

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

RED

| Cruise and Analysis Information                                                      | Nisk ID | Nisk Int V S             | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                                 | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------------|---------|--------------------------|-----------|---------|-----------|---------------|--------------|------------------------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number: 2013-57                                                               | 1       | <input type="checkbox"/> | 1         | 2051    | 247       | 7.2           | 2.668        | bubble in bottle                         | 1       |         |               |              |          |
| Event: 1                                                                             | 2       | <input type="checkbox"/> | 2         | 3100    | 227       | 7.0           | 2.667        |                                          | 2       |         |               |              |          |
| Station: JF64a                                                                       | 3       | <input type="checkbox"/> | 3         | 2068    | 200       | 7.1           | 2.825        |                                          | 3       |         |               |              |          |
| Event Date (Local): 19 Aug 2013                                                      | 4       | <input type="checkbox"/> | 4         | 458     | 175       | 7.1           | 3.006        |                                          | 4       | 2017    | 7.2           | 3.022        |          |
| Analysis Date (Local): 19 Aug 2013                                                   | 5       | <input type="checkbox"/> | 5         | 658     | 150       | 7.6           | 5.535        | tiny bubble appeared on lens just before | 5       |         |               |              |          |
| Analyst: Brionna Cervantes                                                           | 6       | <input type="checkbox"/> | 6         | 3013    | 165       | 7.8           | 7.038        | cloud lens during same sample            | 6       |         |               |              |          |
| Stdization Date (Local): 16 Aug 2013                                                 | 7       | <input type="checkbox"/> | 7         | 3137    | 100       | 8.4           | 6.430        |                                          | 7       |         |               |              |          |
| KIO <sub>3</sub> N: 0.0197114                                                        | 8       | <input type="checkbox"/> | 8         | 3126    | 70        | 9.5           | 7.094        |                                          | 8       |         |               |              |          |
| Standard Titer: 0.6983                                                               | 9       | <input type="checkbox"/> | 9         | 3094    | 60        | 9.9           | 8.186        | Final titer: 0.712 OT: messy endpoint    | 9       |         |               |              |          |
| Blank Titer: 0.0035                                                                  | 10      | <input type="checkbox"/> | 10        | 3194    | 50        | 10.6          | 10.237       | bubble on lens?                          | 10      |         |               |              |          |
| THIO N: 0.28331                                                                      | 11      | <input type="checkbox"/> | 11        | 505     | 30        | 10.9          | 10.971       |                                          | 11      |         |               |              |          |
| Sample Flask Water Seal? <input checked="" type="checkbox"/> Yes                     | 12      | <input type="checkbox"/> | 12        | 3090    | 10        | 10.7          | 10.254       |                                          | 12      |         |               |              |          |
| <input type="checkbox"/> No                                                          | 13      | <input type="checkbox"/> | 13        | 1023    | 5         | 10.8          | 10.55        |                                          | 13      |         |               |              |          |
| Reagent Change? MnCl <sub>2</sub>                                                    | 14      | <input type="checkbox"/> |           |         |           |               |              |                                          | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization)       | 15      | <input type="checkbox"/> |           |         |           |               |              |                                          | 15      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                           | 16      | <input type="checkbox"/> |           |         |           |               |              |                                          | 16      |         |               |              |          |
|                                                                                      | 17      | <input type="checkbox"/> |           |         |           |               |              |                                          | 17      |         |               |              |          |
|                                                                                      | 18      | <input type="checkbox"/> |           |         |           |               |              |                                          | 18      |         |               |              |          |
| Notes: There's a thing on the lens that looked like a bubble → not actually a bubble | 19      | <input type="checkbox"/> |           |         |           |               |              |                                          | 19      |         |               |              |          |
|                                                                                      | 20      | <input type="checkbox"/> |           |         |           |               |              |                                          | 20      |         |               |              |          |
|                                                                                      | 21      | <input type="checkbox"/> |           |         |           |               |              |                                          | 21      |         |               |              |          |
|                                                                                      | 22      | <input type="checkbox"/> |           |         |           |               |              |                                          | 22      |         |               |              |          |
|                                                                                      | 23      | <input type="checkbox"/> |           |         |           |               |              |                                          | 23      |         |               |              |          |
|                                                                                      | 24      | <input type="checkbox"/> |           |         |           |               |              |                                          | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

Falkor

2013-57

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

LED

| Cruise and Analysis Information                                                        | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m)    | Draw T 1 (°C) | OXY 1 (mL/L) | Comments          | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|----------------------------------------------------------------------------------------|---------|---------------------------------------------------|-----------|---------|--------------|---------------|--------------|-------------------|---------|---------|---------------|--------------|----------|
| Cruise Number: 2013-58                                                                 | 1       | <input type="checkbox"/> <input type="checkbox"/> | 14        | 3000    | 130          | 6.9           | 1.453        |                   | 1       |         |               |              |          |
| Event: 2                                                                               | 2       | <input type="checkbox"/> <input type="checkbox"/> | 15        | 3036    | 110          | 7.0           | 1.619        |                   | 2       |         |               |              |          |
| Station: LB08                                                                          | 3       | <input type="checkbox"/> <input type="checkbox"/> | 16        | 3005    | 100          | 7.0           | 1.851        |                   | 3       |         |               |              |          |
| Event Date (Local): 19 Aug 2013                                                        | 4       | <input type="checkbox"/> <input type="checkbox"/> | 17        | 3041    | 70           | 7.1           | 2.250        |                   | 4       |         |               |              |          |
| Analysis Date (Local): 19 Aug 2013                                                     | 5       | <input type="checkbox"/> <input type="checkbox"/> | 18        | 3055    | 60           | 7.3           | 2.743        |                   | 5       | 3025    | 7.4           | 2.780        |          |
| Analyst: Brian Czekiewicz                                                              | 6       | <input type="checkbox"/> <input type="checkbox"/> | 19        | 3030    | 50           | 7.8           | 3.610        |                   | 6       |         |               |              |          |
| Stdization Date (Local): 18 Aug 2013                                                   | 7       | <input type="checkbox"/> <input type="checkbox"/> | 20        | 3031    | 30           | 9.2           | 7.276        |                   | 7       |         |               |              |          |
| KIO <sub>3</sub> N: 0.0197114                                                          | 8       | <input type="checkbox"/> <input type="checkbox"/> | 21        | 528     | 10           | 12.2          | 16.845       | or messy endpoint | 8       |         |               |              |          |
| Standard Titer: 0.6983                                                                 | 9       | <input type="checkbox"/> <input type="checkbox"/> | 22        | 2075    | 5            | 13.1          | 17.550       | Final titer 1.326 | 9       |         |               |              |          |
| Blank Titer: 0.0035                                                                    | 10      | <input type="checkbox"/> <input type="checkbox"/> | 23        | 2085    |              |               |              |                   | 10      |         |               |              |          |
| THIO N: 0.28331                                                                        | 11      | <input type="checkbox"/> <input type="checkbox"/> | 24        | 2089    |              |               |              |                   | 11      |         |               |              |          |
| Sample Flask Water Seal? <input checked="" type="radio"/> Yes <input type="radio"/> No | 12      | <input type="checkbox"/> <input type="checkbox"/> | 25        | 2087    |              |               |              |                   | 12      | 1880    |               |              |          |
|                                                                                        | 13      | <input type="checkbox"/> <input type="checkbox"/> | 26        | 2091    | -            |               |              |                   | 13      |         |               |              |          |
| Reagent Change? MnCl <sub>2</sub>                                                      | 14      | <input type="checkbox"/> <input type="checkbox"/> | 27        | 1015    |              |               |              |                   | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization)         | 15      | <input type="checkbox"/> <input type="checkbox"/> | 28        | 3001    | ← new sheet. |               |              |                   | 15      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                             | 16      | <input type="checkbox"/> <input type="checkbox"/> | 29        | 3124    |              |               |              |                   | 16      |         |               |              |          |
|                                                                                        | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |              |               |              |                   | 17      |         |               |              |          |
|                                                                                        | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |              |               |              |                   | 18      |         |               |              |          |
| Notes:                                                                                 | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |              |               |              |                   | 19      |         |               |              |          |
|                                                                                        | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |              |               |              |                   | 20      |         |               |              |          |
|                                                                                        | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |              |               |              |                   | 21      |         |               |              |          |
|                                                                                        | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |              |               |              |                   | 22      |         |               |              |          |
|                                                                                        | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |              |               |              |                   | 23      |         |               |              |          |
|                                                                                        | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |              |               |              |                   | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

WHITE

| Cruise and Analysis Information                                                | Nisk ID | Nisk Int V S             | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                 | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments                                |
|--------------------------------------------------------------------------------|---------|--------------------------|-----------|---------|-----------|---------------|--------------|--------------------------|---------|---------|---------------|--------------|-----------------------------------------|
| Cruise Number: 2013-57                                                         | 1       | <input type="checkbox"/> | 23        | 2095    | 110       | 7.3           | 3.258        |                          | 1       |         |               |              |                                         |
| Event: 3                                                                       | 2       | <input type="checkbox"/> | 24        | 2089    | 91        | 7.4           | 2.862        |                          | 2       |         |               |              |                                         |
| Station: BCCO                                                                  | 3       | <input type="checkbox"/> | 25        | 2087    | 71        | 7.6           | 4.799        | small bubble in sample   | 3       | 2080    | 8.0           | 4.511        | Brianna on 1800<br>2500 m. on duplicate |
| Event Date (Local): 19 Aug 2013                                                | 4       | <input type="checkbox"/> | 26        | 2091    | 51        | 8.1           | 6.907        |                          | 4       |         |               |              |                                         |
| Analysis Date (Local): 19 Aug 2013                                             | 5       | <input type="checkbox"/> | 27        | 1015    | 32        | 8.2           | 8.226        |                          | 5       |         |               |              |                                         |
| Analyst: Brianna Czerwicz                                                      | 6       | <input type="checkbox"/> | 28        | 3061    | 22        | 8.6           | 8.837        | small drip 2/s in Niskin | 6       |         |               |              |                                         |
| Stdization Date (Local): 18 Aug 2013                                           | 7       | <input type="checkbox"/> | 29        | 3124    | 5         | 12.6          | 13.080       |                          | 7       |         |               |              |                                         |
| KIO <sub>3</sub> N: 0.0197114                                                  | 8       | <input type="checkbox"/> |           |         |           |               |              |                          | 8       |         |               |              |                                         |
| Standard Titer: 0.6983                                                         | 9       | <input type="checkbox"/> |           |         |           |               |              |                          | 9       |         |               |              |                                         |
| Blank Titer: 0.0035                                                            | 10      | <input type="checkbox"/> |           |         |           |               |              |                          | 10      |         |               |              |                                         |
| THIO N: 0.28331                                                                | 11      | <input type="checkbox"/> |           |         |           |               |              |                          | 11      |         |               |              |                                         |
| Sample Flask Water Seal? Yes                                                   | 12      | <input type="checkbox"/> |           |         |           |               |              |                          | 12      |         |               |              |                                         |
| No                                                                             | 13      | <input type="checkbox"/> |           |         |           |               |              |                          | 13      |         |               |              |                                         |
| Reagent Change? MnCl <sub>2</sub>                                              | 14      | <input type="checkbox"/> |           |         |           |               |              |                          | 14      |         |               |              |                                         |
| (Please circle reagent that was changed prior to sampling and standardization) | 15      | <input type="checkbox"/> |           |         |           |               |              |                          | 15      |         |               |              |                                         |
| NaI/NaOH                                                                       | 16      | <input type="checkbox"/> |           |         |           |               |              |                          | 16      |         |               |              |                                         |
| H <sub>2</sub> SO <sub>4</sub>                                                 | 17      | <input type="checkbox"/> |           |         |           |               |              |                          | 17      |         |               |              |                                         |
| NOTE NEW BATCH IN LOG BOOK                                                     | 18      | <input type="checkbox"/> |           |         |           |               |              |                          | 18      |         |               |              |                                         |
| KIO <sub>3</sub>                                                               | 19      | <input type="checkbox"/> |           |         |           |               |              |                          | 19      |         |               |              |                                         |
| THIO                                                                           | 20      | <input type="checkbox"/> |           |         |           |               |              |                          | 20      |         |               |              |                                         |
| Notes:                                                                         | 21      | <input type="checkbox"/> |           |         |           |               |              |                          | 21      |         |               |              |                                         |
|                                                                                | 22      | <input type="checkbox"/> |           |         |           |               |              |                          | 22      |         |               |              |                                         |
|                                                                                | 23      | <input type="checkbox"/> |           |         |           |               |              |                          | 23      |         |               |              |                                         |
|                                                                                | 24      | <input type="checkbox"/> |           |         |           |               |              |                          | 24      |         |               |              |                                         |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

WHITE

| Cruise and Analysis Information                                                |                                                                                         | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                                 | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|------------------------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013-57                                                                                 | 1       | <input type="checkbox"/> <input type="checkbox"/> | 30        | 2000    | 166       | 7.3           | 3.754        | no - little water seal                   | 1       |         |               |              |          |
| Event:                                                                         | 5                                                                                       | 2       | <input type="checkbox"/> <input type="checkbox"/> | 31        | 612     | 147       | 7.4           | 4.133        |                                          | 2       |         |               |              |          |
| Station:                                                                       | BCC2                                                                                    | 3       | <input type="checkbox"/> <input type="checkbox"/> | 32        | 1059    | 125       | 7.4           | 4.619        |                                          | 3       |         |               |              |          |
| Event Date (Local):                                                            | 19 Aug 2013                                                                             | 4       | <input type="checkbox"/> <input type="checkbox"/> | 33        | 1002    | 99        | 7.3           | 5.483        |                                          | 4       |         |               |              |          |
| Analysis Date (Local):                                                         | 19 Aug 2013                                                                             | 5       | <input type="checkbox"/> <input type="checkbox"/> | 34        | 1035    | 71        | 7.9           | 6.667        |                                          | 5       |         |               |              |          |
| Analyst:                                                                       | Brianne Czerwinski                                                                      | 6       | <input type="checkbox"/> <input type="checkbox"/> | 35        | 1055    | 51        | 7.9           | 7.120        | two tiny bubbles in sample               | 6       |         |               |              |          |
| Stdization Date (Local):                                                       | 18 Aug 2013                                                                             | 7       | <input type="checkbox"/> <input type="checkbox"/> | 36        | 3116    | 30        | 8.2           | 7.393        |                                          | 7       | 2047    | 8.3           | 7.396        |          |
| KIO <sub>3</sub> N:                                                            | 0.0197114                                                                               | 8       | <input type="checkbox"/> <input type="checkbox"/> | 37        | 3016    | 21        | 8.7           | 8.032        | the two bottles are opposite in Autocore | 8       |         |               |              |          |
| Standard Titer:                                                                | 0.6952                                                                                  | 9       | <input type="checkbox"/> <input type="checkbox"/> | 38        | 94      | 5         | 13.5          | 12.000       |                                          | 9       |         |               |              |          |
| Blank Titer:                                                                   | 0.0035                                                                                  | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 10      |         |               |              |          |
| THIO N:                                                                        | 0.28331                                                                                 | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 11      |         |               |              |          |
| Sample Flask Water Seal?                                                       | Yes<br><input checked="" type="radio"/> No                                              | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 12      |         |               |              |          |
|                                                                                |                                                                                         | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 13      |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>                                                                       | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                                                                                | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 15      |         |               |              |          |
|                                                                                | H <sub>2</sub> SO <sub>4</sub>                                                          | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 16      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>                                                                        | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 17      |         |               |              |          |
|                                                                                | THIO                                                                                    | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 18      |         |               |              |          |
| Notes:                                                                         | None of these were water sealed. I shook them before analysis ~ 4-5 hours later (22:00) | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 19      |         |               |              |          |
|                                                                                |                                                                                         | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 20      |         |               |              |          |
|                                                                                |                                                                                         | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 21      |         |               |              |          |
|                                                                                |                                                                                         | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 22      |         |               |              |          |
|                                                                                |                                                                                         | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 23      |         |               |              |          |
|                                                                                |                                                                                         | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                          | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

BLUE + GREEN

| Cruise and Analysis Information                                                              |    | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                               | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments            |
|----------------------------------------------------------------------------------------------|----|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|----------------------------------------|---------|---------|---------------|--------------|---------------------|
| Cruise Number: 2013-57                                                                       |    | 1       | <input type="checkbox"/> <input type="checkbox"/> | 306       | 2060    | 597       | 6.1           | 1.168        | not water sealed, a few small bubbles  | 1       |         |               |              |                     |
| Event: 6                                                                                     |    | 2       | <input type="checkbox"/> <input type="checkbox"/> | 40        | 570     | 571       | 6.1           | 1.172        | not water sealed, two small bubbles    | 2       |         |               |              |                     |
| Station: BCC3                                                                                |    | 3       | <input type="checkbox"/> <input type="checkbox"/> | 41        | 2082    | 501       | 6.2           | 1.553        | not water sealed, two bubbles          | 3       |         |               |              |                     |
| Event Date (Local): 19 Aug 2013                                                              |    | 4       | <input type="checkbox"/> <input type="checkbox"/> | 42        | 2094    | 400       | 6.6           | 2.187        | not water sealed                       | 4       |         |               |              |                     |
| Analysis Date (Local): 19 Aug 2013                                                           |    | 5       | <input type="checkbox"/> <input type="checkbox"/> | 43        | 3109    | 300       | 7.1           | 2.989        | not water sealed, two bubbles          | 5       |         |               |              |                     |
| Analyst: Brianna Carlucci                                                                    |    | 6       | <input type="checkbox"/> <input type="checkbox"/> | 44        | 2027    | 200       | 7.2           | 3.137        |                                        | 6       |         |               |              |                     |
| Stdization Date (Local): 18 Aug 2013                                                         |    | 7       | <input type="checkbox"/> <input type="checkbox"/> | 45        | 657     | 175       | 7.5           | 4.002        |                                        | 7       |         |               |              |                     |
| KIO <sub>3</sub> N: 0.007114                                                                 |    | 8       | <input type="checkbox"/> <input type="checkbox"/> | 46        | 3043    | 151       | 7.5           | 4.278        | leaks in water seal                    | 8       |         |               |              |                     |
| Standard Titer: 0.6983                                                                       |    | 9       | <input type="checkbox"/> <input type="checkbox"/> | 47        | 309     | 101       | 7.8           | 5.813        | leaks in water seal                    | 9       | 3118    | 8.0           | 5.809        | leaks in water seal |
| Blank Titer: 0.0035                                                                          | 9  | 10      | <input type="checkbox"/> <input type="checkbox"/> | 48        | 3118    |           | 8.0           |              |                                        | 10      |         |               |              |                     |
| THIO N: 0.28331                                                                              | 10 | 11      | <input type="checkbox"/> <input type="checkbox"/> | 48        | 2064    | 53        | 8.0           | 7.042        |                                        | 11      |         |               |              |                     |
| Sample Flask Water Seal? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |    | 11      | <input type="checkbox"/> <input type="checkbox"/> | 49        | 2099    | 31        | 8.5           | 7.022        | two bubbles in sample, stopped started | 12      |         |               |              |                     |
|                                                                                              |    | 12      | <input type="checkbox"/> <input type="checkbox"/> | 50        | 3119    | 21        | 9.0           | 7.370        |                                        | 13      |         |               |              |                     |
| Reagent Change? MnCl <sub>2</sub>                                                            | 13 | 14      | <input type="checkbox"/> <input type="checkbox"/> | 51        | 2063    | 6         | 11.6          | 12.167       |                                        | 14      |         |               |              |                     |
| (Please circle reagent that was changed prior to sampling and standardization)               |    | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 15      |         |               |              |                     |
| NOTE NEW BATCH IN LOG BOOK                                                                   |    | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 16      |         |               |              |                     |
|                                                                                              |    | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 17      |         |               |              |                     |
|                                                                                              |    | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 18      |         |               |              |                     |
| Notes: "not water sealed" ones were sealed + shaken ~5-6 hours after sampling                |    | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 19      |         |               |              |                     |
|                                                                                              |    | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 20      |         |               |              |                     |
|                                                                                              |    | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 21      |         |               |              |                     |
|                                                                                              |    | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 22      |         |               |              |                     |
|                                                                                              |    | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 23      |         |               |              |                     |
|                                                                                              |    | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 24      |         |               |              |                     |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

BLUE + GREEN

| Cruise and Analysis Information                                                | Nisk ID | Nisk Int V S             | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|---------|--------------------------|-----------|---------|-----------|---------------|--------------|-------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number: 2013-57                                                         |         | <input type="checkbox"/> | 52        | 2097    | 1006      | 5.4           | 0.549        | flecks in water cal     |         | 2061    | 5.7           | 0.551        |          |
| Event: 8                                                                       | 2       | <input type="checkbox"/> | 53        | 471     | 987       | 5.4           | 0.507        |                         | 2       |         |               |              |          |
| Station: BCCS                                                                  | 3       | <input type="checkbox"/> | 54        | 2073    | 800       | 4.5           | 0.476        | small bubble in sample  | 3       |         |               |              |          |
| Event Date (Local): 20 Aug 2013                                                | 4       | <input type="checkbox"/> | 55        | 622     | 700       | 6.0           | 0.613        | a dribble               | 4       |         |               |              |          |
| Analysis Date (Local): 20 Aug 2013                                             | 5       | <input type="checkbox"/> | 56        | 2092    | 600       | 6.3           | 1.055        | small bubbles in sample | 5       |         |               |              |          |
| Analyst: Bryanna Perkins                                                       | 6       | <input type="checkbox"/> | 57        | 3135    | 501       | 6.5           | 1.492        |                         | 6       |         |               |              |          |
| Stdization Date (Local): 19 Aug 2013                                           | 7       | <input type="checkbox"/> | 58        | 557     | 400       | 6.7           | 1.874        |                         |         |         |               |              |          |
| KIO <sub>3</sub> N: 0.0197114                                                  | 8       | <input type="checkbox"/> | 59        | 3164    | 301       | 7.0           | 2.754        | bubbles in sample       | 8       |         |               |              |          |
| Standard Titer: 0.6983                                                         | 9       | <input type="checkbox"/> | 60        | 371     | 200       | 7.4           | 4.043        |                         | 9       |         |               |              |          |
| Blank Titer: 0.0035                                                            | 10      | <input type="checkbox"/> | 61        | 638     | 150       | 7.8           | 6.047        | small bubbles in sample | 10      |         |               |              |          |
| THIO N: 0.28331                                                                | 11      | <input type="checkbox"/> | 62        | 2007    | 101       | 8.1           | 6.496        |                         | 11      |         |               |              |          |
| Sample Flask Water Seal? <input checked="" type="checkbox"/> Yes               | 12      | <input type="checkbox"/> | 63        | 3067    | 71        | 8.1           | 7.039        |                         | 12      |         |               |              |          |
|                                                                                | 13      | <input type="checkbox"/> | 64        | 2098    | 50        | 8.1           | 7.093        |                         |         | 3098    | 8.4           | 7.047        |          |
| Reagent Change? MnCl <sub>2</sub>                                              | 14      | <input type="checkbox"/> | 65        | 3039    | 30        | 10.2          | 8.845        |                         | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | 15      | <input type="checkbox"/> | 66        | 3010    | 21        | 11.7          | 11.067       |                         | 15      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | 16      | <input type="checkbox"/> | 67        | 2084    | 5         | 16.6          | 12.426       | big copepod in sample   |         |         |               |              |          |
|                                                                                | 17      | <input type="checkbox"/> |           |         |           |               |              |                         | 17      |         |               |              |          |
|                                                                                | 18      | <input type="checkbox"/> |           |         |           |               |              |                         | 18      |         |               |              |          |
| Notes: in same file as samples 39-51                                           | 19      | <input type="checkbox"/> |           |         |           |               |              |                         | 19      |         |               |              |          |
|                                                                                | 20      | <input type="checkbox"/> |           |         |           |               |              |                         | 20      |         |               |              |          |
|                                                                                | 21      | <input type="checkbox"/> |           |         |           |               |              |                         | 21      |         |               |              |          |
|                                                                                | 22      | <input type="checkbox"/> |           |         |           |               |              |                         | 22      |         |               |              |          |
|                                                                                | 23      | <input type="checkbox"/> |           |         |           |               |              |                         | 23      |         |               |              |          |
|                                                                                | 24      | <input type="checkbox"/> |           |         |           |               |              |                         | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

mainly  
Green, then white

| Cruise and Analysis Information                                                | Nisk ID | Nisk Int V S             | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                                         | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|---------|--------------------------|-----------|---------|-----------|---------------|--------------|--------------------------------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number: 2013-57                                                         | 1       | <input type="checkbox"/> | 68        | 2035    | 1587      | 4.7           | 0.674        | bubbles in sample, bubble on stir bar            |         |         |               |              |          |
| Event: 10                                                                      | 2       | <input type="checkbox"/> | 69        | 2069    | 1568      | 4.7           | 0.740        | 2 tiny bubbles in sample, bubble on stir bar     | 2       |         |               |              |          |
| Station: BCC7                                                                  | 3       | <input type="checkbox"/> | 70        | 396     | 1499      | 4.8           | 0.748        | paused, restarted titration, particles in sample | 3       |         |               |              |          |
| Event Date (Local): 20 Aug 2013                                                | 4       | <input type="checkbox"/> | 71        | 708     | 1000      | 5.5           | 0.224        | bubble on probe, ↑, particles in sample          | 4       |         |               |              |          |
| Analysis Date (Local): 20 Aug 2013                                             | 5       | <input type="checkbox"/> | 72        | 3104    | 800       | 5.8           | 0.203        | particles in sample                              | 5       |         |               |              |          |
| Analyst: Brianna Cerkauer                                                      | 6       | <input type="checkbox"/> | 73        | 3032    | 700       | 6.1           | 0.251        | small bubbles in sample, particles               | 6       |         |               |              |          |
| Stdization Date (Local): 20 Aug 2013                                           | 7       | <input type="checkbox"/> | 74        | 3034    | 600       | 6.3           | 0.372        | small bubble in sample                           | 7       |         |               |              |          |
| KIO <sub>3</sub> N: 0.0098557                                                  | 8       | <input type="checkbox"/> | 75        | 3020    | 501       | 6.5           | 0.609        | bubble in sample, particles                      | 8       |         |               |              |          |
| Standard Titer: 0.00987                                                        | 9       | <input type="checkbox"/> | 76        | 3007    | 400       | 6.7           | 0.837        | bubble in sample, particles                      | 9       |         |               |              |          |
| Blank Titer: 0.0037                                                            | 10      | <input type="checkbox"/> | 77        | 552     | 300       | 7.0           | 1.579        | small bubble in sample, particles                | 10      |         |               |              |          |
| THIO N: 0.14162                                                                | 11      | <input type="checkbox"/> | 78        | 3022    | 247       | 7.3           | 1.979        | small particles                                  | 11      |         |               |              |          |
| Sample Flask Water Seal? <input checked="" type="checkbox"/> Yes               | 12      | <input type="checkbox"/> | 79        | 3014    | 200       | 7.6           | 2.486        | small bubble in sample, small particles          | 12      |         |               |              |          |
|                                                                                | 13      | <input type="checkbox"/> | 80        | 2059    | 177       | 7.8           | 2.486        | lots of bubbles in sample, small particles       | 13      |         |               |              |          |
| Reagent Change? MnCl <sub>2</sub>                                              | 14      | <input type="checkbox"/> | 81        | 5025    | 150       | 8.1           | 3.016        | small particles                                  | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | 15      | <input type="checkbox"/> | 82        | 3021    | 125       | 8.2           | 3.481        | 1 tiny bubble in sample, small particles         | 15      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | 16      | <input type="checkbox"/> | 83        | 2056    | 100       | 8.2           | 3.677        |                                                  | 16      |         |               |              |          |
|                                                                                | 17      | <input type="checkbox"/> | 84        | 3023    | 70        | 8.3           | 4.590        |                                                  | 17      |         |               |              |          |
|                                                                                | 18      | <input type="checkbox"/> | 85        | 3037    | 60        | 8.3           | 4.920        | 2 tiny bubbles in sample                         | 18      |         |               |              |          |
| Notes:                                                                         | 19      | <input type="checkbox"/> | 86        | 3018    | 50        | 8.5           | 5.797        | bubble in sample                                 | 19      |         |               |              |          |
|                                                                                | 20      | <input type="checkbox"/> | 87        | 3035    | 30        | 9.6           | 5.806        |                                                  | 20      | 3033    | 9.7           | 5.805        |          |
|                                                                                | 21      | <input type="checkbox"/> | 88        | 2095    | 20        | 13.6          | 6.273        |                                                  | 21      | 2089    | 13.7          | 6.277        |          |
|                                                                                | 22      | <input type="checkbox"/> | 89        | 2087    | 10        |               |              | Didn't fire                                      | 22      |         |               |              |          |
|                                                                                | 23      | <input type="checkbox"/> | 90        | 2080    | 5         | 16.3          | 6.029        |                                                  | 23      | 2080    |               |              |          |
|                                                                                | 24      | <input type="checkbox"/> |           |         |           |               |              |                                                  | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

White, 1 in Red

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                                | Nisk ID | Flask 2         | Draw T 2 (°C)      | OXY 2 (mL/L)          | Comments              |
|--------------------------------------------------------------------------------|--------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|-----------------------------------------|---------|-----------------|--------------------|-----------------------|-----------------------|
| Cruise Number: 2013-57                                                         |                                | 1       | <input type="checkbox"/> <input type="checkbox"/> | 91        | 2091    | 2510      | 4.0           | 1.631        | several bubbles in sample, not same     | 1       | <del>1015</del> | → DI in flask      | OT: E.P. Dosage 0.293 | some bubbles on probe |
| Event: ECT2 11                                                                 |                                | 2       | <input type="checkbox"/> <input type="checkbox"/> | 92        | 3061    | 2511      | 4.0           | 6.302        | 1 bubble in sample, lots of             | 2       | <del>1015</del> | → little particles | OT: E.P. Dosage 0.294 | Final 0.048           |
| Station: LC12                                                                  |                                | 3       | <input type="checkbox"/> <input type="checkbox"/> | 93        | 3124    | 2001      | 4.2           | 1.389        | bubbles in sample                       | 3       |                 |                    |                       |                       |
| Event Date (Local): 20 Aug 2013                                                |                                | 4       | <input type="checkbox"/> <input type="checkbox"/> | 94        | 650     | 1500      | 4.7           | 0.634        | 2 bubbles in sample, bubbles            | 4       |                 |                    |                       | reappeared on probe   |
| Analysis Date (Local): 20 Aug 2013                                             |                                | 5       | <input type="checkbox"/> <input type="checkbox"/> | 95        | 2000    | 1001      | 5.7           | 0.209        |                                         | 5       |                 |                    |                       |                       |
| Analyst: Brianne Perikewicz                                                    |                                | 6       | <input type="checkbox"/> <input type="checkbox"/> | 96        | 612     | 800       | 5.9           | 0.195        | 1 bubble in sample                      | 6       |                 |                    |                       |                       |
| Stdization Date (Local): 20 Aug 2013                                           |                                | 7       | <input type="checkbox"/> <input type="checkbox"/> | 97        | 1059    | 700       | 6.0           | 0.256        | 1 bubble in sample                      | 7       |                 |                    |                       |                       |
| KIO <sub>3</sub> N: 0.0098557                                                  |                                | 8       | <input type="checkbox"/> <input type="checkbox"/> | 98        | 1002    | 595       | 6.3           | 0.381        | big particle                            | 8       |                 |                    |                       |                       |
| Standard Titer: 0.06987                                                        |                                | 9       | <input type="checkbox"/> <input type="checkbox"/> | 99        | 1035    | 500       | 6.5           | 0.543        |                                         | 9       |                 |                    |                       |                       |
| Blank Titer: 0.0037                                                            |                                | 10      | <input type="checkbox"/> <input type="checkbox"/> | 100       | 1055    | 400       | 7.1           | 0.822        |                                         | 10      |                 |                    |                       |                       |
| THIO N: 0.14162                                                                |                                | 11      | <input type="checkbox"/> <input type="checkbox"/> | 101       | 3116    | 300       | 7.7           | 1.503        |                                         | 11      |                 |                    |                       |                       |
| Sample Flask Water Seal? <input checked="" type="checkbox"/> Yes               |                                | 12      | <input type="checkbox"/> <input type="checkbox"/> | 102       | 2047    | 200       | 7.8           | 2.756        | 2 tiny bubbles in sample                | 12      |                 |                    |                       |                       |
| No                                                                             |                                | 13      | <input type="checkbox"/> <input type="checkbox"/> | 103       | 94      | 150       | 8.5           | 2.919        |                                         | 13      | <del>1015</del> |                    |                       |                       |
| Reagent Change? MnCl <sub>2</sub>                                              |                                | 14      | <input type="checkbox"/> <input type="checkbox"/> | 104       | 2050    | 100       | 8.4           | 4.455        |                                         | 14      | <del>1015</del> |                    |                       |                       |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/> | 105       | 570     | 70        | 8.5           | 15.27        | 3 small bubbles in sample didn't affect | 15      | 1015            | 8.7                | 6.151                 |                       |
| NOTE NEW BATCH IN LOG BOOK                                                     | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/> | 106       | 2032    | 50        | 9.0           | 6.416        | 1 tiny bubble in sample                 | 16      |                 |                    |                       |                       |
|                                                                                | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/> | 107       | 3016    | 31        | 11.7          | 6.041        | large black particle                    | 17      |                 |                    |                       |                       |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/> | 108       | 2094    | 20        | 14.3          | 6.303        |                                         | 18      | 309             | 14.5               | 6.307                 |                       |
| Notes:                                                                         |                                | 19      | <input type="checkbox"/> <input type="checkbox"/> | 109       | 2051    | 5         | 17.0          | 5.854        |                                         | 19      |                 |                    |                       |                       |
|                                                                                |                                | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                         | 20      |                 |                    |                       |                       |
|                                                                                |                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                         | 21      |                 |                    |                       |                       |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                         | 22      |                 |                    |                       |                       |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                         | 23      |                 |                    |                       |                       |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                         | 24      |                 |                    |                       |                       |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

RED

| Cruise and Analysis Information                                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                  |  | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |                                            |
|--------------------------------------------------------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|---------------------------|--|---------|---------------|--------------|----------|--------------------------------------------|
| Cruise Number: 2013-57                                                         |         | <input type="checkbox"/> <input type="checkbox"/> | 110       | 3100    | 1460      | 4.5           | 0.638        | 4 bubbles in sample       |  | 1       | 2068          | 4.6          | 0.585    | several bubbles in sample, partic on probe |
| Event: LC 115                                                                  |         | <input type="checkbox"/> <input type="checkbox"/> | 111       | 458     | 1442      | 4.3           | 0.620        | several bubbles in sample |  | 2       |               |              |          | OT. E.P. Dosage 0.11 final 0.083           |
| Station: 12                                                                    | 3       | <input type="checkbox"/> <input type="checkbox"/> | 112       | 2017    | 997       | 5.2           | 0.189        | several bubbles in sample |  | 3       |               |              |          |                                            |
| Event Date (Local): 20 Aug 2013                                                | 4       | <input type="checkbox"/> <input type="checkbox"/> | 113       | 658     | 800       | 5.7           | 0.184        | several bubbles in sample |  | 4       |               |              |          |                                            |
| Analysis Date (Local): 21 Aug 2013                                             | 5       | <input type="checkbox"/> <input type="checkbox"/> | 114       | 3013    | 698       | 5.9           | 0.284        | several bubbles in sample |  |         |               |              |          |                                            |
| Analyst: Brianna Cerkiewicz                                                    | 6       | <input type="checkbox"/> <input type="checkbox"/> | 115       | 3137    | 600       | 6.2           | 0.423        | 1 tiny bubble in sample   |  | 6       |               |              |          |                                            |
| Stdization Date (Local): 20 Aug 2013                                           | 7       | <input type="checkbox"/> <input type="checkbox"/> | 116       | 3126    | 500       | 6.5           | 0.586        | 4 bubbles in sample       |  |         |               |              |          |                                            |
| KIO <sub>3</sub> N: 0.0095557                                                  | 8       | <input type="checkbox"/> <input type="checkbox"/> | 117       | 3094    | 400       | 6.9           | 0.954        | 1 tiny bubble in sample   |  | 8       |               |              |          |                                            |
| Standard Titer: 0.06987                                                        | 9       | <input type="checkbox"/> <input type="checkbox"/> | 118       | 3194    | 302       | 7.3           | 1.441        | 2 tiny bubbles in sample  |  | 9       |               |              |          |                                            |
| Blank Titer: 0.0037                                                            | 10      | <input type="checkbox"/> <input type="checkbox"/> | 119       | 505     | 200       | 7.7           | 2.234        | 1 tiny bubble in sample   |  | 10      |               |              |          |                                            |
| THIO N: 0.14162                                                                | 11      | <input type="checkbox"/> <input type="checkbox"/> | 120       | 3090    | 151       | 8.1           | 2.862        | 1 tiny bubble in sample   |  | 11      |               |              |          |                                            |
| Sample Flask Water Seal? <input checked="" type="checkbox"/> Yes               | 12      | <input type="checkbox"/> <input type="checkbox"/> | 121       | 1023    | 100       | 8.1           | 4.495        |                           |  | 12      |               |              |          |                                            |
|                                                                                | 13      | <input type="checkbox"/> <input type="checkbox"/> | 122       | 3000    | 71        | 8.2           | 5.711        |                           |  |         | 3036          | 8.2          | 5.715    |                                            |
| Reagent Change? MnCl <sub>2</sub>                                              | 14      | <input type="checkbox"/> <input type="checkbox"/> | 123       | 3005    | 50        | 9.0           | 6.366        |                           |  | 14      |               |              |          |                                            |
| (Please circle reagent that was changed prior to sampling and standardization) | 15      | <input type="checkbox"/> <input type="checkbox"/> | 124       | 3041    | 30        | 11.6          | 6.035        |                           |  | 15      |               |              |          |                                            |
| NOTE NEW BATCH IN LOG BOOK                                                     | 16      | <input type="checkbox"/> <input type="checkbox"/> | 125       | 3025    | 20        | 14.3          | 6.326        |                           |  | 16      |               |              |          |                                            |
|                                                                                | 17      | <input type="checkbox"/> <input type="checkbox"/> | 126       | 3055    | 5         | 17.0          | 5.919        |                           |  | 17      |               |              |          |                                            |
|                                                                                | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                           |  | 18      |               |              |          |                                            |
| Notes: shaken & water sealed at 22:00, 20 Aug 2013                             | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                           |  | 19      |               |              |          |                                            |
|                                                                                | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                           |  | 20      |               |              |          |                                            |
|                                                                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                           |  | 21      |               |              |          |                                            |
|                                                                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                           |  | 22      |               |              |          |                                            |
|                                                                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                           |  | 23      |               |              |          |                                            |
|                                                                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                           |  | 24      |               |              |          |                                            |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

| Cruise and Analysis Information                                                |                                              |  |  |  |  |  |  | Nisk ID | Nisk Int V S             | Sample ID                | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments | Nisk ID                      | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |       |
|--------------------------------------------------------------------------------|----------------------------------------------|--|--|--|--|--|--|---------|--------------------------|--------------------------|---------|-----------|---------------|--------------|----------|------------------------------|---------|---------------|--------------|----------|-------|
| Cruise Number:                                                                 | 2013-57                                      |  |  |  |  |  |  |         | <input type="checkbox"/> | <input type="checkbox"/> | 127     | 3030      | 6.2           | 60.7         | 0.356    |                              | 1       |               |              |          |       |
| Event:                                                                         | LC09 14                                      |  |  |  |  |  |  |         | <input type="checkbox"/> | <input type="checkbox"/> | 128     | 3031      | 6.3           | 59.0         | 0.448    |                              | 2       |               |              |          |       |
| Station:                                                                       | LC09                                         |  |  |  |  |  |  | 3       | <input type="checkbox"/> | <input type="checkbox"/> | 129     | 528       | 6.7           | 500          | 0.706    |                              | 3       |               |              |          |       |
| Event Date (Local):                                                            | 20 Aug. 2013                                 |  |  |  |  |  |  | 4       | <input type="checkbox"/> | <input type="checkbox"/> | 130     | 2075      | 7.0           | 400          | 1.004    |                              | 4       |               |              |          |       |
| Analysis Date (Local):                                                         | 20 Aug. 2013                                 |  |  |  |  |  |  | 5       | <input type="checkbox"/> | <input type="checkbox"/> | 131     | 2027      | 7.3           | 302          | 1.202    | ✓                            | 5       |               |              |          |       |
| Analyst:                                                                       | Steve                                        |  |  |  |  |  |  | 6       | <input type="checkbox"/> | <input type="checkbox"/> | 132     | 657       | 7.6           | 202          | 1.785    | ✓                            | 6       |               |              |          |       |
| Stdization Date (Local):                                                       | 20 Aug. 2013                                 |  |  |  |  |  |  | 7       | <input type="checkbox"/> | <input type="checkbox"/> | 133     | 3043      | 7.7           | 175          | 2.072    | ✓                            | 7       |               |              |          |       |
| KIO <sub>3</sub> N:                                                            | 0.0093557                                    |  |  |  |  |  |  | 8       | <input type="checkbox"/> | <input type="checkbox"/> | 134     | 3019      | 7.9           | 150          | 3.150    | ✓                            | 8       |               |              |          |       |
| Standard Titer:                                                                | 0.06937                                      |  |  |  |  |  |  | 9       | <input type="checkbox"/> | <input type="checkbox"/> | 135     | 3118      | 8.1           | 101          | 4.026    | ✓                            | 9       | 130           | 2064         | 8.4      | 3.995 |
| Blank Titer:                                                                   | 0.0037                                       |  |  |  |  |  |  | 10      | <input type="checkbox"/> | <input type="checkbox"/> | 136     | 2099      | 8.6           | 50           | 3.575    | 5.666                        | 10      |               |              |          |       |
| THIO N:                                                                        | 0.14162                                      |  |  |  |  |  |  | 11      | <input type="checkbox"/> | <input type="checkbox"/> | 137     | 3119      | 9.5           | 31           |          | Bad Sample! 6.26d colour 74% | 11      |               |              |          |       |
| Sample Flask Water Seal?                                                       | Yes                                          |  |  |  |  |  |  | 12      | <input type="checkbox"/> | <input type="checkbox"/> | 138     | 2063      | 12.7          | 20           | 6.193    |                              | 12      |               |              |          |       |
|                                                                                | No                                           |  |  |  |  |  |  | 13      | <input type="checkbox"/> | <input type="checkbox"/> | 139     | 2097      | 16.9          | 5            | 6.630    |                              | 13      |               |              |          |       |
| Reagent Change?                                                                | MnCl <sub>2</sub>                            |  |  |  |  |  |  | 14      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 14      |               |              |          |       |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                                     |  |  |  |  |  |  | 15      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 15      |               |              |          |       |
| NOTE NEW BATCH IN LOG BOOK                                                     | H <sub>2</sub> SO <sub>4</sub>               |  |  |  |  |  |  | 16      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 16      |               |              |          |       |
|                                                                                | KIO <sub>3</sub>                             |  |  |  |  |  |  | 17      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 17      |               |              |          |       |
|                                                                                | THIO                                         |  |  |  |  |  |  | 18      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 18      |               |              |          |       |
| Notes:                                                                         | Shaken + water sealed at 23:00, 20 Aug. 2013 |  |  |  |  |  |  | 19      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 19      |               |              |          |       |
|                                                                                | In same file as 140-149                      |  |  |  |  |  |  | 20      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 20      |               |              |          |       |
|                                                                                |                                              |  |  |  |  |  |  | 21      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 21      |               |              |          |       |
|                                                                                |                                              |  |  |  |  |  |  | 22      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 22      |               |              |          |       |
|                                                                                |                                              |  |  |  |  |  |  | 23      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 23      |               |              |          |       |
|                                                                                |                                              |  |  |  |  |  |  | 24      | <input type="checkbox"/> | <input type="checkbox"/> |         |           |               |              |          |                              | 24      |               |              |          |       |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

Station info also entered wrong

off, entered as wrong flask (10)

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Blue

| Cruise and Analysis Information                                                |                                | Nisk Int V S             | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                                   | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|--------------------------------|--------------------------|-----------|---------|-----------|---------------|--------------|--------------------------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013-57                        | <input type="checkbox"/> | 140       | 2061    | 195       | 7.1           | 1.534        |                                            | 1       |         |               |              |          |
| Event:                                                                         | LCO8-15                        | <input type="checkbox"/> | 141       | 471     | 176       | 7.2           | 1.541        | 5 tiny bubbles in sample                   | 2       |         |               |              |          |
| Station:                                                                       | LCO8                           | <input type="checkbox"/> | 142       | 2083    | 150       | 7.2           | 1.785        |                                            | 3       |         |               |              |          |
| Event Date (Local):                                                            | 20 Aug 2013                    | <input type="checkbox"/> | 143       | 622     | 126       | 7.5           | 2.551        |                                            | 4       |         |               |              |          |
| Analysis Date (Local):                                                         | 21 Aug 2013                    | <input type="checkbox"/> | 144       | 2092    | 100       | 7.3           | 2.961        |                                            | 5       |         |               |              |          |
| Analyst:                                                                       | Brianne Calkreweit             | <input type="checkbox"/> | 145       | 3135    | 71        | 7.9           | 2.882        |                                            | 6       |         |               |              |          |
| Stdization Date (Local):                                                       | 20 Aug 2013                    | <input type="checkbox"/> | 146       | 557     | 51        | 8.3           | 3.099        |                                            | 7       | 3164    | 8.5           | 3.143        |          |
| KIO <sub>3</sub> N:                                                            | 0.0095557                      | <input type="checkbox"/> | 147       | 371     | 31        | 9.8           | 3.719        | 1 bubble in sample, particle/fuzz on probe | 8       |         |               |              |          |
| Standard Titer:                                                                | 0.06987                        | <input type="checkbox"/> | 148       | 636     | 20        | 11.6          | 5.908        | particle/fuzz on probe 2 tiny bubble       | 9       |         |               |              |          |
| Blank Titer:                                                                   | 0.0037                         | <input type="checkbox"/> | 149       | 2007    | 5         | 15.9          | 6.348        |                                            | 10      |         |               |              |          |
| THIO N:                                                                        | 0.14162                        | <input type="checkbox"/> |           |         |           |               |              |                                            | 11      |         |               |              |          |
| Sample Flask Water Seal?                                                       | Yes                            | <input type="checkbox"/> |           |         |           |               |              |                                            | 12      |         |               |              |          |
|                                                                                | No                             | <input type="checkbox"/> |           |         |           |               |              |                                            | 13      |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | <input type="checkbox"/> |           |         |           |               |              |                                            | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | <input type="checkbox"/> |           |         |           |               |              |                                            | 15      |         |               |              |          |
|                                                                                | H <sub>2</sub> SO <sub>4</sub> | <input type="checkbox"/> |           |         |           |               |              |                                            | 16      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>               | <input type="checkbox"/> |           |         |           |               |              |                                            | 17      |         |               |              |          |
|                                                                                | THIO                           | <input type="checkbox"/> |           |         |           |               |              |                                            | 18      |         |               |              |          |
| Notes: shaken and water sealed at 23:00, 20 Aug, 2013                          |                                | <input type="checkbox"/> |           |         |           |               |              |                                            | 19      |         |               |              |          |
|                                                                                |                                | <input type="checkbox"/> |           |         |           |               |              |                                            | 20      |         |               |              |          |
|                                                                                |                                | <input type="checkbox"/> |           |         |           |               |              |                                            | 21      |         |               |              |          |
|                                                                                |                                | <input type="checkbox"/> |           |         |           |               |              |                                            | 22      |         |               |              |          |
|                                                                                |                                | <input type="checkbox"/> |           |         |           |               |              |                                            | 23      |         |               |              |          |
|                                                                                |                                | <input type="checkbox"/> |           |         |           |               |              |                                            | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Blue → White Green

| Cruise and Analysis Information                                                |                                         | Nisk Int V                          | Nisk Int S                          | Sample ID      | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                      | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments                                       |
|--------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------|-------------------------------------|----------------|---------|-----------|---------------|--------------|-------------------------------|---------|---------|---------------|--------------|------------------------------------------------|
| Cruise Number:                                                                 | 2013-S7                                 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 150            | 3067    | 87        | 7.0           | 1.310        | little dribble lower          | 1       | 7       | 12.1          | 7.814        | 2 tiny bubble in sample, some larger particles |
| Event:                                                                         | 17                                      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 151            | 2098    | 70        | 7.1           | 1.389        |                               | 2       |         |               |              |                                                |
| Station:                                                                       | L406                                    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 152            | 3098    | 50        | 7.5           | 2.838        |                               | 3       |         |               |              |                                                |
| Event Date (Local):                                                            | 20 Aug 2013                             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 153            | 3084    | 40        | 7.5           | 2.971        | little dribble                |         |         |               |              |                                                |
| Analysis Date (Local):                                                         | 20 21 Aug 2013                          | 5                                   | <input checked="" type="checkbox"/> | 154            | 3010    | 31        | 7.6           | 2.891        | some larger particles/zoop    | 5       |         |               |              |                                                |
| Analyst:                                                                       | Brianna Czekajewicz                     | 6                                   | <input checked="" type="checkbox"/> | 155            | 2084    | 20        | 8.5           | 3.167        |                               | 6       |         |               |              |                                                |
| Stdization Date (Local):                                                       | 20 Aug 2013                             | 7                                   | <input checked="" type="checkbox"/> | 156            | 2035    | 5         | 13.1          | 7.848        | 2 bubble in sample, some zoop | 7       | 2069    | 13.1          | 7.814        | some zoop                                      |
| KIO <sub>3</sub> N:                                                            | 0.0098557                               | 8                                   | <input checked="" type="checkbox"/> | <del>157</del> |         |           |               |              |                               |         |         |               |              |                                                |
| Standard Titer:                                                                | 0.06987                                 | 9                                   | <input checked="" type="checkbox"/> | <del>158</del> |         |           |               |              |                               | 9       |         |               |              |                                                |
| Blank Titer:                                                                   | 0.0037                                  | 10                                  | <input checked="" type="checkbox"/> | <del>159</del> |         |           |               |              |                               | 10      |         |               |              |                                                |
| THIO N:                                                                        | 0.14162                                 | 11                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 11      |         |               |              |                                                |
| Sample Flask                                                                   | <input checked="" type="checkbox"/> Yes | 12                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 12      |         |               |              |                                                |
| Water Seal?                                                                    | No                                      | 13                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 13      |         |               |              |                                                |
| Reagent Change?                                                                | MnCl <sub>2</sub>                       | 14                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 14      |         |               |              |                                                |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                                | 15                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 15      |         |               |              |                                                |
|                                                                                | H <sub>2</sub> SO <sub>4</sub>          | 16                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 16      |         |               |              |                                                |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>                        | 17                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 17      |         |               |              |                                                |
|                                                                                | THIO                                    | 18                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 18      |         |               |              |                                                |
| Notes:                                                                         | 3084 - 2035                             | 19                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 19      |         |               |              |                                                |
|                                                                                | station 1 water sorted                  | 20                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 20      |         |               |              |                                                |
|                                                                                | at 23:00, 20 Aug 2013                   | 21                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 21      |         |               |              |                                                |
|                                                                                | We didn't run until                     | 22                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 22      |         |               |              |                                                |
|                                                                                | UTC 1:20 21 Aug 2013                    | 23                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 23      |         |               |              |                                                |
|                                                                                |                                         | 24                                  | <input checked="" type="checkbox"/> |                |         |           |               |              |                               | 24      |         |               |              |                                                |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

BLUE

| Cruise and Analysis Information                                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                              | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments        |
|--------------------------------------------------------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|---------------------------------------|---------|---------|---------------|--------------|-----------------|
| Cruise Number: 2013-57                                                         |         | <input type="checkbox"/> <input type="checkbox"/> | 157       | 2027    | 623       | 6.0           | 0.344        | not sealed @ top, 3 bubbles in sample |         |         |               |              |                 |
| Event: 18                                                                      |         | <input type="checkbox"/> <input type="checkbox"/> | 158       | 657     | 223       | 7.3           | 1.397        | not sealed @ top, several bubbles     |         |         |               |              |                 |
| Station: R001                                                                  |         | <input type="checkbox"/> <input type="checkbox"/> | 159       | 3043    | 110       | 8.3           | 3.166        | not sealed @ top                      | 3       |         |               |              |                 |
| Event Date (Local): 21 Aug 2013                                                |         | <input type="checkbox"/> <input type="checkbox"/> | 160       | 3019    | 71        | 8.9           | 4.706        | not sealed @ top                      |         | 3118    | 8.9           | 4.713        | 2 small bubbles |
| Analysis Date (Local): 22 Aug 2013                                             | 5       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       |         |         |               |              |                 |
| Analyst: Brianna Celikewicz                                                    | 6       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 6       |         |               |              |                 |
| Stdization Date (Local): 22 Aug 2013                                           | 7       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       |         |         |               |              |                 |
| KIO <sub>3</sub> N: 0.0098557                                                  | 8       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 8       |         |               |              |                 |
| Standard Titer: 0.6975                                                         | 9       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 9       |         |               |              |                 |
| Blank Titer: 0.0037                                                            | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 10      |         |               |              |                 |
| THIO N: 0.14186                                                                | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 11      |         |               |              |                 |
| Sample Flask Water Seal? <input checked="" type="checkbox"/> Yes               | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 12      |         |               |              |                 |
|                                                                                | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       |         |         |               |              |                 |
| Reagent Change? MnCl <sub>2</sub>                                              | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 14      |         |               |              |                 |
| (Please circle reagent that was changed prior to sampling and standardization) | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 15      |         |               |              |                 |
| NaI/NaOH                                                                       | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 16      |         |               |              |                 |
| H <sub>2</sub> SO <sub>4</sub>                                                 | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 17      |         |               |              |                 |
| NOTE NEW BATCH IN LOG BOOK                                                     | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 18      |         |               |              |                 |
| KIO <sub>3</sub>                                                               | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 19      |         |               |              |                 |
| THIO                                                                           | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 20      |         |               |              |                 |
| Notes: Initial lab temp 25.1°C                                                 | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 21      |         |               |              |                 |
|                                                                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 22      |         |               |              |                 |
|                                                                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 23      |         |               |              |                 |
|                                                                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                       | 24      |         |               |              |                 |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Blue

| Cruise and Analysis Information                                                |  | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                 | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments           |
|--------------------------------------------------------------------------------|--|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|--------------------------|---------|---------|---------------|--------------|--------------------|
| Cruise Number: 2013-57                                                         |  | 1       | <input type="checkbox"/> <input type="checkbox"/> | 161       | 2064    | 340       | 6.7           | 1.196        | 2 tiny bubbles in sample | 1       |         |               |              |                    |
| Event: 19                                                                      |  | 2       | <input type="checkbox"/> <input type="checkbox"/> | 162       | 2099    | 247       | 6.9           | 1.392        | 2 tiny bubbles in sample |         |         |               |              |                    |
| Station: RDO2                                                                  |  | 3       | <input type="checkbox"/> <input type="checkbox"/> | 163       | 3119    | 143       | 7.5           | 2.765        |                          | 3       |         |               |              |                    |
| Event Date (Local): 21 Aug 2013                                                |  | 4       | <input type="checkbox"/> <input type="checkbox"/> | 164       | 2063    | 70        | 7.6           | 1.810        |                          | 4       | 2097    | 7.6           | 1.803        | 1 bubble in sample |
| Analysis Date (Local): 22 Aug 2013                                             |  | 5       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 5       |         |               |              |                    |
| Analyst: Bronna Cerkiewicz                                                     |  | 6       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 6       |         |               |              |                    |
| Stdization Date (Local): 22 Aug 2013                                           |  | 7       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 7       |         |               |              |                    |
| KIO <sub>3</sub> N: 0.0098557                                                  |  | 8       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 8       |         |               |              |                    |
| Standard Titer: 0.6975                                                         |  | 9       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 9       |         |               |              |                    |
| Blank Titer: 0.0037                                                            |  | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 10      |         |               |              |                    |
| THIO N: 0.14186                                                                |  | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 11      |         |               |              |                    |
| Sample Flask Water Seal? <input checked="" type="checkbox"/> Yes               |  | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 12      |         |               |              |                    |
|                                                                                |  | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 13      |         |               |              |                    |
| Reagent Change? MnCl <sub>2</sub>                                              |  | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 14      |         |               |              |                    |
| (Please circle reagent that was changed prior to sampling and standardization) |  | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          |         |         |               |              |                    |
|                                                                                |  | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 16      |         |               |              |                    |
| NOTE NEW BATCH IN LOG BOOK                                                     |  | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          |         |         |               |              |                    |
|                                                                                |  | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 18      |         |               |              |                    |
|                                                                                |  | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 19      |         |               |              |                    |
| Notes: Initial lab temp 20.1°C                                                 |  | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 20      |         |               |              |                    |
|                                                                                |  | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 21      |         |               |              |                    |
|                                                                                |  | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 22      |         |               |              |                    |
|                                                                                |  | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 23      |         |               |              |                    |
|                                                                                |  | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 24      |         |               |              |                    |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Blue

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                             | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|--------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|--------------------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013 - 57                      | 1       | <input type="checkbox"/> <input type="checkbox"/> | 165       | 2061    | 159       | 6.7           | 0.559        |                                      |         |         |               |              |          |
| Event:                                                                         | 20                             | 2       | <input type="checkbox"/> <input type="checkbox"/> | 166       | 477     | 113       | 6.8           | 0.898        | Flask 471 had no label sound in case |         |         |               |              |          |
| Station:                                                                       | MB 07                          | 3       | <input type="checkbox"/> <input type="checkbox"/> | 167       | 622     | 71        | 7.1           | 1.029        | 1 tiny bubble in sample              |         |         |               |              |          |
| Event Date (Local):                                                            | 12 Aug 2013                    | 4       | <input type="checkbox"/> <input type="checkbox"/> | 168       | 2092    | 36        | 8.1           | 2.339        |                                      |         |         |               |              |          |
| Analysis Date (Local):                                                         | 22 Aug 2013                    | 5       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| Analyst:                                                                       | Brianna Cerkevics              | 6       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| Stdization Date (Local):                                                       | 22 Aug 2013                    | 7       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| KIO <sub>3</sub> N:                                                            | 0.0098557                      | 8       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| Standard Titer:                                                                | 0.6975                         | 9       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| Blank Titer:                                                                   | 0.0037                         | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| THIO N:                                                                        | 0.14186                        | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| Sample Flask Water Seal?                                                       | Yes                            | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
|                                                                                | No                             | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
|                                                                                | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
| Notes:                                                                         | Initial lab temp               | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
|                                                                                | 20.46 °C                       | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
|                                                                                | 24.6                           | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      |         |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

BLUE

| Cruise and Analysis Information                                                                              | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|----------|---------|---------|---------------|--------------|----------|
| Cruise Number: 2013-57                                                                                       |         | <input type="checkbox"/> <input type="checkbox"/> | 169       | 3135    | 146       | 6.9           | 1.032        |          | 1       |         |               |              |          |
| Event: 21                                                                                                    |         | <input type="checkbox"/> <input type="checkbox"/> | 170       | 557     | 70        | 7.0           | 1.215        |          |         | 3164    | 6.9           | 1.225        |          |
| Station: MB08                                                                                                | 3       | <input type="checkbox"/> <input type="checkbox"/> | 171       | 371     | 40        | 7.3           | 1.622        |          | 3       |         |               |              |          |
| Event Date (Local): 22 Aug 2013                                                                              | 4       | <input type="checkbox"/> <input type="checkbox"/> | 172       | 638     | 30        | 7.8           | 2.012        |          | 4       |         |               |              |          |
| Analysis Date (Local): 22 Aug 2013                                                                           | 5       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 5       |         |               |              |          |
| Analyst: Brianne Celkiewicz                                                                                  | 6       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 6       |         |               |              |          |
| Stdization Date (Local): 22 Aug 2013                                                                         | 7       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 7       |         |               |              |          |
| KIO <sub>3</sub> N: 0.0098557                                                                                | 8       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 8       |         |               |              |          |
| Standard Titer: 0.6975                                                                                       | 9       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 9       |         |               |              |          |
| Blank Titer: 0.0037                                                                                          | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 10      |         |               |              |          |
| THIO N: 0.14186                                                                                              | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 11      |         |               |              |          |
| Sample Flask Water Seal? <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Yes</span> | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 12      |         |               |              |          |
| No                                                                                                           | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 13      |         |               |              |          |
| Reagent Change? MnCl <sub>2</sub>                                                                            | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization)                               | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 15      |         |               |              |          |
| NaI/NaOH                                                                                                     | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 16      |         |               |              |          |
| H <sub>2</sub> SO <sub>4</sub>                                                                               | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |         |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                                                   | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 18      |         |               |              |          |
| KIO <sub>3</sub>                                                                                             | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 19      |         |               |              |          |
| THIO                                                                                                         | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 20      |         |               |              |          |
| Notes:                                                                                                       | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 21      |         |               |              |          |
|                                                                                                              | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 22      |         |               |              |          |
|                                                                                                              | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 23      |         |               |              |          |
|                                                                                                              | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Green

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                               | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|--------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|----------------------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013-57                        |         | <input type="checkbox"/> <input type="checkbox"/> | 173       | 3084    | 175       | 7.2           | 1.548        | 1 small bubble, started dinner 1/2 way | 1       | 3010    | 7.2           | 1.439        |          |
| Event:                                                                         | 22                             |         | <input type="checkbox"/> <input type="checkbox"/> | 174       | 2084    | 100       | 7.3           | 1.734        |                                        | 2       |         |               |              |          |
| Station:                                                                       | MB14                           |         | <input type="checkbox"/> <input type="checkbox"/> | 175       | 2035    | 70        | 7.4           | 1.923        |                                        | 3       |         |               |              |          |
| Event Date (Local):                                                            | 22 Aug 2013                    |         | <input type="checkbox"/> <input type="checkbox"/> | 176       | 2069    | 30        | 7.7           | 2.557        |                                        | 4       |         |               |              |          |
| Analysis Date (Local):                                                         | 12 Aug 2013                    |         | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        |         |         |               |              |          |
| Analyst:                                                                       | Brianne Conkiewicz             |         | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 6       |         |               |              |          |
| Stdization Date (Local):                                                       | 22 Aug 2013                    |         | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 7       |         |               |              |          |
| KIO <sub>3</sub> N:                                                            | 0.009557                       | 8       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 8       |         |               |              |          |
| Standard Titer:                                                                | 0.6975                         | 9       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 9       |         |               |              |          |
| Blank Titer:                                                                   | 0.0037                         | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 10      |         |               |              |          |
| THIO N:                                                                        | 0.14186                        | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 11      |         |               |              |          |
| Sample Flask                                                                   | Yes                            | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 12      |         |               |              |          |
| Water Seal?                                                                    | No                             | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 13      |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 15      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 16      |         |               |              |          |
|                                                                                | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 17      |         |               |              |          |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 18      |         |               |              |          |
| Notes:                                                                         |                                | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 19      |         |               |              |          |
|                                                                                |                                | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 20      |         |               |              |          |
|                                                                                |                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 21      |         |               |              |          |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 22      |         |               |              |          |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 23      |         |               |              |          |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                        | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Green

| Cruise and Analysis Information                                                |                                         | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments      | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|-----------------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|---------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013-57                                 |         | <input type="checkbox"/> <input type="checkbox"/> | 180       | 396     | 230       | 7.2           | 1.396        | 1 tiny bubble |         |         |               |              |          |
| Event:                                                                         | 23                                      |         | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 2       |         |               |              |          |
| Station:                                                                       | RAD08                                   | 3       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 3       |         |               |              |          |
| Event Date (Local):                                                            | 22 Aug. 2013                            | 4       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 4       |         |               |              |          |
| Analysis Date (Local):                                                         | 23 Aug 2013                             | 5       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               |         |         |               |              |          |
| Analyst:                                                                       | Bronia Parkiewicz                       | 6       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 6       |         |               |              |          |
| Stdization Date (Local):                                                       | 22 Aug 2013                             | 7       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               |         |         |               |              |          |
| KIO <sub>3</sub> N:                                                            | 0.009557                                | 8       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 8       |         |               |              |          |
| Standard Titer:                                                                | 0.0975                                  | 9       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 9       |         |               |              |          |
| Blank Titer:                                                                   | 0.0037                                  | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 10      |         |               |              |          |
| THIO N:                                                                        | 0.14186                                 | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 11      |         |               |              |          |
| Sample Flask                                                                   | <input checked="" type="checkbox"/> Yes | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 12      |         |               |              |          |
| Water Seal?                                                                    | No                                      | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               |         |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>                       | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                                | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 15      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | H <sub>2</sub> SO <sub>4</sub>          | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 16      |         |               |              |          |
|                                                                                | KIO <sub>3</sub>                        | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 17      |         |               |              |          |
|                                                                                | THIO                                    | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 18      |         |               |              |          |
| Notes:                                                                         |                                         | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 19      |         |               |              |          |
|                                                                                |                                         | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 20      |         |               |              |          |
|                                                                                |                                         | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 21      |         |               |              |          |
|                                                                                |                                         | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 22      |         |               |              |          |
|                                                                                |                                         | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 23      |         |               |              |          |
|                                                                                |                                         | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |               | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Green

| Cruise and Analysis Information                                                |                                | Nisk Int V               | Nisk Int S               | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments           | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|--------------------------------|--------------------------|--------------------------|-----------|---------|-----------|---------------|--------------|--------------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013-53                        | <input type="checkbox"/> | <input type="checkbox"/> | 177       | 708     | 94        | 8.2           | 2.334        | 177                |         |         |               |              |          |
| Event:                                                                         | WBM 8A                         | <input type="checkbox"/> | <input type="checkbox"/> | 178       | 3104    | 75        | 8.6           | 2.917        |                    | 2       |         |               |              |          |
| Station:                                                                       | MB16                           | <input type="checkbox"/> | <input type="checkbox"/> | 179       | 3032    | 59        | 9.6           | 3.476        | 1 bubble in sample | 3       | 3034    | 9.6           | 3.474        |          |
| Event Date (Local):                                                            | 22 Aug 2013                    | <input type="checkbox"/> | <input type="checkbox"/> | 400       | 3020    | 34        | 9.8           | 3.682        | possible bubble    | 4       |         |               |              |          |
| Analysis Date (Local):                                                         | 22 Aug 2013                    | 5                        | <input type="checkbox"/> |           |         |           |               |              |                    | 5       |         |               |              |          |
| Analyst:                                                                       | Brianna Cerkiewicz             | 6                        | <input type="checkbox"/> |           |         |           |               |              |                    | 6       |         |               |              |          |
| Stdization Date (Local):                                                       | 22 Aug 2013                    | 7                        | <input type="checkbox"/> |           |         |           |               |              |                    | 7       |         |               |              |          |
| KIO <sub>3</sub> N:                                                            | 0.0098557                      | 8                        | <input type="checkbox"/> |           |         |           |               |              |                    | 8       |         |               |              |          |
| Standard Titer:                                                                | 0.0037 0.0975                  | 9                        | <input type="checkbox"/> |           |         |           |               |              |                    | 9       |         |               |              |          |
| Blank Titer:                                                                   | 0.14186 0.0037                 | 10                       | <input type="checkbox"/> |           |         |           |               |              |                    | 10      |         |               |              |          |
| THIO N:                                                                        | 0.14186                        | 11                       | <input type="checkbox"/> |           |         |           |               |              |                    | 11      |         |               |              |          |
| Sample Flask                                                                   | Yes                            | 12                       | <input type="checkbox"/> |           |         |           |               |              |                    |         |         |               |              |          |
| Water Seal?                                                                    | No                             | 13                       | <input type="checkbox"/> |           |         |           |               |              |                    | 13      |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14                       | <input type="checkbox"/> |           |         |           |               |              |                    | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15                       | <input type="checkbox"/> |           |         |           |               |              |                    | 15      |         |               |              |          |
|                                                                                | H <sub>2</sub> SO <sub>4</sub> | 16                       | <input type="checkbox"/> |           |         |           |               |              |                    | 16      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>               | 17                       | <input type="checkbox"/> |           |         |           |               |              |                    | 17      |         |               |              |          |
|                                                                                | THIO                           | 18                       | <input type="checkbox"/> |           |         |           |               |              |                    | 18      |         |               |              |          |
| Notes:                                                                         |                                | 19                       | <input type="checkbox"/> |           |         |           |               |              |                    | 19      |         |               |              |          |
| Initial lab temp 21.3°C                                                        |                                | 20                       | <input type="checkbox"/> |           |         |           |               |              |                    | 20      |         |               |              |          |
|                                                                                |                                | 21                       | <input type="checkbox"/> |           |         |           |               |              |                    | 21      |         |               |              |          |
|                                                                                |                                | 22                       | <input type="checkbox"/> |           |         |           |               |              |                    | 22      |         |               |              |          |
|                                                                                |                                | 23                       | <input type="checkbox"/> |           |         |           |               |              |                    | 23      |         |               |              |          |
|                                                                                |                                | 24                       | <input type="checkbox"/> |           |         |           |               |              |                    | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Last Updated: July 2013

Institute of Ocean Sciences  
Water Properties Group

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|--------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|-------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013-57                        |         | <input type="checkbox"/> <input type="checkbox"/> | 185       | 3007    | 207       | 7.4           | 1.514        | 1 tiny bubble           | 1       |         |               |              |          |
| Event:                                                                         | 25                             |         | <input type="checkbox"/> <input type="checkbox"/> | 186       | 552     | 160       | 7.3           | 1.588        | 1 tiny bubble           | 2       | 3022    | 7.3           | 1.594        |          |
| Station:                                                                       | LC05a                          |         | <input type="checkbox"/> <input type="checkbox"/> | 187       | 3014    | 100       | 7.4           | 1.846        | typed as 197 in AutoOXY | 3       |         |               |              |          |
| Event Date (Local):                                                            | 22 Aug 2013                    |         | <input type="checkbox"/> <input type="checkbox"/> | 188       | 2059    | 70        | 8.0           | 2.205        |                         | 4       |         |               |              |          |
| Analysis Date (Local):                                                         | 23 Aug 2013                    | 5       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 5       |         |               |              |          |
| Analyst:                                                                       | Brianna Cedeno                 | 6       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 6       |         |               |              |          |
| Stdization Date (Local):                                                       | 22 Aug 2013                    | 7       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 7       |         |               |              |          |
| KIO <sub>3</sub> N:                                                            | 0.0098557                      | 8       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 8       |         |               |              |          |
| Standard Titer:                                                                | 0.6975                         | 9       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 9       |         |               |              |          |
| Blank Titer:                                                                   | 0.0037                         | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 10      |         |               |              |          |
| THIO N:                                                                        | 0.14186                        | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 11      |         |               |              |          |
| Sample Flask Water Seal?                                                       | Yes                            | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         |         |         |               |              |          |
|                                                                                | No                             | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 13      |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 15      |         |               |              |          |
|                                                                                | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 16      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 17      |         |               |              |          |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 18      |         |               |              |          |
| Notes:                                                                         |                                | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 19      |         |               |              |          |
|                                                                                |                                | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 20      |         |               |              |          |
|                                                                                |                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 21      |         |               |              |          |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 22      |         |               |              |          |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         |         |         |               |              |          |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                         | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments                |
|--------------------------------------------------------------------------------|--------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|----------|---------|---------|---------------|--------------|-------------------------|
| Cruise Number:                                                                 | 2013-57                        |         | <input type="checkbox"/> <input type="checkbox"/> | 189       | 3023    | 193       | 7.1           | 1.348        |          | 1       | 3021    | 7.0           | 1.350        | 1 tiny bubble in sample |
| Event:                                                                         | 26                             |         | <input type="checkbox"/> <input type="checkbox"/> | 190       | 2036    | 150       | 7.3           | 2.301        |          | 2       |         |               |              |                         |
| Station:                                                                       | LC08                           |         | <input type="checkbox"/> <input type="checkbox"/> | 191       | 3028    | 92        | 8.7           | 2.985        | 8.1 °C   | 3       |         |               |              |                         |
| Event Date (Local):                                                            | 22 Aug 2013                    |         | <input type="checkbox"/> <input type="checkbox"/> | 192       | 3037    | 73        | 7.6           | 3.336        |          | 4       |         |               |              |                         |
| Analysis Date (Local):                                                         | 23 Aug 2013                    | 5       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 5       |         |               |              |                         |
| Analyst:                                                                       | Brianne Perlejewicz            | 6       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 6       |         |               |              |                         |
| Stdization Date (Local):                                                       | 22 Aug 2013                    | 7       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 7       |         |               |              |                         |
| KIO <sub>3</sub> N:                                                            | 0.009557                       | 8       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |         |         |               |              |                         |
| Standard Titer:                                                                | 0.6975                         | 9       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 9       |         |               |              |                         |
| Blank Titer:                                                                   | 0.0037                         | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |         |         |               |              |                         |
| THIO N:                                                                        | 0.14186                        | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 11      |         |               |              |                         |
| Sample Flask Water Seal?                                                       | Yes                            | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |         |         |               |              |                         |
|                                                                                | No                             | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 13      |         |               |              |                         |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 14      |         |               |              |                         |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 15      |         |               |              |                         |
|                                                                                | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 16      |         |               |              |                         |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 17      |         |               |              |                         |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 18      |         |               |              |                         |
| Notes:                                                                         |                                | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 19      |         |               |              |                         |
|                                                                                |                                | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 20      |         |               |              |                         |
|                                                                                |                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 21      |         |               |              |                         |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 22      |         |               |              |                         |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 23      |         |               |              |                         |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          | 24      |         |               |              |                         |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

White

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                    | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|--------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|-----------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013-57                        |         | <input type="checkbox"/> <input type="checkbox"/> | 193       | 2095    | 347       | 7.0           |              | bad sample - software crash |         |         |               |              |          |
| Event:                                                                         | 27                             | 2       | <input type="checkbox"/> <input type="checkbox"/> | 194       | 2089    | 320       | 6.9           | 1.476        |                             |         |         |               |              |          |
| Station:                                                                       | RD04                           | 3       | <input type="checkbox"/> <input type="checkbox"/> | 195       | 2087    | 250       | 6.9           | 1.511        |                             | 3       | 2080    | 7.1           | 1.516        |          |
| Event Date (Local):                                                            |                                | 4       | <input type="checkbox"/> <input type="checkbox"/> | 196       | 2091    | 201       | 7.1           | 1.550        |                             | 4       |         |               |              |          |
| Analysis Date (Local):                                                         |                                | 5       | <input type="checkbox"/> <input type="checkbox"/> | 197       | 3061    | 175       | 7.1           | 1.617        |                             | 5       |         |               |              |          |
| Analyst:                                                                       | Stue                           |         | <input type="checkbox"/> <input type="checkbox"/> | 198       | 3124    | 150       | 7.2           | 1.786        |                             | 6       |         |               |              |          |
| Stdization Date (Local):                                                       |                                | 7       | <input type="checkbox"/> <input type="checkbox"/> | 199       | 650     | 125       | 7.2           | 2.068        |                             | 7       |         |               |              |          |
| KIO <sub>3</sub> N:                                                            |                                | 8       | <input type="checkbox"/> <input type="checkbox"/> | 200       | 2000    | 101       | 7.3           | 2.252        |                             |         |         |               |              |          |
| Standard Titer:                                                                |                                | 9       | <input type="checkbox"/> <input type="checkbox"/> | 201       | 612     | 71        | 7.5           | 2.641        |                             | 9       |         |               |              |          |
| Blank Titer:                                                                   |                                | 10      | <input type="checkbox"/> <input type="checkbox"/> | 202       | 1059    | 60        | 7.6           | 2.680        |                             |         | 1035    | 7.7           | 2.659        |          |
| THIO N:                                                                        |                                | 11      | <input type="checkbox"/> <input type="checkbox"/> | 203       | 1002    | 50        | 7.7           | 2.587        | 2.587                       | 11      |         |               |              |          |
| Sample Flask Water Seal?                                                       | Yes                            | 12      | <input type="checkbox"/> <input type="checkbox"/> | 204       | 1055    | 30        | 8.1           | 2.357        |                             |         |         |               |              |          |
|                                                                                | No                             | 13      | <input type="checkbox"/> <input type="checkbox"/> | 205       | 3116    | 20        | 9.2           | 3.542        |                             | 13      |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14      | <input type="checkbox"/> <input type="checkbox"/> | 206       | 2047    | 5         | 12.3          | 6.126        |                             | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 15      |         |               |              |          |
|                                                                                | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 16      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 17      |         |               |              |          |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 18      |         |               |              |          |
| Notes:                                                                         |                                | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 19      |         |               |              |          |
|                                                                                |                                | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 20      |         |               |              |          |
|                                                                                |                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 21      |         |               |              |          |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 22      |         |               |              |          |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 23      |         |               |              |          |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                             | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Green

| Cruise and Analysis Information                                                |  | Nisk Int V               | S                        | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments              | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments          |
|--------------------------------------------------------------------------------|--|--------------------------|--------------------------|-----------|---------|-----------|---------------|--------------|-----------------------|---------|---------------|--------------|-------------------|
| Cruise Number: 2013-57                                                         |  | <input type="checkbox"/> | <input type="checkbox"/> | 207       | 3084    | 328       | 6.7           | 1.131        | ← 0.616 + 0.515 opps! | 1       |               |              | 0.125ml + 0.106ml |
| Event: 19                                                                      |  | <input type="checkbox"/> | <input type="checkbox"/> | 208       | 3010    | 307       | 6.7           | 1.231        |                       | 2       |               |              |                   |
| Station: RDO2                                                                  |  | <input type="checkbox"/> | <input type="checkbox"/> | 209       | 2084    | 245       | 6.9           | 1.455        |                       | 3       |               |              |                   |
| Event Date (Local): 23 Aug 2013                                                |  | <input type="checkbox"/> | <input type="checkbox"/> | 210       | 2035    | 210       | 7.0           | 1.472        |                       | 4       |               |              |                   |
| Analysis Date (Local):                                                         |  | 5                        | <input type="checkbox"/> | 211       | 2009    | 150       | 7.3           | 2.098        |                       |         |               |              |                   |
| Analyst:                                                                       |  | 6                        | <input type="checkbox"/> | 212       | 396     | 127       | 7.3           | 2.060        |                       | 6       |               |              |                   |
| Stdization Date (Local):                                                       |  | 7                        | <input type="checkbox"/> | 213       | 708     | 101       | 7.3           | 1.754        |                       | 3104    | 7.3           | 1.754        |                   |
| KIO <sub>3</sub> N:                                                            |  | 8                        | <input type="checkbox"/> | 214       | 3032    | 64        | 7.7           | 3.220        |                       | 8       |               |              |                   |
| Standard Titer:                                                                |  | 9                        | <input type="checkbox"/> | 215       | 3034    | 50        | 7.8           | 3.631        |                       | 9       |               |              |                   |
| Blank Titer:                                                                   |  | 10                       | <input type="checkbox"/> | 216       | 3020    | 31        | 8.3           | 3.833        |                       | 10      |               |              |                   |
| THIO N:                                                                        |  | 11                       | <input type="checkbox"/> | 217       | 3007    | 21        | 13.1          | 6.909        |                       | 11      |               |              |                   |
| Sample Flask Yes                                                               |  | 12                       | <input type="checkbox"/> | 218       | 552     | 6         | 14.9          | 6.709        |                       | 12      |               |              |                   |
| Water Seal? No                                                                 |  | 13                       | <input type="checkbox"/> |           |         |           |               |              |                       |         |               |              |                   |
| Reagent Change? MnCl <sub>2</sub>                                              |  | 14                       | <input type="checkbox"/> |           |         |           |               |              |                       | 14      |               |              |                   |
| (Please circle reagent that was changed prior to sampling and standardization) |  | 15                       | <input type="checkbox"/> |           |         |           |               |              |                       | 15      |               |              |                   |
| NaI/NaOH                                                                       |  | 16                       | <input type="checkbox"/> |           |         |           |               |              |                       | 16      |               |              |                   |
| H <sub>2</sub> SO <sub>4</sub>                                                 |  | 17                       | <input type="checkbox"/> |           |         |           |               |              |                       | 17      |               |              |                   |
| NOTE NEW BATCH IN LOG BOOK                                                     |  | 18                       | <input type="checkbox"/> |           |         |           |               |              |                       | 18      |               |              |                   |
| THIO                                                                           |  | 19                       | <input type="checkbox"/> |           |         |           |               |              |                       | 19      |               |              |                   |
| Notes:                                                                         |  | 20                       | <input type="checkbox"/> |           |         |           |               |              |                       | 20      |               |              |                   |
| 48 6.58                                                                        |  | 21                       | <input type="checkbox"/> |           |         |           |               |              |                       | 21      |               |              |                   |
| 125 15.04                                                                      |  | 22                       | <input type="checkbox"/> |           |         |           |               |              |                       | 22      |               |              |                   |
| 333m                                                                           |  | 23                       | <input type="checkbox"/> |           |         |           |               |              |                       | 23      |               |              |                   |
|                                                                                |  | 24                       | <input type="checkbox"/> |           |         |           |               |              |                       | 24      |               |              |                   |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'X' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

White 4° 47.58  
125 15.93 48.7932  
125.2654

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                                 | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments               | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|--------------------------------|---------|--------------------------------------------------------------|-----------|---------|-----------|---------------|--------------|------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013-57                        | 1       | <input type="checkbox"/> <input type="checkbox"/>            | 219       | 2045    | 105       | 7.9           | 2.290        |                        | 1       |         |               |              |          |
| Event:                                                                         | 32                             | 2       | <input type="checkbox"/> <input type="checkbox"/>            | 220       | 2049    | 84        | 8.0           | 2.523        |                        | 2       |         |               |              |          |
| Station:                                                                       | maib                           | 3       | <input type="checkbox"/> <input type="checkbox"/>            | 221       | 2052    | 70        | 8.4           | 2.892        |                        | 3       |         |               |              |          |
| Event Date (Local):                                                            | Aug 26                         | 4       | <input type="checkbox"/> <input type="checkbox"/>            | 222       | 2040    | 50        | 8.9           | 3.160        |                        | 4       | 2091    | 9.0           | 3.150        |          |
| Analysis Date (Local):                                                         | 27 Aug '13                     | 5       | <input type="checkbox"/> <input checked="" type="checkbox"/> | 223       | 3061    | 30        | 9.4           | 3.609        | Leaky O-ring           | 5       |         |               |              |          |
| Analyst:                                                                       | Steve                          | 6       | <input type="checkbox"/> <input type="checkbox"/>            | 224       | 3124    | 20        | 10.0          | 4.321        |                        | 6       |         |               |              |          |
| Stdization Date (Local):                                                       |                                | 7       | <input type="checkbox"/> <input type="checkbox"/>            | 225       | 650     | 10        | 11.8          | 7.340        |                        | 7       |         |               |              |          |
| KIO <sub>3</sub> N:                                                            |                                | 8       | <input type="checkbox"/> <input type="checkbox"/>            | 226       | 2000    | 5         | 12.0          | 6.945        | over 105% color/marker | 8       |         |               |              |          |
| Standard Titer:                                                                |                                | 9       | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 9       |         |               |              |          |
| Blank Titer:                                                                   |                                | 10      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 10      |         |               |              |          |
| THIO N:                                                                        | 0.14153                        | 11      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 11      |         |               |              |          |
| Sample Flask Water Seal?                                                       | Yes                            | 12      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 12      |         |               |              |          |
|                                                                                | No                             | 13      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 13      |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 15      |         |               |              |          |
|                                                                                | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 16      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 17      |         |               |              |          |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 18      |         |               |              |          |
| Notes:                                                                         |                                | 19      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 19      |         |               |              |          |
|                                                                                |                                | 20      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 20      |         |               |              |          |
|                                                                                |                                | 21      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 21      |         |               |              |          |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 22      |         |               |              |          |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 23      |         |               |              |          |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/>            |           |         |           |               |              |                        | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

white

| Cruise and Analysis Information                                                |                                |                                                   |           |         |           |               |              | Comments |                   | Cruise and Analysis Information |         |               |              |                                     |                      |  |  | Comments |  |
|--------------------------------------------------------------------------------|--------------------------------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|----------|-------------------|---------------------------------|---------|---------------|--------------|-------------------------------------|----------------------|--|--|----------|--|
|                                                                                | Nisk ID                        | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) |          |                   | Nisk ID                         | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) |                                     |                      |  |  |          |  |
| Cruise Number:                                                                 | 2013-57                        | <input type="checkbox"/> <input type="checkbox"/> | 227       | 612     | 191       | 7.1           | 1.395        | original | MnCl <sub>2</sub> | 1                               | 318     | 7.5           | 1.438        | regent - KIO <sub>3</sub> new batch | after carbon dioxide |  |  |          |  |
| Event:                                                                         | 33                             | <input type="checkbox"/> <input type="checkbox"/> | 228       | 1059    | 172       | 7.1           | 1.490        |          |                   | 2                               |         |               |              |                                     |                      |  |  |          |  |
| Station:                                                                       | Susan 01                       | <input type="checkbox"/> <input type="checkbox"/> | 229       | 1035    | 150       | 7.4           | 1.829        |          |                   | 3                               |         |               |              |                                     |                      |  |  |          |  |
| Event Date (Local):                                                            | 26 Aug 2013                    | <input type="checkbox"/> <input type="checkbox"/> | 230       | 1002    | 125       | 7.5           | 1.662        |          |                   | 4                               |         |               |              |                                     |                      |  |  |          |  |
| Analysis Date (Local):                                                         | 27 Aug '13                     | <input type="checkbox"/> <input type="checkbox"/> | 231       | 1055    | 100       | 7.6           | 1.906        |          |                   |                                 |         |               |              | dribble                             |                      |  |  |          |  |
| Analyst:                                                                       | Steve                          | <input type="checkbox"/> <input type="checkbox"/> | 232       | 3116    | 72        | 7.8           | 2.469        |          |                   | 6                               | 2047    | 7.8           | 2.466        |                                     |                      |  |  |          |  |
| Stdization Date (Local):                                                       |                                | <input type="checkbox"/> <input type="checkbox"/> | 233       | 94      | 60        | 8.3           | 2.860        |          |                   | 7                               |         |               |              |                                     |                      |  |  |          |  |
| KIO <sub>3</sub> N:                                                            | 0.14153                        | <input type="checkbox"/> <input type="checkbox"/> | 234       | 2060    | 51        | 8.5           | 3.009        |          |                   |                                 |         |               |              |                                     |                      |  |  |          |  |
| Standard Titer:                                                                |                                | <input type="checkbox"/> <input type="checkbox"/> | 235       | 520     | 30        | 8.9           | 3.078        |          |                   |                                 |         |               |              |                                     |                      |  |  |          |  |
| Blank Titer:                                                                   |                                | <input type="checkbox"/> <input type="checkbox"/> | 236       | 1015    | 20        | 10.1          | 4.283        |          |                   |                                 |         |               |              |                                     |                      |  |  |          |  |
| THIO N:                                                                        |                                | <input type="checkbox"/> <input type="checkbox"/> | 237       | 2062    | 11        | 10.5          | 5.319        |          |                   |                                 |         |               |              |                                     |                      |  |  |          |  |
| Sample Flask Water Seal?                                                       | Yes                            | <input type="checkbox"/> <input type="checkbox"/> | 238       | 3016    | 5         | 10.6          | 5.331        |          |                   |                                 |         |               |              |                                     |                      |  |  |          |  |
|                                                                                | No                             | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   |                                 |         |               |              |                                     |                      |  |  |          |  |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   |                                 |         |               |              |                                     |                      |  |  |          |  |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 15                              |         |               |              |                                     |                      |  |  |          |  |
|                                                                                | H <sub>2</sub> SO <sub>4</sub> | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 16                              |         |               |              |                                     |                      |  |  |          |  |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>               | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 17                              |         |               |              |                                     |                      |  |  |          |  |
|                                                                                | THIO                           | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 18                              |         |               |              |                                     |                      |  |  |          |  |
| Notes:                                                                         |                                | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 19                              |         |               |              |                                     |                      |  |  |          |  |
|                                                                                |                                | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 20                              |         |               |              |                                     |                      |  |  |          |  |
|                                                                                |                                | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 21                              |         |               |              |                                     |                      |  |  |          |  |
|                                                                                |                                | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 22                              |         |               |              |                                     |                      |  |  |          |  |
|                                                                                |                                | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 23                              |         |               |              |                                     |                      |  |  |          |  |
|                                                                                |                                | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |          |                   | 24                              |         |               |              |                                     |                      |  |  |          |  |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Green

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                           | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments   |
|--------------------------------------------------------------------------------|--------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|------------------------------------|---------|---------|---------------|--------------|------------|
| Cruise Number:                                                                 | 2013-57                        |         | <input type="checkbox"/> <input type="checkbox"/> | 239       | 3084    | 152       | 6.9           | 0.755        |                                    |         |         |               |              |            |
| Event:                                                                         | 34                             |         | <input type="checkbox"/> <input type="checkbox"/> | 240       | 3010    | 132       | 7.0           | 1.023        |                                    |         |         |               |              |            |
| Station:                                                                       | MB07                           |         | <input type="checkbox"/> <input type="checkbox"/> | 241       | 2084    | 102       | 6.9           | 1.048        |                                    |         |         |               |              |            |
| Event Date (Local):                                                            | 26 Aug 2013                    |         | <input type="checkbox"/> <input type="checkbox"/> | 242       | 2035    | 74        | 7.0           | 1.052        |                                    |         | 2069    | 7.0           | 1.049        |            |
| Analysis Date (Local):                                                         | 27 Aug 2013                    | 5       | <input type="checkbox"/> <input type="checkbox"/> | 243       | 2069    | 61        | 7.2           | 1.244        |                                    |         |         |               |              |            |
| Analyst:                                                                       | Steve                          | 6       | <input type="checkbox"/> <input type="checkbox"/> | 244       | 708     | 51        | 7.3           | 1.310        |                                    |         |         |               |              |            |
| Stdization Date (Local):                                                       |                                | 7       | <input type="checkbox"/> <input type="checkbox"/> | 245       | 3104    | 30        | 8.9           | 3.540        |                                    |         |         |               |              |            |
| KIO <sub>3</sub> N:                                                            |                                | 8       | <input type="checkbox"/> <input type="checkbox"/> | 246       | 3032    | 20        | 9.3           | 3.983        |                                    |         |         |               |              |            |
| Standard Titer:                                                                |                                | 9       | <input type="checkbox"/> <input type="checkbox"/> | 247       | 3034    | ?         | 10.8          | 5.045        | too wavy - don't know depth fired  |         |         |               |              | guess 10m? |
| Blank Titer:                                                                   |                                | 10      | <input type="checkbox"/> <input type="checkbox"/> | 248       | 3020    | ?         | 12.7          | 6.175        | too wavy - don't know depth fired. |         |         |               |              | guess 5m?  |
| THIO N:                                                                        |                                | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
| Sample Flask Water Seal?                                                       | (Yes) No                       | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
|                                                                                |                                | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
|                                                                                | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
| NOTE NEW BATCH IN LOG BOOK                                                     | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
| Notes:                                                                         |                                | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
|                                                                                |                                | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
|                                                                                |                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                    |         |         |               |              |            |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

48 28.31  
125 19.44  
162m  
27 P/S  
00.135

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

White

| Cruise and Analysis Information                                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                                      | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|-----------------------------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number: 2013-57                                                         |         | <input type="checkbox"/> <input type="checkbox"/> | 249       | 2095    | 133       | 7.3           | 1.780        | possible bubble in sample, particle           | 1       |         |               |              |          |
| Event: 35                                                                      |         | <input type="checkbox"/> <input type="checkbox"/> | 250       | 2089    | 120       | 7.4           | 2.166        | No label/Falls off, 3 small bubble            |         |         |               |              |          |
| Station: NNO1                                                                  |         | <input type="checkbox"/> <input type="checkbox"/> | 251       | 2088    | 100       | 7.7           | 2.953        | 1 bubble in sample                            | 3       |         |               |              |          |
| Event Date (Local): 27 Aug 2013                                                |         | <input type="checkbox"/> <input type="checkbox"/> | 252       | 2080    | 70        | 7.8           | 3.355        | 3 bubbles in sample                           | 4       |         |               |              |          |
| Analysis Date (Local): 27 Aug 2013                                             | 5       | <input type="checkbox"/> <input type="checkbox"/> | 253       | 2091    | 60        | 7.9           | 3.563        | 1 large bubble & a few smaller ones in sample | 5       |         |               |              |          |
| Analyst: Daria G. Czerwinski                                                   | 6       | <input type="checkbox"/> <input type="checkbox"/> | 254       | 2061    | 50        | 7.8           | 4.175        | 1 bubble in sample                            | 6       | 3124    | 7.9           | 4.171        |          |
| Stdization Date (Local): 17 Aug 2013                                           | 7       | <input type="checkbox"/> <input type="checkbox"/> | 255       | 650     | 30        | 8.0           | 3.514        | particle                                      | 7       |         |               |              |          |
| KIO <sub>3</sub> N: 0.0098557                                                  | 8       | <input type="checkbox"/> <input type="checkbox"/> | 256       | 2000    | 20        | 8.5           | 3.473        |                                               | 8       |         |               |              |          |
| Standard Titer: 0.6967                                                         | 9       | <input type="checkbox"/> <input type="checkbox"/> | 257       | 612     | 5         | 14.0          | 6.302        |                                               | 9       |         |               |              |          |
| Blank Titer: 0.0013                                                            | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 10      |         |               |              |          |
| THIO N: 0.14153                                                                | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 11      |         |               |              |          |
| Sample Flask Water Seal? <input checked="" type="checkbox"/> Yes               | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 12      |         |               |              |          |
| No                                                                             | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 13      |         |               |              |          |
| Reagent Change? MnCl <sub>2</sub>                                              | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 15      |         |               |              |          |
| NaI/NaOH                                                                       | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 16      |         |               |              |          |
| H <sub>2</sub> SO <sub>4</sub>                                                 | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 17      |         |               |              |          |
| KIO <sub>3</sub>                                                               | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 18      |         |               |              |          |
| THIO                                                                           | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 19      |         |               |              |          |
| Notes:                                                                         | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 20      |         |               |              |          |
|                                                                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 21      |         |               |              |          |
|                                                                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 22      |         |               |              |          |
|                                                                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 23      |         |               |              |          |
|                                                                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                               | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                   | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|--------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|----------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number:                                                                 | 2013-57                        |         | <input type="checkbox"/> <input type="checkbox"/> | 258       | 1059    | 129       | 7.1           | 0.762        | several bubbles in sample  | 1       |         |               |              |          |
| Event:                                                                         | 36                             |         | <input type="checkbox"/> <input type="checkbox"/> | 259       | 3109    | 108       | 7.1           | 1.181        | several bubbles, one large | 2       | 1035    | 7.1           | 1.114        | 1 bubble |
| Station:                                                                       | NNO2                           | 3       | <input type="checkbox"/> <input type="checkbox"/> | 260       | 1002    | 100       | 7.4           | 2.008        | 1 bubble                   | 3       |         |               |              |          |
| Event Date (Local):                                                            | 27 Aug 2013                    | 4       | <input type="checkbox"/> <input type="checkbox"/> | 261       | 1055    | 70        | 7.7           | 2.171        | 2 bubbles                  | 4       |         |               |              |          |
| Analysis Date (Local):                                                         | 27 Aug 2013                    | 5       | <input type="checkbox"/> <input type="checkbox"/> | 262       | 3116    | 60        | 7.7           | 3.361        | several large bubbles      | 5       |         |               |              |          |
| Analyst:                                                                       | Brianne Cerkiewicz             | 6       | <input type="checkbox"/> <input type="checkbox"/> | 263       | 2047    | 50        | 7.7           | 3.064        |                            | 6       |         |               |              |          |
| Stdization Date (Local):                                                       | 27 Aug 2013                    | 7       | <input type="checkbox"/> <input type="checkbox"/> | 264       | 914     | 30        | 8.0           | 2.709        |                            | 7       |         |               |              |          |
| KIO <sub>3</sub> N:                                                            | 0.0098557                      | 8       | <input type="checkbox"/> <input type="checkbox"/> | 265       | 2060    | 20        | 9.4           | 3.796        |                            | 8       |         |               |              |          |
| Standard Titer:                                                                | 0.6967                         | 9       | <input type="checkbox"/> <input type="checkbox"/> | 266       | 570     | 5         | 13.3          | 6.353        | some particles/zoop        | 9       |         |               |              |          |
| Blank Titer:                                                                   | 0.0013                         | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 10      |         |               |              |          |
| THIO N:                                                                        | 0.14153                        | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 11      |         |               |              |          |
| Sample Flask                                                                   | Yes                            | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 12      |         |               |              |          |
| Water Seal?                                                                    | No                             | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 13      |         |               |              |          |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 15      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 16      |         |               |              |          |
|                                                                                | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            |         |         |               |              |          |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 18      |         |               |              |          |
| Notes: Boat is rocky                                                           |                                | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 19      |         |               |              |          |
|                                                                                |                                | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 20      |         |               |              |          |
|                                                                                |                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 21      |         |               |              |          |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 22      |         |               |              |          |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 23      |         |               |              |          |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                            | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

White & Green

| Cruise and Analysis Information                                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                 | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments |
|--------------------------------------------------------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|--------------------------|---------|---------|---------------|--------------|----------|
| Cruise Number: 2013-57                                                         |         | <input type="checkbox"/> <input type="checkbox"/> | 267       | 1015    | 113       | 7.1           | 1.220        |                          | 1       |         |               |              |          |
| Event: 37                                                                      |         | <input type="checkbox"/> <input type="checkbox"/> | 267       | 2082    | 82        | 7.2           | 1.678        |                          | 2       | 3016    | 7.3           | 1.672        |          |
| Station: NND3                                                                  |         | <input type="checkbox"/> <input type="checkbox"/> | 269       | 2094    | 68        | 7.3           | 1.267        |                          | 3       | 2094    |               |              |          |
| Event Date (Local): 27 Aug 2013                                                |         | <input type="checkbox"/> <input type="checkbox"/> | 270       | 2084    | 60        | 7.4           | 1.617        | some particles/zoop      | 4       |         |               |              |          |
| Analysis Date (Local): 27 Aug 2013                                             | 5       | <input type="checkbox"/> <input type="checkbox"/> | 271       | 3010    | 51        | 7.5           | 1.756        |                          | 5       |         |               |              |          |
| Analyst: Brianna Czerwinski                                                    | 6       | <input type="checkbox"/> <input type="checkbox"/> | 272       | 2084    | 30        | 7.6           | 2.244        |                          | 6       |         |               |              |          |
| Stdization Date (Local): 27 Aug 2013                                           | 7       | <input type="checkbox"/> <input type="checkbox"/> | 273       | 2085    | 20        | 7.9           | 2.394        | 7 bubble in sample       | 7       |         |               |              |          |
| KIO <sub>3</sub> N: 0.009855 T                                                 | 8       | <input type="checkbox"/> <input type="checkbox"/> | 274       | 2086    | 5         | 11.0          | 4.903        | 7 tiny bubble, some zoop | 8       |         |               |              |          |
| Standard Titer: 0.6967                                                         | 9       | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 9       |         |               |              |          |
| Blank Titer: 0.6013                                                            | 10      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 10      |         |               |              |          |
| THIO N: 0.14153                                                                | 11      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 11      |         |               |              |          |
| Sample Flask                                                                   | 12      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 12      |         |               |              |          |
| Water Seal? No                                                                 | 13      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 13      |         |               |              |          |
| Reagent Change? MnCl <sub>2</sub>                                              | 14      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 14      |         |               |              |          |
| (Please circle reagent that was changed prior to sampling and standardization) | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 15      |         |               |              |          |
| NaI/NaOH                                                                       | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 16      |         |               |              |          |
| H <sub>2</sub> SO <sub>4</sub>                                                 | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 17      |         |               |              |          |
| NOTE NEW BATCH IN LOG BOOK                                                     | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 18      |         |               |              |          |
| THIO                                                                           | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 19      |         |               |              |          |
| Notes: Boat rocky                                                              | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 20      |         |               |              |          |
|                                                                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 21      |         |               |              |          |
|                                                                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 22      |         |               |              |          |
|                                                                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 23      |         |               |              |          |
|                                                                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                          | 24      |         |               |              |          |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Last Updated: July 2013

Green

| Cruise and Analysis Information                                                |                                | Nisk<br>V                | Int<br>S                 | Sample<br>ID             | Flask 1 | Depth<br>(m) | Draw T 1<br>(°C) | OXY 1<br>(mL/L) | Comments             | Nisk<br>ID                    | Flask 2 | Draw T 2<br>(°C) | OXY 2<br>(mL/L) | Comments  |
|--------------------------------------------------------------------------------|--------------------------------|--------------------------|--------------------------|--------------------------|---------|--------------|------------------|-----------------|----------------------|-------------------------------|---------|------------------|-----------------|-----------|
| Cruise Number:                                                                 | 2013-57                        | <input type="checkbox"/> | <input type="checkbox"/> | 275                      | 296     | 202          | 7.0              | 0.973           |                      |                               | 708     | 7.0              | 0.952           | 2 bubbles |
| Event:                                                                         | 275-285 38                     | <input type="checkbox"/> | <input type="checkbox"/> | 276                      | 3104    | 172          | 7.0              | 0.990           | several tiny bubbles |                               |         |                  |                 |           |
| Station:                                                                       | TC01                           | <input type="checkbox"/> | <input type="checkbox"/> | 277                      | 3032    | 150          | 7.1              | 1.415           | 2 tiny bubble        |                               |         |                  |                 |           |
| Event Date (Local):                                                            | 27 Aug 13                      | <input type="checkbox"/> | <input type="checkbox"/> | 278                      | 3034    | 125          | 7.1              | 1.527           |                      |                               |         |                  |                 |           |
| Analysis Date (Local):                                                         | 27 Aug 13                      | <input type="checkbox"/> | <input type="checkbox"/> | 279                      | 3020    | 91           | 7.3              | 1.677           |                      |                               |         |                  |                 |           |
| Analyst:                                                                       | Brian Cerkwicz                 | 6                        | <input type="checkbox"/> | <input type="checkbox"/> | 280     | 3007         | 73               | 7.4             | 1.608                |                               |         |                  |                 |           |
| Stdization Date (Local):                                                       | 27 Aug 13                      | 7                        | <input type="checkbox"/> | <input type="checkbox"/> | 281     | 552          | 60               | 7.5             | 2.075                |                               |         |                  |                 |           |
| KIO <sub>3</sub> N:                                                            | 0.0098557                      | 8                        | <input type="checkbox"/> | <input type="checkbox"/> | 282     | 3022         | 50               | 7.6             | 2.282                |                               |         |                  |                 |           |
| Standard Titer:                                                                | 0.6967                         | 9                        | <input type="checkbox"/> | <input type="checkbox"/> | 283     | 3014         | 31               | 8.0             | 3.005                | 1 tiny bubble, some particles |         |                  |                 |           |
| Blank Titer:                                                                   | 0.0013                         | 10                       | <input type="checkbox"/> | <input type="checkbox"/> | 284     | 2059         | 20               | 8.9             | 3.519                | some air                      |         |                  |                 | Tiny drip |
| THIO N:                                                                        | 0.14153                        | 11                       | <input type="checkbox"/> | <input type="checkbox"/> | 285     | 3023         | 6                | 14.5            | 6.406                |                               |         |                  |                 |           |
| Sample Flask                                                                   | Yes                            | 12                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
| Water Seal?                                                                    | No                             | 13                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
| NOTE NEW BATCH IN LOG BOOK                                                     | H <sub>2</sub> SO <sub>4</sub> | 16                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
|                                                                                | KIO <sub>3</sub>               | 17                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
|                                                                                | THIO                           | 18                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
| Notes:                                                                         | Boat rocking during analysis   | 19                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
|                                                                                |                                | 20                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
|                                                                                |                                | 21                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
|                                                                                |                                | 22                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
|                                                                                |                                | 23                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |
|                                                                                |                                | 24                       | <input type="checkbox"/> | <input type="checkbox"/> |         |              |                  |                 |                      |                               |         |                  |                 |           |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'X' in the appropriate column if either fails the integrity check and explain this in the comments column.

# Dissolved Oxygen Analysis Log Sheet

Institute of Ocean Sciences  
Water Properties Group

Green

496 25.22 19.44  
124 50.07 30 Aug 2013

Last Updated: July 2013

| Cruise and Analysis Information                                                |                                | Nisk ID | Nisk Int V S                                      | Sample ID | Flask 1 | Depth (m) | Draw T 1 (°C) | OXY 1 (mL/L) | Comments                             | Nisk ID | Flask 2 | Draw T 2 (°C) | OXY 2 (mL/L) | Comments         |
|--------------------------------------------------------------------------------|--------------------------------|---------|---------------------------------------------------|-----------|---------|-----------|---------------|--------------|--------------------------------------|---------|---------|---------------|--------------|------------------|
| Cruise Number:                                                                 | 2013-57                        |         | <input type="checkbox"/> <input type="checkbox"/> | 287       | 3084    | 310       | 7.3           | 1.460        | 4 bubbles in sample, weird curve     | 1       |         |               |              |                  |
| Event:                                                                         | 39                             |         | <input type="checkbox"/> <input type="checkbox"/> | 288       | 3010    | 287       | 7.3           | 1.455        | possible bubble in sample, low line  | 2       |         |               |              | transmissibility |
| Station:                                                                       | RDO5                           |         | <input type="checkbox"/> <input type="checkbox"/> | 289       | 2084    | 250       | 7.3           | 1.624        | 2 bubbles in sample, particles       | 3       |         |               |              |                  |
| Event Date (Local):                                                            | Aug 30                         |         | <input type="checkbox"/> <input type="checkbox"/> | 290       | 2035    | 200       | 7.7           | 1.511        | several bubbles in sample            | 4       |         |               |              |                  |
| Analysis Date (Local):                                                         | 30 Aug 2013                    | 5       | <input type="checkbox"/> <input type="checkbox"/> | 291       | 2069    | 176       | 7.6           | 1.416        | several bubbles in sample, particles |         |         |               |              |                  |
| Analyst:                                                                       | Brianne Czerwicz               | 6       | <input type="checkbox"/> <input type="checkbox"/> | 292       | 396     | 150       | 7.7           | 1.429        | 3 bubbles in sample, particles       | 6       |         |               |              |                  |
| Stdization Date (Local):                                                       | 30 Aug 2013                    | 7       | <input type="checkbox"/> <input type="checkbox"/> | 293       | 706     | 125       | 7.8           | 1.748        | 2 bubbles                            |         |         |               |              |                  |
| KIO <sub>3</sub> N:                                                            | 0.0008557                      | 8       | <input type="checkbox"/> <input type="checkbox"/> | 294       | 3104    | 100       | 7.9           | 1.984        | several bubbles                      | 8       |         |               |              |                  |
| Standard Titer:                                                                | 0.6977                         | 9       | <input type="checkbox"/> <input type="checkbox"/> | 295       | 3032    | 70        | 8.5           | 2.264        | 3 bubbles                            | 9       |         |               |              |                  |
| Blank Titer:                                                                   | 0.0013                         | 10      | <input type="checkbox"/> <input type="checkbox"/> | 296       | 3034    | 60        | 9.5           | 2.758        | 2 bubbles                            | 10      | 3020    | 9.7           | 2.787        |                  |
| THIO N:                                                                        | 0.14133                        | 11      | <input type="checkbox"/> <input type="checkbox"/> | 297       | 3057    | 50        | 11.2          | 2.529        | Large bubble                         | 11      |         |               |              |                  |
| Sample Flask Water Seal?                                                       | Yes                            | 12      | <input type="checkbox"/> <input type="checkbox"/> | 298       | 552     | 30        | 12.5          | 5.508        | 1 bubble, lots of soap               | 12      |         |               |              |                  |
|                                                                                | No                             | 13      | <input type="checkbox"/> <input type="checkbox"/> | 299       | 3022    | 20        | 13.8          | 5.828        |                                      |         |         |               |              |                  |
| Reagent Change?                                                                | MnCl <sub>2</sub>              | 14      | <input type="checkbox"/> <input type="checkbox"/> | 300       | 3014    | 5         | 15.0          | 6.038        |                                      | 14      |         |               |              |                  |
| (Please circle reagent that was changed prior to sampling and standardization) | NaI/NaOH                       | 15      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 15      |         |               |              |                  |
| NOTE NEW BATCH IN LOG BOOK                                                     | H <sub>2</sub> SO <sub>4</sub> | 16      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 16      |         |               |              |                  |
|                                                                                | KIO <sub>3</sub>               | 17      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 17      |         |               |              |                  |
|                                                                                | THIO                           | 18      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 18      |         |               |              |                  |
| Notes:                                                                         |                                | 19      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 19      |         |               |              |                  |
|                                                                                |                                | 20      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 20      |         |               |              |                  |
|                                                                                |                                | 21      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 21      |         |               |              |                  |
|                                                                                |                                | 22      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 22      |         |               |              |                  |
|                                                                                |                                | 23      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 23      |         |               |              |                  |
|                                                                                |                                | 24      | <input type="checkbox"/> <input type="checkbox"/> |           |         |           |               |              |                                      | 24      |         |               |              |                  |

Bottle integrity: First test the top vent (V) by opening the lower spigot (S) then test the spigot by opening the vent. Mark 'x' in the appropriate column if either fails the integrity check and explain this in the comments column.