

**2002 Body A Lease Area, Brevard 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

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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!
- 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.
- 8) 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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MARCH 2002

Files: Sondes: Ba020325; Data: BA-0203-raw, BA-0203-QAQC, BA-0203

Deployments: (1); 3/25-4/2

Condition of Sondes: 3/25-4/2 (no post-deployment condition information; no post-deployment check)

Removed Data:

Trimming on ends of data sets:

File	Reason	Data Points
Ba020325	SND	3/25/2002 9:28 to 13:30
Ba020325	NMD	4/1/2002 0:00 to 4/2/2002 12:30

Removal of bad data:

Parameter(s)	Problem	Data Points
Turbidity	PF	3/25-3/31 2330

Corrected Data:

3/25-4/2

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

Missing Data:

NONE

Problems and Anomalies:

Salinity, Oxygen, Turbidity and Chlorophyll 3/25-3/31: Post-deployment check procedure not performed correctly, so data could not be corrected for drift or fouling. All original data was retained. Data do not vary in any substantial way that would suggest it is faulty; however, because post-deployment condition of sonde is unknown, data in this record **may be faulty**.

Turbidity 3/25-3/31: All turbidity values were negative indicating polarity of probe was reversed. This is not a correctable problem, so data was **faulty** and was deleted.

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APRIL 2002

Files: Ba020325, Ba020402, Ba020408, Ba020418, Ba020426

Deployments: (5); 3/25-4/2, 4/2-4/10, 4/10-4/18, 4/18-4/25, 4/26-5/3

Condition of Sondes: 3/25-4/2 (no post-deployment condition information; no post-deployment check); 4/2-4/10 (no post-deployment condition information; post-deployment check performed incorrectly); 4/10-4/18 (no post-deployment condition information; post-deployment check performed incorrectly); 4/18-4/25 (no post-deployment condition information; post-deployment check performed incorrectly); 4/26-5/3 (no post-deployment condition information; post-deployment check performed incorrectly)

Removed Data:

Trimming on ends of data sets:

File	Reason	Data Points
Ba020325	PMD	3/25/2002 9:28 to 3/31/2002 23:30
Ba020325	SND	4/2/2002 11:00 to 4/2/2002 12:30
Ba020402	SND	4/10/2002 9:00 to 4/12/2002 7:30
Ba020408	SND	4/8/2002 11:00 to 4/10/2002 9:30
Ba020418	SND	4/25/2002 10:00 to 4/25/2002 11:00
Ba020426	NMD	5/1/2002 0:00 to 5/3/2002 10:00

Removal of bad data:

Parameter(s)	Problem	Data Points
Turbidity	PF	3/25-3/31

Corrected Data:

3/25-4/2

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

4/2-4/10

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

4/10-4/18

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

Turbidity 4/13/2002 1:00 turbidity = -0.1 → corrected to 0.0

4/18-4/25

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

4/26-4/30

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

Missing Data:

1) 4/10/2002 9:00 to 4/10/2002 9:30 → Ba020402 sonde retrieved one hour before Ba020408 sonde deployed, or Ba020408 did not begin recording data until one hour after deployment. Either way, no data available

2) 4/25/2002 11:30 to 4/26/2002 10:30 → No sonde deployed during this time

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APRIL 2002

Salinity 4/2: When sondes changed salinity increased 4ppt either because of drift in Ba020325 (no post-deployment information available) or because of bad calibration in Ba020402. This sudden discontinuity is **faulty**.

Turbidity 3/25-3/31: All turbidity values were negative indicating polarity of probe was reversed. This is not a correctable problem, so data was **faulty** and was deleted.

Salinity, Oxygen, Turbidity and Chlorophyll 4/1-4/30: Cleaning of the sondes and calibration of probes prior to the post-deployment checks prevents proper correction of data. Original uncorrected data is retained but **may be faulty** due to the effects of instrument drift and biofouling. Decreases in salinity and dissolved oxygen near end of deployment periods likely reflect biofouling and not changes in the environment.

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MAY 2002

Files: Ba020426, Ba020503, Ba020510, Ba020528

Deployments: (4); 4/26-5/3, 5/3-5/10, 5/10-5/17, 5/17-5/28, 5/28-6/7

Condition of Sondes: 4/26-5/3 (no post-deployment condition information; post-deployment check performed incorrectly); 5/3-5/10 (no post-deployment condition information; post-deployment check performed incorrectly); 5/10-5/17 (no post-deployment condition information; post-deployment check performed incorrectly); 5/17-5/28 (No data in file); 5/28-6/7 (no post-deployment condition information; post-deployment check performed incorrectly)

Removed Data:

Trimming on ends of data sets:

File	Reason	Data Points
Ba020426	PMD	4/26/2002 11:00 to 4/30/2002 23:30
Ba020426	SND	5/3/2002 9:30 to 10:00
Ba020510	SND	5/17/2002 10:00 to 12:30
Ba020528	NMD	6/1/2002 0:00 to 6/7/2002 11:30

Removal of bad data:

Parameter(s)	Problem	Data Points
NONE		

Corrected Data:

4/26-5/3

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

5/3-5/10

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

5/10-5/17

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

5/17-5/28

**No data

5/28-6/7

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

Missing Data:

1) 5/17/2002 13:00 to 5/28/2002 9:30 Probe was deployed, but it contained no data upon retrieval.

Problems and Anomalies:

Salinity 5/10: Increase in salinity (2ppt) coinciding with changing of sonde. Deployed sonde had a conductivity cell constant above the acceptable range (5.577) but it was deployed anyways. Bad conductivity cell constant in deployed sonde and low conductivity readings in retrieved sonde could together explain salinity difference. Due to bad conductivity cell constant salinity data for deployment period 5/10-5/17 is **faulty**.

Salinity 5/3, 5/10: Sudden discontinuities reflect changing of sondes and not real changes in environment. These changes in salinity are **faulty**.

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MAY 2002

Salinity, Oxygen, Turbidity and Chlorophyll 5/1-5/31: Cleaning of the sondes and calibration of probes prior to the post-deployment checks prevents proper correction of data. Original uncorrected data is retained but **may be faulty** due to the effects of instrument drift and biofouling.

Turbidity 5/5/2002 16:30: ADL. Retained as it was a single spike.

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JUNE 2002

Files: Sondes: Ba020528, Ba020607, Ba020613, Ba020621, Ba020628; Data: BA-0206-raw, BA-0206-QAQC, BA-0206

Deployments: (5); 5/28-6/7, 6/7-6/13, 6/13-6/21, 6/21-6/28, 6/28-7/5

Condition of Sondes: 5/28-6/7 (no post-deployment condition information; post-deployment check performed incorrectly); 6/7-6/13 (no post-deployment condition information; post-deployment check performed incorrectly); 6/13-6/21 (no post-deployment condition information; post-deployment check performed incorrectly); 6/21-6/28 (no post-deployment condition information; post-deployment check performed incorrectly); 6/28-7/5 (no post-deployment condition information; post-deployment check performed incorrectly)

Removed Data:

Trimming on ends of data sets:

File	Reason	Data Points
Ba020528	PMD	5/28/2002 10:00 to 5/31/2002 23:30
Ba020528	SND	6/7/2002 10:00 to 11:30
Ba020607	SND	6/13/2002 11:00 to 12:30
Ba020613	SND	6/21/2002 10:30 to 12:00
Ba020621	SND	6/20/2002 15:00 to 6/21/2002 10:00
Ba020621	SND	6/28/2002 10:30 to 11:30
Ba020628	NMD	7/1/2002 0:00 to 7/5/2002 15:00

Removal of bad data:

Parameter(s)	Problem	Data Points
NONE		

Corrected Data:

5/28-6/7

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

6/7-6/13

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

6/13-6/21

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

6/21-6/28

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

6/28-7/5

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

Missing Data:

NONE

Problems and Anomalies:

Salinity 6/7, 6/13: Sudden discontinuities reflect changing of sondes and not real changes in environment. These changes in salinity are **faulty**.

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JUNE 2002

Oxygen 6/21: Sudden discontinuities reflect changing of sondes and not real changes in environment. This change in dissolved oxygen are **faulty**.

Salinity, Oxygen, Turbidity and Chlorophyll 6/1-6/30: Cleaning of the sondes and calibration of probes prior to the post-deployment checks prevents proper correction of data. Original uncorrected data is retained but **may be faulty** due to the effects of instrument drift and biofouling.

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JULY 2002

Files: Sondes: BA020628, BA020705, BA020711, BA020717, BA020726;

Data: BA-0207-raw, BA-0207-QAQC, BA-0207

Deployments: (5); 6/28-7/5, 7/5-7/11, 7/11-7/17, 7/17-7/26, 7/26-8/1

Condition of Sondes: 6/28-7/5 (no post-deployment condition information; post-deployment check performed incorrectly); 7/5-7/11 (no post-deployment condition information; post-deployment check performed incorrectly); 7/11-7/17 (no post-deployment condition information; post-deployment check performed incorrectly); 7/17-7/26 (no post-deployment condition information; post-deployment check performed incorrectly); 7/26-8/1 (no post-deployment condition information; post-deployment check performed incorrectly)

Removed Data:

Trimming on ends of data sets:

File	Reason	Data Points
Ba020628	PMD	6/28 1030-6/30 2330
Ba020628	SND	7/5 1230-1500
Ba020705	SND	7/5 1100-1200; 7/11 1230-7/12 900
Ba020711	SND	7/11 1000-1200; 7/17 1200-7/18 830
Ba020717	SND	7/17 1130; 7/26 1100-1230
Ba020726	SND	7/26 1030
Ba020726	NMD	8/1 000-8/2 730

Removal of bad data:

Parameter(s)	Problem	Data Points
Oxygen	IF	7/11 1230-7/17 1130
Oxygen	PF	7/17 1200-7/25 330 (Do charge ≥ 77)

Corrected Data:

6/28-7/5

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

7/5-7/11

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

7/11-7/17

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

7/17-7/26

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

7/26-8/1

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

Oxygen (see details in "Problems and Anomalies")

Corrected O2% =G1162-39.5

Corrected [O2] =0.0645*M1162+0.156

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JULY 2002

Missing Data:

Temperature, Salinity 7/11-7/17: No data. Whether probes were on and functioning is unknown

Turbidity 7/26-7/31: No data. Turbidity probe inactive.

Problems and Anomalies:

Turbidity 7/11 400; 7/12 730, 1230; 7/19 330: ADL. Retained as all were individual spikes.

Oxygen 7/11-7/17: Temperature and salinity were not measured. Because this data was not recorded, DO% was not corrected for these parameters by the sonde. As a result, all oxygen during this period was **faulty** and was deleted.

Oxygen 7/17-7/25: probe was not functioning properly. DO charge was consistently between 77 and 100+ for this period of time. This data was **faulty** and was deleted. The probe corrected itself on 7/25 and for remaining portion of deployment period (7/25-7/26) the DO charge was within the acceptable range. However, this data **may be faulty**. Interpret with caution.

Oxygen 7/26-8/1: values recorded by sonde seem high. The post-deployment check showed the probe to be reading 141.9% in 100% standard (however, due to improper post-deployment check procedure, this value may not reflect actual drift and fouling effects). Before this sonde was initially calibrated on 7/26, it read 60.5 in a 100% standard. It is possible that this sonde was not calibrated correctly (ie. was not in a 100% standard environment, or was not allowed to come to equilibrium in the standard) and so it was reading 40% high the entire deployment period. The correspondence between the pre-calibration reading (39.5% under the standard) and the post-deployment reading (41.9% over the standard) provides enough evidence to correct all oxygen measurements during this period by 39.5%. Use caution, however, as these data **may be faulty**.

Salinity, Oxygen, Turbidity and Chlorophyll 7/1-7/31: Cleaning of the sondes and calibration of probes prior to the post-deployment checks prevents proper correction of data. Original uncorrected data is retained but **may be faulty** due to the effects of instrument drift and biofouling.

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AUGUST 2002

Files: Sondes: Ba020726, Ba020801, Ba020809, Ba020816, Ba020829;
Data: BA-0208-raw, BA-0208-QAQC, BA-0208

Deployments: (5); 7/26-8/1, 8/1-8/9, 8/9-8/16, 8/16-8/29, 8/29-9/6

Condition of Sondes: 7/26-8/1 (no post-deployment condition information; post-deployment check performed incorrectly); 8/1-8/9 (no post-deployment condition information; post-deployment check performed incorrectly); 8/9-8/16 (no post-deployment condition information; post-deployment check performed incorrectly); 8/16-8/29 (no post-deployment condition information; post-deployment check performed incorrectly); 8/29-9/6 (no post-deployment condition information; post-deployment check performed incorrectly)

Removed Data:

Trimming on ends of data sets:

File	Reason	Data Points
Ba020726	PMD	7/26 1030-7/31 2330
Ba020726	SND	8/1 1030-8/2 730
Ba020801	SND	8/9 1030-1330
Ba020809	SND	8/16 1100-1230
Ba020816	SND	8/16 1030
Ba020816	SND	8/29 930-1100
Ba020829	NMD	9/1 000-9/6 1130

Removal of bad data:

Parameter(s)	Problem	Data Points

Corrected Data:

7/26-8/1

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

Oxygen (see details in "Problems and Anomalies")

Corrected O2% =F2-39.5

Corrected [O2] =0.0645*L2+0.156

8/1-8/9

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

8/9-8/16

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

8/16-8/29

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

8/29-9/6

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

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AUGUST 2002

Missing Data:

Turbidity 8/1 000-1000: No data. Turbidity probe inactive.

Turbidity 8/9 1030–8/16 1030: No data. Turbidity probe inactive.

Turbidity 8/29 930-8/31 2330: No data. Turbidity probe inactive.

Problems and Anomalies:

Turbidity 8/21 1500; 8/25 730; 8/29 730: ADL. Retained as all were individual spikes.

Salinity 8/9: When sondes changed, salinity increased by +2ppt; this increase appears to be **faulty**. When this sonde was retrieved on 8/16, salinity decreased precipitously over the next day but the decrease started just before the sonde changing on 8/16. This drop appears to be real, but potentially 2ppt less in magnitude than it appears.

Oxygen 8/1 000-1000: values recorded by sonde seem high. The post-deployment check showed the probe to be reading 141.9% in 100% standard (however, due to improper post-deployment check procedure, this value may not reflect actual drift and fouling effects). Before this sonde was initially calibrated on 7/26, it read 60.5 in a 100% standard. It is possible that this sonde was not calibrated correctly (ie. was not in a 100% standard environment, or was not allowed to come to equilibrium in the standard) and so it was reading ~40% high the entire deployment period. The correspondence between the pre-calibration reading (39.5% under the standard) and the post-deployment reading (41.9% over the standard) provides enough evidence to correct all oxygen measurements during this period by 39.5%. Use caution, however, as these data **may be faulty** as a result.

Salinity, Oxygen, Turbidity and Chlorophyll 8/1-8/31: Cleaning of the sondes and calibration of probes prior to the post-deployment checks prevents proper correction of data. Original uncorrected data is retained but **may be faulty** due to the effects of instrument drift and biofouling.

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SEPTEMBER 2002

Files: Sondes: Ba020829, Ba020906, Ba020913, Ba020924;
Data: BA-0209-raw, BA-0209-QAQC, BA-0209

Deployments: (4); 8/29-9/6, 9/6-9/13, 9/13-9/24, 9/24-10/8

Condition of Sondes: 8/29-9/6 (no post-deployment condition information; post-deployment check performed incorrectly); 9/6-9/13 (no post-deployment condition information; post-deployment check performed incorrectly); 9/13-9/24 (no post-deployment condition information); 9/24-10/8 (No data in sonde)

Removed Data:

Trimming on ends of data sets:

File	Reason	Data Points
Ba020829	PMD	8/29 930-8/31 2330
Ba020829	SND	9/6 1000-1130
Ba02090	SND	9/13 1100-1430
Ba020913	SND	9/13 1030
Ba020913	SND	9/24 1130-9/25 1200

Removal of bad data:

Parameter(s)	Problem	Data Points

Corrected Data:

8/29-9/6

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

9/6-9/13

**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

9/13-9/24

Specific Conductivity:

standard 10, probe 9.5

Formula: $= -((9.5-10)/(\$B\$1128-\$B\$600))*(B600-\$B\$600)+D600$

Salinity $= (0.695*N600)-2.3865$

Oxygen:

pre-deployment O2: NONE

post-deployment O2: 119.8, 117.2, 114.9, 114.5, 115.7, 116.0; mean =116.4

standard 100, probe 120; O2 correction = 118.2

Formula: $= -((118.2-100)/(\$B\$1128-\$B\$600))*(B600-\$B\$600)+F600$

Conversion for O2 concentration:

$= 3.76-(0.101*C600)-(0.0409*O600)+(0.06861*L600)$

Chlorophyll:

standard 0.0, probe 1.8

Formula: $= -((1.8-0)/(\$B\$1128-\$B\$600))*(B600-\$B\$600)+J600$

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SEPTEMBER 2002

Missing Data:

All parameters 9/25 1230-9/30 2330: No data recorded by sonde.

Turbidity 9/1 000-9/6 930: No data. Turbidity probe inactive.

Turbidity 9/13 1100-9/24 1100: No data. Turbidity probe inactive.

Problems and Anomalies:

Salinity, Oxygen, Turbidity and Chlorophyll 9/1-9/13: Cleaning of the sondes and calibration of probes prior to the post-deployment checks prevents proper correction of data. Original uncorrected data is retained but **may be faulty** due to the effects of instrument drift and biofouling.