO (low values) removed
	6/3 11:30	conductivity, salinity and DOmg/l spike removed
	6/4 5:00	%DO, DO (low values) removed
	6/5 10:30 - 6/6 18:00	%DO, DO (high values) noisy turb (some negative values) removed
	6/6 18:30 - 6/19 10:30	sonde failure
	6/28 13:00 - 6/30 23:30	%DO, DO possible membrane puncture; removed
ML:	6/5 11:00	no data recorded
	6/1 00:00 - 6/12 11:00	noisy turb (some negative values) removed
	6/12 11:30 - 6/30 23:30	turb not measured
	6/12 11:30 - 6/26 10:00	%DO, DO noisy and discontinuous removed
	6/24 10:30	all - sonde out of water for maintenance

July, 1996

BC:	7/1 00:00 - 7/12 11:00	turb not measured
	7/1 10:00	all - sonde out of water for maintenance
	7/12 11:30- 7/26 10:00	turb not measured

7/26 10:30 - 12:30 all - sonde out of water, late probe turn on
7/26 13:00 - 7/31 23:30 turb not measured
FD: 7/1 00:00 - 7/3 9:30 noisy turb removed
7/3 10:00 - 14:00 all - sonde out of water, late probe turn on
7/3 14:30 - 7/5 10:00 turb not measured
7/5 10:30 - 7/9 07:30 no turb??
7/9 8:00 - 7/17 9:30 noisy %DO, DO, turb removed
7/22 9:30 all - sonde out of water for maintenance
7/31 10:00 - 23:30 turb not measured & jump in salinity, conductivity removed
ML: 7/1 00:00 - 7/31 23:30 turb not measured
7/5 11:00 all - sonde out of water for maintenance
7/8 10:30 - 7/10 11:30 discontinuous %DO, DO (high values) removed
7/10 12:00 - 19:30 all - sonde out of water for maintenance
7/17 11:00 - 7/18 12:00 pH probe failed (low values)
7/18 12:30 - 7/24 13:30 no data recorded

August, 1996
BC: 8/1 00:00 - 8/20 11:00 turb not measured
8/14 10:30 all - sonde out of water for maintenance
8/20 11:30 - 12:00 all - sonde out of water, late probe turn on
8/20 12:30 - 8:31 23:30 turb not measured
8/30 9:00 sonde out of water for maintenance
8/31 4:00 - 8/31 23:30 noisy %DO, DO removed
FD: 8/1 00:00 - 8/31 23:30 depth, turb not measured
8/5 9:30 all - sonde out of water for maintenance
8/12 10:00 all - sonde out of water for maintenance
8/14 10:00 - 11:30 all - sonde out of water for maintenance
8/16 10:00 spike in conductivity, salinity removed
8/19 13:30 all - sonde out of water for maintenance
8/26 10:00 all - sonde out of water for maintenance
ML: 8/1 00:00 - 8/7 12:00 turb not measured
8/7 12:30 - 14:00 all - sonde out of water, late probe turn on
8/7 14:30 - 8/30 12:30 turb not measured
8/26 17:00 all - sonde out of water for maintenance
8/30 13:00 - 8/31 23:30 noisy turbidity removed

September, 1996

BC: 9/1 00:00 - 9/4 9:00 noisy %DO, DO &turb not measured; removed
9/4 9:30 - 9/11 09:30 turb not measured
9/9 12:00 all - sonde out of water for maintenance
9/11 10:00 - 9/14 19:30 no data, power loss
9/15 20:30 SpCond and Sal , apparent probe malfunction
9/14 20:00 - 9/17 23:00 turb not measured
9/17 23:30 - 9/18 14:30 all - sonde out of water for maintenance
9/18 15:00 - 9/30 23:30 noisy turb removed
FD: 9/1 00:00 - 9/11 9:00 turb not measured
9/6 00:00 - 9/11 9:00 %DO, DO (downward drift) removed
9/11 9:30 - 9/25 8:30 large, noisy turb removed
9/20 9:00 all - sonde out of water for maintenance
9/25 9:00 - 9/30 23:30 turb not measured
ML: 9/1 00:00 - 9/13 8:30 noisy turbidity removed
9/13 9:00 - 9/30 23:30 turb not measured
9/27 10:00 - 9/27 16:30 all - sonde out of water, late probe turn on

October, 1996
BC: 10/1 00:00 - 10/2 8:30 noisy turb removed
10/15 11:30 - 12:00 all - sonde out of water, late probe turn on
10/15 12:30 - 10/29 10:30 turb not measured
10/22 13:30 all sonde out of water for cleaning
10/29 11:00 - 10/31 23:30 noisy turb; removed
10/30 3:30-5:30 DO%, DO mg/L, negative values
FD: 10/1 00:00 - 10/4 12:00 turb not measured
10/4 12:30 - 10/9 9:30 no data recorded, late probe
10/9 10:00 – 10/31 23:30 no depth, turb recorded
10/22 13:30 - 14:00 all - sonde out of water for maintenance
10/22 22:00 - 10/23 00:00 all - sonde out of water for maintenance
10/23 10:30 - 12:30 all - sonde out of water for maintenance
10/23 22:30 - 10/24 1:30 all - sonde out of water for maintenance
10/24 23:30 - 10/25 2:30 all - sonde out of water for maintenance
10/25 12:00 - 13:30 all - sonde out of water for maintenance
10/26 00:30 - 3:00, 13:00 - 15:30 all - sonde out of water for maintenance
10/28 1:30 spike in conductivity, salinity removed
10/28 2:00 - 4:00 all - sonde out of water for maintenance
10/28 14:30 - 16:30 all - sonde out of water for maintenance

10/29 2:30 - 4:30, 15:30 - 17:00 all - sonde out of water
10/30 3:30 - 5:00 all - sonde out of water for maintenance
10/31 17:30 spike in conductivity, salinity removed
ML: 10/1 00:00 - 10/11 11:00 turb not measured
10/11 11:30 - 10/24 9:30 noisy turb removed
10/21 17:30 - 10/22 12:30 %DO, DO dip in values removed
10/24 10:00 - 10/31 23:30 turb not measured

November, 1996
BC: 11/1 00:00 - 11/12 9:00 noisy %DO, DO, turb removed
11/12 9:30 - 11/30 23:30 turb not measured
FD: 11/1 00:00 - 11/30 23:30 turb not measured
11/5 10:30 - 11:30, 13:30 all - sonde out of water for maintenance
11/20 3:00 spike in conductivity, salinity removed
11/20 16:00 no data, power loss
11/20 3:00 spike in conductivity; salinity, cond and DOmg/l removed
11/20 16:30 spike in conductivity; salinity, cond and DOmg/l removed
11/20 17:30 - 11/21 00:00 spike in conductivity; salinity, cond and DOmg/l removed
11/21 22:00 - 22:30 spike in conductivity; salinity, cond and DOmg/l removed
11/22 10:30 spike in conductivity; salinity, cond and DOmg/l removed
11/24 19:30 spike in conductivity; salinity, cond and DOmg/l removed
11/25 20:00 - 20:30 spike in conductivity; salinity, cond and DOmg/l removed
11/27 3:30 spike in conductivity; salinity, cond and DOmg/l removed
11/28 5:30 - 6:00 spike in conductivity; salinity, cond and DOmg/l removed
ML: 11/1 00:00 - 11/8 7:00 turb not measured
11/8 7:30 - 10:00 no data recorded
11/8 10:30 - 11/22 11:30 noisy turb removed
11/12 15:30 all - sonde out of water for maintenance
11/22 12:00 - 11/30 23:30 turb not measured

December, 1996
BC: 12/1 00:00 - 12/10 15:00 turb not measured
12/4 8:00 all - sonde out of water for maintenance
12/10 15:30 all - sonde out of water for maintenance
12/10 16:00 - 12/20 11:30 turb not measured
12/12 9:30 spike in conductivity, salinity removed
12/15 12:00 - 13:00 spike in conductivity, salinity removed
12/20 12:00 - 12/31 23:30 turb not measured
FD: 12/1 00:00 - 12/3 10:30 noisy %DO, DO removed

	12/1 00:00 - 12/3 10:30	turb not measured
	12/3 11:00 - 12/17 11:00	noisy turb removed
	12/17 11:30 - 12/31 23:30	turb not measured
ML:	12/1 00:00 - 12/31 23:30	turb not measured
	12/6 11:00	all - sonde out of water for maintenance

12. Remarks:

The following is a list of each site and deployment dates. Type of Sonde deployed is indicated by the letter H for hydrolab or Y for YSI.

BC
1/2 Y
1/12 Y
1/26 H
2/9 Y
2/23 Y
3/8 Y
3/22 Y
4/5 Y
4/9 H
4/19 Y
5/3 Y
5/17 Y
5/31 Y
6/14 H
6/28 Y
7/12 Y
7/26 H
8/9 H
8/20 Y
9/4 H
9/18 Y
10/2 Y
1015 Y
10/29 Y
11/12 Y
11/26 Y
12/10 Y
12/20 Y

FD
1/16 Y
1/30 Y
2/9 Y
2/13 Y
2/23 Y
2/27 H
3/12 Y
3/26 Y
4/9 H
4/23 Y
5/8 Y

5/22 H
6/5 Y
6/19 Y
7/3 H
7/5 Y
7/17 Y
7/31 H
8/114 H
8/28 H
9/11 Y
9/24 Y
10/9 H
10/21 H
11/5 H
11/19 H
12/3 Y
12/17 Y

ML
1/3 Y
1/9 Y
2/6 Y
2/20 H
3/5 Y
3/19 H
4/2 Y
4/16 Y
4/29 H
5/15 Y
6/12 Y
6/26 Y
7/10 H
7/24 Y
8/7 Y
8/19 H
8/30 Y
9/13 H
9/27 H
10/11 Y
10/24 Y
11/8 Y
11/22 H
12/6 H
12/20 H