2004, Horseshoe Beach Lease Area, Dixie County
Quality Assurance/Quality Control (QA/QC) Log

Key to Log:

File Name: Name of excel files containing the data for that month. File names have two or three parts: 1) the two-letter site abbreviation (GJ, HB, BA, etc.), 2) the year and month (ie. -0201), and 3) the nature of the file ("-raw" contains the raw, unaltered data; "-QAQC" contains the quality controlled data set as well as all corrections; the file name that ends with the year and month is the quality controlled file containing only the corrected and finalized data—this is the file sent to the archive)

Deployments: Number of different sondes that recorded data during the month and the periods of dates/times of each deployment.

Condition of Sonde: The post-deployment condition of each sonde deployed during the month. This includes information on fouling, equipment failures and whether post-deployment checks were performed.

Removed Data: Tabulation of all data points removed from a given month. "Trimming on ends of data sets" is a record of all data points removed from either the beginning or the end of the different files in order to create a seamless monthly record (most points removed here were data not recorded in the water, but rather, were point recorded prior to deployment or following retrieval); "Removal of bad data" is a record of data deemed to be of low quality (for example, data out of range of instrument, instrument or probe failures, etc… See Word file "QAQCGuidelines.doc" for criteria used). Table columns give the parameter values deleted, the reason for the deletion (see abbreviations) and the dates and times of points deleted.

Corrected data: This is a record of all data points that were corrected. This includes corrections due to instrument drift, fouling, incorrect instrument calibration, etc. Included are probe readings in the standard pre- and post-deployment and excel formulae used to calculate corrected values. Inability to correct data due to lack of proper post-deployment check procedures or substandard sonde condition (eg. heavily fouled) may also be noted here.

Missing data: This is a record of all missing data points not due to the QA/QC process (ie. not accounted for in "Removal of bad data"). A common cause for this missing data is a lag time between the retrieval of one sonde and the deployment of the second sonde or failure of the instrument to log data at a given time.

Problems and Anomalies: This is a record of troublesome trends or data points not removed from data set, but that could prove a problem in interpretation. Examples include sudden jumps in the data when sondes are changed out (reflecting drift in retrieved sonde or a lack of standardization between the two sondes). Notes regarding reliability of data (whether or not it is or may be faulty) may also be found here. **ALWAYS read this section before interpreting data.**

Abbreviations:

IF	=	Instrument Failure: Data logger returned values of –6999
PF	=	Probe Failure: Probe measuring individual parameter apparently malfunctioned.
ADL	=	Above Detection Limit: data logger returned a data point that is above the detection limit of the probe
BDL	=	Below Detection Limit: data logger returned a data point that is above the detection limit of the probe
SND	=	Sonde Not Deployed: evidence indicates that sonde was not in the water on-site when data was recorded
FOUL	=	Fouled: evidence indicates sonde was not functioning properly due to severe fouling
EXP	=	Exposed: Sonde was exposed to air due to low water level or some disturbance.
NMD	=	Next month's data: trimmed data belonged to next month
PMD	=	Previous month's data: trimmed data belonged to previous month

General Notes on Reliability of Data:

1) In general, measurements of temperature and depth are very reliable unless otherwise noted in "Problems and Anomalies".

2) Salinity is typically reliable, but this data can be compromised by bad calibrations and fouling. These effects are most obvious as sudden discontinuities in the trend when sondes are changed. If the discontinuity that occurs with a sonde change is more than +/- 2 ppt in magnitude, the discontinuity is noted as a faulty trend.

3) Measurements of dissolved oxygen are often not reliable. Typically, oxygen measurements taken soon after a sonde is deployed are reliable, but reliability decreases during the deployment period due to instrument drift and fouling. The most unreliable oxygen data is that collected near the time the sonde is retrieved. ALWAYS read "Problems and Anomalies" before interpreting dissolved oxygen! Dissolved oxygen discontinuities of +/- 25% or more coincident with sonde changes are noted as faulty if they do not fall within the actual rate of change occurring before and after the sonde change.

4) The reliability of turbidity measurements is much like that of oxygen. Turbidity measurements are best early and worst late in the deployment period.

5) The reliability of chlorophyll measurements is unknown. We do not currently know what the measurements mean in a biological context. Confirmation studies are underway.

6) If the word "**faulty**" appears regarding a trend or data period, the data should be considered highly unreliable. Do not use this data (if it wasn't deleted altogether) for anything but a general guideline to potential conditions. This designation is only used regarding data known to be of very poor quality.

7) If the phrase "**may be faulty**" appears regarding a trend or data period, the data may not be reliable. Typically, the data appears to be of reasonably good quality and probably does reflect the real trends in environmental condition, but very strict interpretation is not recommended.

If a proper post-deployment check was not performed, reliability of all data for that deployment period must be considered suspect.

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JANUARY--2004

Files: HB -0401-raw, HB -0401-QAQC, HB -0406

Deployments: (3); 12/3-1/2, 1/2-1/25, 1/25-2/16

Condition of Sondes: 12/3-1/2 (chlorophyll wiper malfunction), 1/2-1/25 (very light fouling), 1/25-2/16 (light fouling)

Removed Data:

Parameter(s)	Problem	Data Points

Corrected Data:

12/3-1/2

Specific Conductivity:

standard 12.88, probe 12.86
Formula: =(-((12.86-12.88)/(B2837-B1402))*(B1402-B1402))+D1402
Salinity =(0.7036*R1402)-2.5548

Oxygen:

pre-deployment O2: 100
post-deployment O2: ??
standard 100, probe 108.5
Formula: (-((108.5-100)/(B2837-B1402))*(B1402-B1402))+F1402 +(100-100)
Conversion for O2 concentration:=4.38-(0.202*C1402)-(0.0587*S1402)+(0.0875*P1402)

Turbidity:

standard 0, probe 1.9; standard 123, probe 124.4
Formula: =(((((123/122.5)-1)*(J1402))-(1.9))*((B1402-B1402)/(B2837-B1402)))+J1402

Chlorophyll:

standard 0.0, probe 20.4
Formula: =(-((0-0)/(B1594-B1201))*(B1402-B1201))+J1402

1/2-1/25

Oxygen Saturation:

pre-deployment O2: 100.8
post-deployment O2: 100.5
standard 100, probe 95.3
Formula: =(-((100.5-100.8)/(B2541-B1438))*(B1438-B1438))+F1438 +(100-100.8)
Conversion for O2 concentration:=4.61-(0.19*C1438)-(0.0715*S1438)+(0.0871*P1438)

Specific Conductivity:

standard 12.88, probe 14.06
Formula: =(-((14.06-12.88)/(B2541-B1438))*(B1438-B1438))+D1438
Conversion for salinity=(0.669*R1438)-1.12

Turbidity:

standard 123, probe 123.3; standard 0, probe 33.3
**Standard correction not used (see below)

Chlorophyll:

standard 0, probe 0.4

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Formula: =(-((0-0.4)/(B2541-B1438))*(B1438-B1438))+K1438

1/25-2/16

Oxygen Saturation:

pre-deployment O2: 100.1
post-deployment O2: 112
standard 100, probe 106.6
Formula: =(-((112-100.1)/(B3601-B2542))*(B2542-B2542))+F2542 +(100-100.1)
Conversion for O2 concentration:=4.09-(0.189*C2542)-(0.0588*S2542)+(0.0886*P2542)

Specific Conductivity:

standard 12.88, probe 14.84
Formula: =(-((14.84-12.88)/(B3601-B2542))*(B2542-B2542))+D2542
Conversion for salinity=(0.703*R2542)-2.55

Turbidity:

standard 123, probe 117.9; standard 0, probe 8.3
Formula: =(((((123/117.9)-1)*(J2543))-(0))*((B2543-B2542)/(B3601-B2542)))+J2543

Chlorophyll:

standard 0, probe 2.3
Formula: =(-((0-2.3)/(B3601-B2542))*(B2542-B2542))+K2542

Problems and Anomalies:

Turbidity 1/2-1/25: Upon deployment probe read a baseline value of 31.32 (rather than near zero) and after deployment read 33.3 in a 0.0 standard. Typical correction was not applied; instead, all values were reduced by 31.32. Data **may be faulty** and should be interpreted with caution.

Salinity 1/25: When sondes were changed on 1/25, salinity increased 3ppt from 27ppt to 30ppt. This discontinuity is **faulty**.

Turbidity 1/25-2/16: Following retrieval, probe read 8.3 in 0.0 standard. If this correction were applied, many negative values as low as –8.3 would have resulted near the end of the deployment period. This value was not used in the correction of the data, and as a result, the data **may be faulty**.

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FEBRUARY--2004

Files: Data: HB -0402-raw, HB -0402-QAQC, HB -0402

Deployments: (2); 1/25-2/16, 2/16-3/11

Condition of Sondes: 1/25-2/16 (light fouling), 2/16-3/11 (moderate probe fouling)

Removed Data:

Parameter(s)	Problem	Data Points

Corrected Data:

1/25-2/16

Oxygen Saturation:

pre-deployment O2: 100.1
post-deployment O2: 112
standard 100, probe 106.6
Formula: =(-((112-100.1)/(B3601-B2542))*(B2542-B2542))+F2542 +(100-100.1)
Conversion for O2 concentration:=4.09-(0.189*C2542)-(0.0588*S2542)+(0.0886*P2542)

Specific Conductivity:

standard 12.88, probe 14.84
Formula: =(-((14.84-12.88)/(B3601-B2542))*(B2542-B2542))+D2542
Conversion for salinity=(0.703*R2542)-2.55

Turbidity:

standard 123, probe 117.9; standard 0, probe 8.3
Formula: =(((((123/117.9)-1)*(J2543))-(0))*((B2543-B2542)/(B3601-B2542)))+J2543

Chlorophyll:

standard 0, probe 2.3
Formula: =(-((0-2.3)/(B3601-B2542))*(B2542-B2542))+K2542

2/16-3/11

Oxygen Saturation:

pre-deployment O2: 99.1
post-deployment O2: 90
standard 100, probe 83.6
Formula: =(-((90-99.1)/(B2208-B1062))*(B1062-B1062))+F1062 +(100-99.1)
Conversion for O2 concentration:=4.11-(0.175*C1062)-(0.0591*S1062)+(0.0866*P1062)

Specific Conductivity:

standard 12.88, probe 13.85
Formula: =(-((13.85-12.88)/(B2208-B1062))*(B1062-B1062))+D1062
Conversion for salinity=(0.693*R1062)-2.15

Turbidity:

standard 123, probe 129.7; standard 0, probe 24.3
**Correction not applied (see below)

Chlorophyll:

standard 0, probe 14.4
**Correction not applied (see below)

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Problems and Anomalies:
Turbidity 1/25-2/16: Following retrieval, probe read 8.3 in 0.0 standard. If this correction were applied, many negative values as low as –8.3 would have resulted near the end of the deployment period. This value was not used in the correction of the data, and as a result, the data **may be faulty**.
Salinity 1/25: When sondes were changed on 2/16, salinity increased 3.3ppt from 23.3ppt to 26.6ppt. This discontinuity is **faulty**.
Turbidity 2/16-3/11: Following retrieval, probe read 24.3 in 0.0 standard. If this correction were applied, many negative values would have resulted near the end of the deployment period. The original uncorrected data was retained and **may be faulty**.
Chlorophyll 2/16-3/11: Following retrieval, probe read 14.4 in 0.0 standard. If this correction were applied, many negative values would have resulted near the end of the deployment period. The original uncorrected data was retained and **may be faulty**.