2002, Indian River Lease Area, Indian River 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. 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, incorrect instrument calibration, etc… Included are probe readings in the standard pre- and post-deployment and excel formulae used to calculate corrected values.

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.

Abnormalities in Data: 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 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.

General Notes on Reliability of Data:

1) In general, measurements of salinity, temperature and depth are very reliable unless otherwise noted in "Abnormalities in Data".

2) 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 "Abnormalities in Data" before interpreting dissolved oxygen!

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

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

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

APRIL

File Name: IR-0204-raw, IR-0204-QAQC, IR-0204

Deployments: (Unknown, 3+); ?? before 4/15; 4/15-4/24; 4/24-5/1

Condition of Sondes: Before 4/15 (No Information); 4/15-4/24 (condition unknown; post-deployment check incorrectly performed); 4/24-5/1 (condition unknown; post-deployment check incorrectly performed)

Removed Data:

Parameter(s)	Problem	Data points
All	IF	4/1 000-1000 (All zeroes)
Turbidity	BDL	4/1 1030-1200, 1400-1500, 1600-2200; 4/10 2330-4/2 030; 4/2 130 300-530, 730, 830-1100, 1230, 1400-1730; 4/2 2100 – 4/3 100; 4/3 230-330, 800-830
Turbidity	ADL	4/17 2300
Chlorophyll	BDL	4/1 1030 – 4/3 930

Corrected Data:

4/1-4/15

**All parameters for this period were not correctable due to lack of information. No data sheets available. Howard Beadle (Palm Bay SEAS office) said the equipment was not operating properly during this time period.

4/15-4/24

**All parameters for this period were not correctable due to lack of information. Post-deployment check incorrectly performed.

4/24-5/1

**All parameters for this period were not correctable due to lack of information. Post-deployment check incorrectly performed.

Anomalies and Problems:

All parameters 4/9/2002 1500-1530: No data. Two empty rows inserted for missing times.
All parameters 4/1-4/15: No deployment sheets available so condition of sonde, deployment and retrieval times, and post-deployment reading reliability unknown. Howard Beadle (Palm Bay SEAS office) said the equipment was not operating properly during this time period. All data are likely **faulty**.
Turbidity and Chlorophyll 4/1-4/3: Many negative values (large negative values for Chlorophyll). This was likely an instrument failure, so these data are likely **faulty**.
Salinity 4/30 930: Sudden one-time drop in salinity. No evidence to indicate instrument failure.

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May

File Name: IR-0205-raw, IR-0205-QAQC, IR-0205

Deployments: (5); 4/24-5/1, 5/1-5/8, 5/8-5/17, 5/17-5/31, 5/31-6/7

Condition of Sondes: 4/24-5/1 (condition unknown; post-deployment check incorrectly performed); 5/1-5/8 (condition unknown; post-deployment check incorrectly performed); 5/8-5/17 (condition unknown); 5/17-5/31 (condition unknown; post-deployment check incorrectly performed); 5/31-6/7 (condition unknown; post-deployment check incorrectly performed)

Removed Data:

Parameter(s)	Problem	Data points
Chlorophyll	ADL	5/11 2300

Corrected Data:

4/24-5/1

**All parameters for this period were not correctable due to lack of information. Post-deployment check incorrectly performed.

5/1-5/8

**All parameters for this period were not correctable due to lack of information. Post-deployment check incorrectly performed.

Salinity

Time-specific constant correction for discontinuity:

=F23-2.2-(0.55*((B23-B23)/(B358-B23)))

5/8-5/17

Specific Conductivity: 5/8 1030 – 5/17 830,

standard 10.0, probe 10.04

Formula: =(-((10-10.04)/(B787-B359))*(B359-B359))+E359

Salinity =(0.7719*Q359)-6.1214

Oxygen 5/8 1030 – 5/17 830

standard 100%, probe 99.3%

Formula: =(-((99.3-100)/(B787-B359))*(B359-B359))+G359

Conversion for O2 concentration:

=5.51-(0.0521*D359)-(0.0313*R359)+(0.0628*O359)

Turbidity 5/8 1030 – 5/17 830

standard 0, probe 0.6; standard 100, not performed—single point correction employed

Formula: =(-((0-0.6)/(B787-B359))*(B359-B359))+J359

Chlorophyll 5/8 1030 – 5/17 830

standard 0, probe 0.2

Formula =(-((0.2-0)/(B787-B359))*(B359-B359))+K359

5/17-5/31

**All parameters for this period were not correctable due to lack of information. Post-deployment check incorrectly performed.

5/31-6/7

**All parameters for this period were not correctable due to lack of information. Post-deployment check incorrectly performed.

Anomalies & Problems:

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SpCond/Salinity 5/1 1030 – 5/8 1000: Discontinuity. When sondes were changed on 5/1 1030, salinity increased 2.2ppt, when sondes were changed on 5/8 1000, salinity decreased 2.75 ppt. Conductivity cell constant was fine on all sondes. Indicates calibration was bad or sonde was somehow malfunctioning; that the offset on either end of 5/1-5/8 deployment was very similar and readings followed same trend (increasing and moderately variable) as the previous and following records, suggests the problem is a bad calibration. A time integrated constant correction was applied to this deployment period, see "Corrected Data" above. Salinity data for this period **may be faulty**.
Turbidity: Many negative values. Sonde did not calibrate correctly; negative values should be considered zero or very close to zero.
Turbidity: ADL. Value was an individual spike so it was retained.

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June
File Name: IR-0206-raw, IR-0206-QAQC, IR-0206

Deployments: (4); 5/31-6/7, 6/7-6/13, 6/13-6/21, 6/21-7/1

Condition of Sondes: 5/31-6/7 (condition unknown; post-deployment check incorrectly performed); 6/7-6/13 (condition uncertain; post-deployment check incorrectly performed); 6/13-6/21 (condition uncertain; post-deployment check incorrectly performed); 6/21-7/1 (condition uncertain; post-deployment check incorrectly performed)

Removed Data:

Parameter(s)	Problem	Data Points
NONE		

Corrected Data:
5/31-6/7
**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.
6/21-7/1
**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

Problems and Anomalies:
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.
Oxygen 6/13: Dissolved oxygen measurements show sharp discontinuity associated with changing of sondes: 41.9% to 87%. This discontinuity is likely **faulty** as the oxygen values for the deployment period 6/7-6/13 were erratic. This erratic behavior may have resulted from a problem with the DO probe's membrane.
Turbidity 6/29 2300: ADL. Retained as it was an individual spike.

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July

File Name: IR-0207-raw, IR-0207-QAQC, IR-0207

Deployments: (4); 6/21-7/1, 7/1-7/12, 7/13-7/23, 7/23-8/2

Condition of Sondes: 6/21-7/1 (condition uncertain; post-deployment check incorrectly performed); 7/1-7/12 (condition uncertain; post-deployment check incorrectly performed), 7/13-7/23 (sonde/datalogger non-functional), 7/23-8/2 (condition uncertain; post-deployment check incorrectly performed)

Removed Data:

Parameter(s)	Problem	Data Points
All	IF	7/11 1300-7/12 1000
All	SND	7/12 1030-7/13 1000
All	IF	7/13 1030-7/23 1030
All	SND	7/23 1100

Corrected Data:

6/21-7/1

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

7/1-7/12

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

7/13-7/23

**No corrections possible due to malfunctioning sonde/datalogger producing no data.

7/23-8/2

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

Problems and Anomalies:

All parameters 7/11 1300-7/23 1030: No data due to complete malfunction datalogger or communication between the sonde and datalogger. Data loss started near end (7/11 1300) of sonde deployment period 7/1-7/12; this sonde was retrieved (7/12 1000) but a new sonde was not ready. A new sonde was deployed on 7/13 1000. Malfunction and complete data loss continued until this sonde was retrieved on 7/23 1030. New sonde was tested at 7/23 1100 and started recording actual site data at 1130.

Oxygen 7/11-8/2: Starting on about 7/30, dissolved oxygen begins a downward trend. When this sonde was changed on 8/2, a very large discontinuity occurred (went from 23.5% on old sonde to 115% on new sonde). This indicates a potential biofouling or probe problem. Data for 7/30 and 7/31 **may be faulty.**

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August
File Name: IR-0206-raw, IR-0206-QAQC, IR-0206

Deployments: (4); 7/23-8/2, 8/2-8/12, 8/12-8/22, 8/22-9/3

Condition of Sondes: 7/23-8/2 (condition uncertain; post-deployment check incorrectly performed), 8/2-8/12 (condition uncertain; post-deployment check incorrectly performed), 8/12-8/22 (condition uncertain; post-deployment check incorrectly performed), 8/22-9/3 (condition uncertain; post-deployment check incorrectly performed)

Removed Data:

Parameter(s)	Problem	Data Points
NONE		

Corrected Data:
7/23-8/2
**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.
8/2-8/12
**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.
8/12-8/22
**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.
8/22-9/3
**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.

Problems and Anomalies:
Oxygen 8/2: Starting on about 7/30, dissolved oxygen begins a downward trend. When this sonde was changed on 8/2, a very large discontinuity occurred (went from 23.5% on old sonde to 115% on new sonde). This indicates a potential biofouling or probe problem. Data for 8/1 to 8/2 is likely **faulty**; the discontinuity on 8/2 is **faulty**.
Salinity 8/2: Discontinuity occurred coincident with the changing of the sondes (26.8ppt to 29ppt). This discontinuity is **faulty.**
Turbidity 8/2 to 8/12: Almost all turbidity values are negative. Because several large positive values occurred during this time period, this was not a problem with the sonde itself, but rather, is likely a calibration mistake. The negative values should be considered to be close to zero.
Turbidity 8/10 1430: ADL. Retained as it was an individual spike.
Oxygen 8/12: Discontinuity occurred coincident with changing of the sondes (41.7% to 73.8%). Oxygen % was increasing both before and after the changing of the sonde, however the rate of change was not enough to explain the magnitude of this discontinuity. As a result, this continuity **may be faulty**.

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September
File Name: IR-0206-raw, IR-0206-QAQC, IR-0206

Deployments: (5); 8/22-9/3, 9/3-9/9, 9/9-9/19, 9/19-9/25, 9/25-10/3

Condition of Sondes: 8/22-9/3 (condition uncertain; post-deployment check incorrectly performed), 9/3-9/9 8/22-9/3 (condition uncertain; post-deployment check incorrectly performed; datalogger malfunction—no data past 9/5), 9/9-9/19 (datalogger malfunction—no data), 9/19-9/25 (datalogger malfunction—no data), 9/25-10/3 (datalogger malfunction—no data)

Removed Data:

Parameter(s)	Problem	Data Points
All	IF	9/5 1300 – 9/30 2330

Corrected Data:
8/22-9/3
**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.
9/3-9/9
**No corrections possible due to lack of post-deployment information and incorrect post-deployment check procedure.
**No data past 9/5 due to datalogger malfunction
9/9-9/19
**Datalogger malfunction—no data
9/19-9/25
**Datalogger malfunction—no data
9/25-10/3
**Datalogger malfunction—no data

Problems and Anomalies:
Turbidity 9/3-9/5 : Almost all turbidity values are negative. Because several positive values occurred during this time period, this was not a problem with the sonde itself, but rather, is likely a calibration mistake. The negative values should be considered to be close to zero.
All parameters 9/5 1300 – 9/30 2330: Severe datalogger malfunction prevented communication between sonde and datalogger, thus all data was lost. Numerous actions failed to correct problem. Problem solved in November, but data was salvageable after 10/23.

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October

File Name: IR-0206-raw, IR-0206-QAQC, IR-0206

Deployments: (); 9/25-10/3, 10/3-10/17, 10/17-10/24, 10/24-11/4

Condition of Sondes: 9/25-10/3 (datalogger malfunction—no data), 10/3-10/17 (datalogger malfunction—no data), 10/17-10/24 (datalogger malfunction—no data before 10/23), 10/24-11/4 (ok)

Removed Data:

Parameter(s)	Problem	Data Points
All	IF	10/1 000 – 10/23 1030

Corrected Data:

9/25-10/3

**Datalogger malfunction—no data

10/3-10/17

**Datalogger malfunction—no data

10/17-10/24

**Datalogger malfunction—no data before 10/23. Corrections applied to data starting 10/23.

Specific Conductivity:

standard 10, probe 10.1
Formula: =(-((10.1-10)/(B1126-B793))*(B1080-B793))+E1080
Salinity =(0.7403*R1080)-4.3376

Oxygen:

standard 100, probe 108.7
Formula: =(-((108.7-100)/(B1126-B793))*(B1080-B793))+G1080
Conversion for O2 concentration:
=8.1-(0.08*D1080)-(0.0492*S1080)+(0.066*P1080)

Turbidity:

standard 0, probe 1.5; standard 100, probe NONE
Formula: =(-((1.5-0)/(B1126-B793))*(B1080-B793))+K1080

Chlorophyll:

standard 0.0, probe 10.9
Formula: =(-((10.9-0)/(B1126-B793))*(B1080-B793))+L1080

10/24-11/4

Specific Conductivity:

standard 10.0, probe 8.705
Formula: =(-((8.705-10)/(B1658-B1127))*(B1127-B1127))+E1127
Salinity =(0.7081*R1127)-2.8223

Oxygen:

standard 100, probe 108.0
Formula: =(-((108-100)/(B1658-B1127))*(B1127-B1127))+G1127
Conversion for O2 concentration:
=5.69-(0.0557*D1127)-(0.0381*S1127)+(0.0667*P1127)

Turbidity:

standard 0, probe –0.1; standard 100, probe NONE
Formula: =(-((-0.1-0)/(B1658-B1127))*(B1127-B1127))+K1127

Chlorophyll:

standard 0.0, probe 0.7
Formula: =(-((0.7-0)/(B1658-B1127))*(B1127-B1127))+L1127

Problems and Anomalies:

All parameters 10/1 000 – 10/23 1030: Severe datalogger malfunction prevented communication between sonde and datalogger, thus all data was lost. Numerous actions failed to correct problem. Problem solved in November, but data was salvageable after 10/23.

Turbidity 10/23 1100-10/24 1000: BDL. Negative values resulted from application of correction above. Either instrument was calibrated incorrectly before deployment or it was not checked properly following retrieval. All negatives should be considered close to zero.

Chlorophyll 10/23 1100-10/24 1000: All values over 100 and are likely **faulty**. When sondes were changed on 10/24, chlorophyll values were between 3 and 6, thus chlorophyll probe was likely malfunctioning through 10/24. No information on whether wipers parked correctly was provided on post-deployment check sheet so this potential malfunction cannot be excluded.

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November
File Name: IR-0211-raw, IR-0211-QAQC, IR-0211

Deployments: (4);10/24-11/4, 11/4-11/14, 11/14-11/27, 11/27-12/5

Condition of Sondes: 10/24-11/4 (light fouling), 11/4-11/14 (light fouling), 11/14-11/27 (light fouling), 11/27-12/5 (OK)

Removed Data:

Parameter(s)	Problem	Data Points
oxygen	PF	11/4-11/14
chlorophyll	PF	11/4-11/14
oxygen	PF	11/27-12/5
chlorophyll	PF	11/27-12/5

Corrected Data:

10/24-11/4

**This time period was continuous with November and was corrected as for that month (see above)

11/4-11/14

Specific Conductivity:

standard, probe
Formula: =(-((11.04-10)/(B648-B171))*(B171-B171))+E171
Salinity =(0.7649*R171)-5.7987

Oxygen:

NOT CORRECTED—probe failure (see below)

Turbidity:

standard 0, probe; standard 100, probe
Formula: =(-((2.2-0)/(B648-B171))*(B171-B171))+K171

Chlorophyll:

NOT CORRECTED—probe malfunction (see below)

11/14-11/27

Specific Conductivity:

standard 10, probe 11.5
Formula: =(-((11.5-10)/(B1269-B649))*(B649-B649))+E649
Salinity =(0.7219*R649)-3.3075

Oxygen:

standard 100, probe 85.4
Formula: =(-((85.4-100)/(B1269-B649))*(B649-B649))+G649
Conversion for O2 concentration: =5.94-(0.0674*D649)-(0.0402*S649)+(0.0746*P649)

Turbidity:

NOT CORRECTED—incorrect post-deployment check (see below)

Chlorophyll:

NOT CORRECTED—incorrect post-deployment check (see below)

11/27-12/5

Specific Conductivity:

standard, probe
Formula: =(-((10.62-10)/(B1655-B1270))*(B1270-B1270))+E1270

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Salinity =(0.6868*R1270)-1.8457

Oxygen:

NOT CORRECTED—probe failure (see below)

Turbidity:

standard 0, probe –1.5; standard 100, probe

Formula: =K1270+1.5

Chlorophyll:

NOT CORRECTED—probe malfunction

Problems and Anomalies:

Salinity 11/4 1230: discontinuity (+2ppt) occurred coincident with changing of sondes. This discontinuity is **faulty**.

Depth 11/4 1230: discontinuity (-1 ft) occurred coincident with changing of sondes. This discontinuity is **faulty**.

Oxygen 11/4-11/14: PF. Sonde was deployed on 11/4 with a DO probe charge of >75. During the deployment period, DO charges hovered between 70 and 85 and DO measurements were erratic, suggesting a bad membrane on the probe. These data were deemed **faulty** and were deleted.

Chlorophyll 11/4-11/14: When this sonde was deployed on 11/4 it started reading values outside its detection range. Over the next couple of days, the values slowly decreased. This probe was likely malfunctioning. These values were deemed **faulty** and were deleted.

Salinity 11/14 1130: discontinuity (+2ppt) occurred coincident with changing of sondes. This discontinuity is **faulty**.

Depth 11/14 1130: discontinuity (+1 ft) occurred coincident with changing of sondes. This discontinuity is **faulty**.

Turbidity and Chlorophyll 11/14-11/27: During post-deployment check, turbidity probe read 13.6 in a 0.0 standard and chlorophyll probe read 21.8 in a 0.0 standard. If corrections were applied based upon these values, the lowest values near the end of the deployment period were approximately –13 for turbidity and –20 for chlorophyll. This suggests the post-deployment check was performed incorrectly. The original data were retained but **may be faulty** due to drift and/or fouling.

Oxygen 11/27-12/5: PF. Sonde was deployed on 11/27 with a DO probe charge of >75. During the deployment period, DO charges hovered between 85 and 99 and DO measurements were erratic, suggesting a bad membrane on the probe. These data were deemed **faulty** and were deleted.

Turbidity 11/27-12/5: All the way through the deployment period, the lowest values were ~-1.5. During the post-deployment check, the probe read –1.5 in a 0.0 standard. Prior to calibration before deployment, the probe read 1.4 in a 0.0 standard. This all suggests the probe was calibrated incorrectly prior to deployment and consistently read all values 1.5 too low. As a result, the standard correction was not used and 1.5 was added to every value

Chlorophyll 11/27-12/5: Chlorophyll read >100 all the way through the deployment period, but probes deployed before and after it read in the single digits. This suggests the probe was not functioning properly. The data for this period was deemed **faulty** and was deleted.

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December

File Name: IR-0212-raw, IR-0212-QAQC, IR-0212

Deployments: (); 11/27-12/5, 12/5-12/23, 12/23-1/14

Condition of Sondes: 11/27-12/5 (OK), 12/5-12/23 (light fouling; almost complete instrument failure), 12/23-1/14 (moderate fouling; repeated instrument failure)

Removed Data:

Parameter(s)	Problem	Data Points
oxygen	PF	12/1-12/5
chlorophyll	PF	11/27-12/5
All	IF	12/2 1430
All	IF	all but 52 points during 12/5-12/23
All	IF	169 points during12/23-12/31
chlorophyll	PF	12/31 500 - 1/14

Corrected Data:

11/27-12/5

**This time period was continuous with November and was corrected as for that month (see above)

12/5-12/23

Specific Conductivity:

standard 10, probe 10.7
Formula: =(-((10.7-10)/(B1078-B216))*(B216-B216))+E216
Salinity =(0.7132*R216)-2.8798

Oxygen:

standard 100, probe 53.6
NOT CORRECTABLE—see below

Turbidity:

standard 0, probe 12.2; standard 100, probe NA
CORRECTION NOT APPLIED (see below)

Chlorophyll:

standard 0.0, probe 5.3
Formula: =(-((5.8-0)/(B1078-B216))*(B216-B216))+L216

12/23-1/14

Specific Conductivity:

standard 10, probe 9.522
Formula: =(-((9.522-10)/(B2136-B1079))*(B1079-B1079))+E1079
Salinity =(0.6972*R1079)-2.306

Oxygen:

standard 100, probe 27.2
NOT CORRECTABLE—see below

Turbidity:

standard 0, probe –3.2; standard 100, probe NA
Formula: =(-((-3.2-0)/(B2136-B1079))*(B1079-B1079))+K1079

Chlorophyll:

standard 0.0, probe 689.8
NOT CORRECTABLE—see below

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Problems and Anomalies:

Oxygen 11/27-12/5: PF. Sonde was deployed on 11/27 with a DO probe charge greater than 75 (the upper acceptable limit). During the deployment period, DO charges hovered between 85 and 99 and DO measurements were erratic, suggesting a bad membrane on the probe. These data were deemed **faulty** and were deleted.

Turbidity 11/27-12/5: All the way through the deployment period, the lowest values were ~-1.5. During the post-deployment check, the probe read –1.5 in a 0.0 standard. Prior to calibration before deployment, the probe read 1.4 in a 0.0 standard. This all suggests the probe was calibrated incorrectly prior to deployment and consistently read all values 1.5NTU too low. As a result, the standard correction was not used and 1.5 was added to every value.

Turbidity 12/1-12/5: There were numerous turbidity spikes (100-1150NTU) during this period. Because it was not a permanent increase, the data were retained.

Chlorophyll 11/27-12/5: Chlorophyll read >100 all the way through the deployment period, but probes deployed before and after it read in the single digits. This suggests the probe was not functioning properly. The data for this period was deemed **faulty** and was deleted.

Oxygen 12/5-12/23: DO probe read 53.6% in 100% standard during post-deployment check. This value is below the correctable limit (85%). The reason for this low reading is unclear, although it could be a result of light biofouling. Because of almost complete instrument failure during this period, only 52 data points were recorded; this was insufficient to determine a point at which fouling became a problem. As a result, the original data were retained but are likely **faulty** due to fouling. Use as a rough guideline only.

Turbidity 12/5-12/23: During the post-deployment check the turbidity probe read 12.2 in a 0.0 standard (it was not checked in a 100NTU standard). If corrected based on this data, turbidity readings were near –9.0NTU by the end of the deployment period. There was not increasing trend in the original, uncorrected turbidity data. This suggests the post-deployment check information was incorrect. The original data were retained and is likely robust, but it **may be faulty** due to instrument drift or biofouling.

Oxygen 12/23-1/14: DO probe read 27.2% in 100% standard during post-deployment check. This value is below the correctable limit (85%). There was moderate fouling (~40% coverage) on the probes. However, the data itself showed no decreasing trend as would be expected if the probe were reading 73% below what it should. The data near the end of this deployment period was also not substantially different than the start of the next deployment period (1/14-2/3). These suggest that perhaps the post-deployment check was incorrect. All the original data were retained, but **may be faulty** due to drift or biofouling. Interpret with caution.

Chlorophyll 13/31 500 – 1/14: During post-deployment check chlorophyll probe read 689.8 in 0.0 standard and the wiper was not parking correctly (it may have been partially or completely blocking the optical sensor). The data appeared normal until 12/31 500 when it started reading discontinuously high values, and it continued doing that until it was retrieved on 1/14. The data during the period 12/31 500 to 1/14 was deemed **faulty** and was deleted. The remained of the data 12/23-12/31 430 was retained but **may be faulty** due to drift or biofouling.