

# DAILY SCIENCE LOG BOOK

MISSION  
NUMBER

2013-~~4~~43

DATE:

From: 26 JUNE 2013

to: 21 JULY 2013

VESSEL:

W.E. RICKER

PROJECT(S):

Salmon Marine Interactions  
Book 1 of 2

Water Properties Group  
Fisheries and Oceans Canada  
Institute of Ocean Sciences  
Ocean Sciences Division  
North Saanich, BC, Canada

[WaterProperties.ca](http://WaterProperties.ca)

Captain: Brian Pennell  
 Second Officer: Ryan Andersen  
 Fishing Master: Brian West  
 First Officer: Nicola Muncey  
 Third Officer: \_\_\_\_\_

Mission Participants / Agencies: DFO, CFIA, NOAA, Uvic

**Scientific Personnel:** Chrys Neville

| Name                          | Cabin |
|-------------------------------|-------|
| Brian Recalma                 |       |
| Stephen Phillips-Uvic         |       |
| Lindsay Patterson } Lab       |       |
| Darcey }                      |       |
| Nic Dedeluk - CFIA            |       |
| Carol Copper                  |       |
| Mary Thiess                   |       |
| Meredith Journey - NOAA       |       |
| Lisa Thompson L-Patterson Lab |       |

Second leg of Mission: Chief Scientist: Rusty Sweeting

[illegible]

Data logging computer: PAC 0250

Data logging computer: PAC 0250  
 Data acquisition program: SEASAVE  
 CTD deck unit make: SBF model: 114 serial number: 0424

## Primary CTD

Make: SBE model: 9+ serial number: 506

Primary temperature serial number: 2106

Primary conductivity serial number: 1764

Secondary temperature serial number: 2663

Secondary conductivity serial number: 2424

Transmissometer:

Fluorometer: Model Wet Labs Eco Cable gain: 13 s/n: 2215 P, S or NO pump? P

Oxygen sensor: SBE Model: 43 s/n: 1438 P, S or NO pump? P

PAR sensor: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_

Other sensors: PH 3BE18 s/n: 0852 P, S or NO pump?

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump? \_\_\_\_\_

Other sensors: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump? \_\_\_\_\_

## Secondary CTD

|       |        |                |
|-------|--------|----------------|
| Make: | model: | serial number: |
|-------|--------|----------------|

**Primary temperature serial number:**

Primary conductivity serial number:

Secondary temperature serial number:

Secondary conductivity serial number:

| Transmissometer: | Model: |
|------------------|--------|
|                  |        |

|                    |             |
|--------------------|-------------|
| Fluorometer: Model | Cable gain: |
|--------------------|-------------|

Oxygen sensor: \_\_\_\_\_ Model: \_\_\_\_\_

PAR sensor: \_\_\_\_\_ Model: \_\_\_\_\_

Other sensors:

Other sensors:

Other sensors:

Other sensors:

CTD calibration bottle location (height above CTD in metres):



# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month JUNE |              |            |           | Year 2013 |               |              | Ship W.E. RICKER       |            |              |           | Cruise ID 2013-43 |              |               |                |                                                  |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|------------|--------------|-----------|-------------------|--------------|---------------|----------------|--------------------------------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |            | Bottom Depth | Max Depth | Sample Numbers    | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                                         |
|            |              |            |           |           |               |              | Latitude               | Longitude  |              |           |                   |              |               |                |                                                  |
| 26         | 1            | 1335       | BE        | SET       |               | 001          | 48°52.598              | 123°13.919 | 214          |           |                   |              |               |                | SURFACE                                          |
| 26         | 2            | 1522       | BE        | SET       |               | 002          | 48°54.60               | 123°19.61  | 145          |           |                   |              |               |                | SURFACE                                          |
| 26         | GS01         | 1622       | BE        | CTD       |               | 003          | 48°56.13               | 123°24.01  | 135          |           |                   | 1            | MT            | ✓              | BOT @ 10 m<br>NUTS, CHL & SAL<br>T: 11.8 S: 26.2 |
|            |              | 1625       | BO        |           |               |              | 48°56.15               | 123°23.98  |              | 130       |                   |              |               |                |                                                  |
|            |              | 1628       | EN        |           |               |              | 48°56.20               | 123°23.92  |              |           |                   |              |               |                |                                                  |
| 26         | GS01         | 1638       | BE        | NET       |               | 004          | 48°56.18               | 123°23.87  | 166          | 150       |                   |              |               |                | BONGO                                            |
| 26         | 3            | 1713       | BE        | SET       |               | 005          | 48°57.83               | 123°26.96  | 136          |           |                   |              |               |                | 30m HEAD DEPTH                                   |
| 26         | 4            | 1811       | BE        | SET       |               | 006          | 49°00.42               | 123°31.27  | 149          |           |                   |              |               |                | SURFACE                                          |
| 26         | 5            | 1941       | BE        | SET       |               | 007          | 49°04.14               | 123°34.17  | 202          |           |                   |              |               |                | 15m                                              |
| 26         | 6            | 2045       | BE        | SET       |               | 008          | 49°06.12               | 123°37.17  | 184          |           |                   |              |               |                | SURFACE                                          |

## Cast Type:

BOT = Bottle cast, no CTD  
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ROS = Rosette plus CTD  
SET = Fish Set

USW = Sea Water Loop

MOR = Mooring  
NET = Plankton Net Haul  
DRF = Drifter

## Bottle Firing Method:

US = Up / Stop  
UN = Up / No stop  
DN = Down / No stop

Notes:

## Time Code:

BE = Beginning Time of Cast  
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Transmissometer to be cleaned before each cast, do not use Ammonia products

Produced by the Water Properties Group, IOS

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Version: 16 April 2010

T/S measurements taken from real-time display just prior to start of downcast.

Fish sets are numbered consecutively and independent of bongos/CTDs. (i.e. Station Name)  
Bongos/CTDs follow High Seas Salmon station naming convention.

No transmissometer, "TRANS. CLEANED" column indicates if fluorometer was cleaned prior to each cast.

GS01: CTD paused for ~30 sec @ ~60m due to inboard lead on CTD wire

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| Month JUNE |              |            |           | Year 2013 |               |              | Ship W.E. RICKER       |            |              |           | Cruise ID 2013-43 |              |               |                |                            |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|------------|--------------|-----------|-------------------|--------------|---------------|----------------|----------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |            | Bottom Depth | Max Depth | Sample Numbers    | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                   |
|            |              |            |           |           |               |              | Latitude               | Longitude  |              |           |                   |              |               |                |                            |
| 26         | GS02         | 2138       | BE        | CTD       |               | 009          | 49°10.26               | 123°36.61  | 252          |           |                   | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 2142       | BO        |           |               |              | 49°10.32               | 123°36.54  |              | 240       |                   |              |               |                | T:13.9 S:21.0              |
|            |              | 2147       | EN        |           |               |              | 49°10.35               | 123°36.53  |              |           |                   |              |               |                |                            |
| 26         | GS02         | 2151       | BE        | NET       |               | 010          | 49°10.38               | 123°36.56  | 285          | 150       |                   |              |               |                | BONGO                      |
| 26         | 7            | 2218       |           | SET       |               | 011          | 49°04.38               | 123°34.59  | 300          |           |                   |              |               |                | 45m HEAD DEPTH             |
| 26         | 8            | 2321       | BE        | SET       |               | 012          | 49°08.469              | 123°28.921 | 320          |           |                   |              |               |                | SURFACE                    |
| 27         | GS03         | 0037       | BE        | CTD       |               | 013          | 49°08.16               | 123°25.94  | 268          |           |                   | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 0042       | BO        |           |               |              | 49°08.16               | 123°25.96  |              | 250       |                   |              |               |                | T:14.1 S:23.8              |
|            |              | 0047       | EN        |           |               |              | 49°08.16               | 123°25.95  |              |           |                   |              |               |                |                            |
| 27         | GS03         | 0051       | BE        | NET       |               | 014          | 49°08.259              | 123°25.94  | 271          | 150       |                   |              |               |                | BONGO                      |
| END OF DAY |              |            |           |           |               |              |                        |            |              |           |                   |              |               |                |                            |
|            |              |            |           |           |               |              |                        |            |              |           |                   |              |               |                |                            |
|            |              |            |           |           |               |              |                        |            |              |           |                   |              |               |                |                            |
|            |              |            |           |           |               |              |                        |            |              |           |                   |              |               |                |                            |

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=

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| Month JUNE |              |            |           | Year 2013 |               |              |                        | Ship W.E. RICKER |              |           |                | Cruise ID 2013-43 |               |                |                                             |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|------------------|--------------|-----------|----------------|-------------------|---------------|----------------|---------------------------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |                  | Bottom Depth | Max Depth | Sample Numbers | # of Bottles      | Watch Keepers | Trans. Cleaned | Comments                                    |
|            |              |            |           |           |               |              | Latitude               | Longitude        |              |           |                |                   |               |                |                                             |
| 27         | 9            | 1322       | BE        | SET       |               | 015          | 49°08.35               | 123°19.14        | 109          |           |                |                   |               |                | SURFACE                                     |
| 27         | GS04         | 1415       | BE        | CTD       |               | 016          | 49°11.24               | 123°18.23        | 92           |           |                | 1                 | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL<br>T:13.6 S:20.2 |
|            |              | 1417       | BO        |           |               |              | 49°11.23               | 123°18.22        |              | 85        |                |                   |               |                |                                             |
|            |              | 1419       | EN        |           |               |              | 49°11.23               | 123°18.23        |              |           |                |                   |               |                |                                             |
| 27         | GS04         | 1424       | BE        | NET       |               | 017          | 49°11.22               | 123°18.23        | 91           | 80        |                |                   |               |                | BONGO                                       |
| 27         | 10           | 1445       | BE        | SET       |               | 018          | 49°11.94               | 123°18.40        | 105          |           |                |                   |               |                | 15m                                         |
| 27         | 11           | 1603       | BE        | SET       |               | 019          | 49°19.55               | 123°20.05        | 106          |           |                |                   |               |                | SURFACE                                     |
| 27         | 12           | 1700       | BE        | SET       |               | 020          | 49°25.5                | 123°17.62        | 233          |           |                |                   |               |                | 15m                                         |
| 27         | GS05         | 1752       | BE        | CTD       |               | 021          | 49°25.65               | 123°18.22        | 245          |           |                | 1                 | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL<br>T:15.5 S:8.6  |
|            |              | 1756       | BO        |           |               |              | 49°25.65               | 123°18.25        |              | 240       |                |                   |               |                |                                             |
|            |              | 1801       | EN        |           |               |              | 49°25.64               | 123°18.27        |              |           |                |                   |               |                |                                             |
| 27         | GS05         | 1806       | BE        | NET       |               | 022          | 49°25.63               | 123°18.26        | 245          | 150       |                |                   |               |                | BONGO                                       |

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| Month JUNE   |              |            |           | Year 2013 |               |              | Ship WE RICKER         |           |              |           | Cruise ID 2013 43 |              |               |                |          |
|--------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|-----------|--------------|-----------|-------------------|--------------|---------------|----------------|----------|
| Day          | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth | Sample Numbers    | # of Bottles | Watch Keepers | Trans. Cleaned | Comments |
|              |              |            |           |           |               |              | Latitude               | Longitude |              |           |                   |              |               |                |          |
| 27           | 13           | 1916       |           | SET       |               | 023          | 49°17.73               | 123°22.23 | 249          |           |                   |              |               |                | SURFACE  |
| 27           | 14           | 2013       |           | SET       |               | 024          | 49°14.23               | 123°28.01 | 295          |           |                   |              |               |                | 45m      |
| 27           | 15           | 2110       |           | SET       |               | 025          | 49°12.27               | 123°33.48 | 359          |           |                   |              |               |                | SURFACE  |
| 27           | 16           | 2208       |           | SET       |               | 026          | 49°12.33               | 123°39.31 | 378          |           |                   |              |               |                | 15m      |
| 27           | 17           | 2308       |           | SET       |               | 027          | 49°12.62               | 123°42.98 | 367          |           |                   |              |               |                | SURFACE  |
| 28           | 18           | 0030       |           | SET       |               | 028          | 49°14.72               | 123°50.1  | 300          |           |                   |              |               |                | 15m      |
| = END OF DAY |              |            |           |           |               |              |                        |           |              |           |                   |              |               |                |          |
| 28           | 19           | 1906       |           | SET       |               | 029          | 49°14.86               | 123°45.62 | 402          |           |                   |              |               |                | SURFACE  |
| 28           | 20           | 2008       |           | SET       |               | 030          | 49°18.42               | 123°42.97 | 293          |           |                   |              |               |                | 30m      |
|              |              |            |           |           |               |              |                        |           |              |           |                   |              |               |                |          |
|              |              |            |           |           |               |              |                        |           |              |           |                   |              |               |                |          |
|              |              |            |           |           |               |              |                        |           |              |           |                   |              |               |                |          |

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*This page is for any notes or observations*

Evening June 28 - Morning June 29: At PBS for ship repairs.

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE

Year 2013

Ship WE RICKER

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Cruise ID 2013 43

| Day | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                                      |
|-----|--------------|------------|-----------|-----------|---------------|--------------|------------------------|-----------|--------------|-----------|----------------|--------------|---------------|----------------|-----------------------------------------------|
|     |              |            |           |           |               |              | Latitude               | Longitude |              |           |                |              |               |                |                                               |
| 28  | GSD6         | 2046       | BE        | CTD       |               | 031          | 49°19.98               | 123°43.66 | 50           |           |                | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL<br>T: 15.5 S: 10.2 |
|     |              | 2047       | BO        |           |               |              | 49°19.99               | 123°43.68 |              | 45        |                |              |               |                |                                               |
|     |              | 2048       | EN        |           |               |              | 49°20.00               | 123°43.70 |              |           |                |              |               |                |                                               |
| 28  | GSD6         | 2053       | BE        | NET       |               | 032          | 49°20.02               | 123°43.75 | 44           | 34        |                |              |               |                | BONGO                                         |
| 28  | 21           | 2112       | BE        | SET       |               | 033          | 49°20.39               | 123°42.14 | 167          |           |                |              |               |                | 15m                                           |
| 28  | 22           | 2210       | BE        | SET       |               | 034          | 49°19.87               | 123°35.54 | 143          |           |                |              |               |                | SURFACE                                       |
| 28  | 23           | 2311       | BE        | SET       |               | 035          | 49°21.26               | 123°32.94 | 181          |           |                |              |               |                | 15m (20 min.)                                 |
| 28  | 24           | 2353       | BE        | SET       |               | 036          | 49°22.83               | 123°36.77 | 169          |           |                |              |               |                | SURFACE                                       |
| 29  | GSD7         | 0052       | BE        | CTD       |               | 037          | 49°24.25               | 123°41.46 | 166          |           |                |              |               |                | BOT@10m<br>NUTS, CHL & SAL<br>T: 15.8 S: 12.7 |
|     |              | 0054       | BO        |           |               |              | 49°24.24               | 123°41.47 |              | 160       |                |              |               |                |                                               |
|     |              | 0057       | EN        |           |               |              | 49°24.23               | 123°41.48 |              |           |                |              |               |                |                                               |
| 29  | GSD7         | 0101       | BE        | NET       |               | 038          | 49°24.23               | 123°41.47 | 168          | 150       |                |              |               |                |                                               |

Cast Type: END OF DAY

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GSD6: Very low salinity surface layer (rain? Fraser plume?)

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| Month JUNE |              |            |           | Year 2013 |               |              | Ship WE RICKER         |           |              |           |                | Cruise ID 201343 |               |                |                              |  |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|-----------|--------------|-----------|----------------|------------------|---------------|----------------|------------------------------|--|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth | Sample Numbers | # of Bottles     | Watch Keepers | Trans. Cleaned | Comments                     |  |
|            |              |            |           |           |               |              | Latitude               | Longitude |              |           |                |                  |               |                |                              |  |
| 29         | 25           | 1308       |           | SET       |               | 039          | 49°33.97               | 124°05.50 | 225          |           |                |                  |               |                | SURFACE                      |  |
| 29         | GS08         | 1357       | BE        | CTD       |               | 040          | 49°34.29               | 124°05.65 | 256          |           |                | 1                | MT            | ✓              | BOT @ 10m<br>NATS, CHL & SAL |  |
|            |              | 1402       | BO        |           |               |              | 49°34.28               | 124°05.64 |              | 250       |                |                  |               |                | T:16.1 S:17.0                |  |
|            |              | 1407       | EN        |           |               |              | 49°34.27               | 124°05.63 |              |           |                |                  |               |                |                              |  |
| 29         | GS08         | 1412       | BE        | NET       |               | 041          | 49°34.25               | 124°05.62 | 254          | 150       |                |                  |               |                | BONGO                        |  |
| 29         | 26           | 1433       | BE        | SET       |               | 042          | 49°35.66               | 124°06.29 | 286          |           |                |                  |               |                | 15m                          |  |
| 29         | 27           | 1526       | BE        | SET       |               | 043          | 49°38.03               | 124°11.02 | 185          |           |                |                  |               |                | SURFACE                      |  |
| 29         | 28           | 1620       | BE        | SET       |               | 044          | 49°39.70               | 124°17.82 | 292          |           |                |                  |               |                | 60m                          |  |
| 29         | 29           | 1726       | BE        | SET       |               | 045          | 49°43.68               | 124°18.52 | 149          |           |                |                  |               |                | 30m                          |  |
| 29         | 30           | 1821       | BE        | SET       |               | 046          | 49°45.17               | 124°24.29 | 236          |           |                |                  |               |                | SURFACE                      |  |

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| Month JUNE |              |            |           | Year 2013 |               |              | Ship WE RICKER         |           |              |           | Cruise ID 2013 43 |              |               |                |                            |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|-----------|--------------|-----------|-------------------|--------------|---------------|----------------|----------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth | Sample Numbers    | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                   |
|            |              |            |           |           |               |              | Latitude               | Longitude |              |           |                   |              |               |                |                            |
| 29         | GS09         | 1912       | BE        | CTD       |               | 047          | 49°45.89               | 124°28.30 | 316          |           |                   | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 1916       | BO        |           |               |              | 49°45.89               | 124°28.32 |              | 250       |                   |              |               |                | T:16.5 S:18.5              |
|            |              | 1921       | EN        |           |               |              | 49°45.89               | 124°28.34 |              |           |                   |              |               |                |                            |
| 29         | GS09         | 1925       | BE        | NET       |               | 048          | 49°45.89               | 124°28.37 | 317          | 150       |                   |              |               |                | BONGO                      |
| 29         | 31           | 1956       | BE        | SET       |               | 049          | 49°44.51               | 124°26.84 | 260          |           |                   |              |               |                | 15m                        |
| 29         | 32           | 2056       | BE        | SET       |               | 050          | 49°46.09               | 124°32.39 | 260          |           |                   |              |               |                | SURFACE                    |
| 29         | 33           | 2157       | BE        | SET       |               | 051          | 49°48.90               | 124°34.22 | 238          |           |                   |              |               |                | 30m                        |
| 29         | 34           | 2253       | BE        | SET       |               | 052          | 49°52.30               | 124°36.62 | 130          |           |                   |              |               |                | 15m                        |
| 29         | GS10         | 2343       | BE        | CTD       |               | 053          | 49°53.84               | 124°38.94 | 100          |           |                   | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 2345       | BO        |           |               |              | 49°53.85               | 124°38.93 |              | 90        |                   |              |               |                |                            |
|            |              | 2347       | EN        |           |               |              | 49°53.85               | 124°38.93 |              |           |                   |              |               |                |                            |
| 29         | GS10         | 235        | BE        | NET       |               | 054          | 49°53.86               | 124°38.92 | 96           | 86        |                   |              |               |                | BONGO                      |

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Notes:

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Produced by the Water Properties Group, IOS

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GS09 Salinity spike on downcast ~110m

GS10: Missed taking surface sal/temp.

# DAILY SCIENCE LOG

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| Month <u>JUNE</u> |              |            |           | Year <u>2013</u> |               |              |                        | Ship <u>WE RICKER</u> |              |           |                | Cruise ID <u>2013-43</u> |               |                |                            |
|-------------------|--------------|------------|-----------|------------------|---------------|--------------|------------------------|-----------------------|--------------|-----------|----------------|--------------------------|---------------|----------------|----------------------------|
| Day               | Station Name | Time (UTC) | Time Code | Cast Type        | Firing Method | Event Number | Positional Information |                       | Bottom Depth | Max Depth | Sample Numbers | # of Bottles             | Watch Keepers | Trans. Cleaned | Comments                   |
|                   |              |            |           |                  |               |              | Latitude               | Longitude             |              |           |                |                          |               |                |                            |
| 30                | 35           | 1307       | BE        | SET              |               | 055          | 49°26.93               | 124°37.55             | 97           |           |                |                          |               |                | SURFACE                    |
| 30                | GS11         | 1358       | BE        | CTD              |               | 056          | 49°29.02               | 124°34.17             | 104          |           |                |                          |               |                |                            |
|                   |              | 1400       | BO        |                  |               |              | 49°29.03               | 124°34.17             |              | 95        |                | 1                        | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|                   |              | 1402       | EN        |                  |               |              | 49°29.05               | 124°34.17             |              |           |                |                          |               |                | T: 13.7 S: 25.5            |
| 30                | GS11         | 1406       | BE        | NET              |               | 057          | 49°29.06               | 124°34.16             | 105          | 95        |                |                          |               |                | BONGO                      |
| 30                | 36           | 1429       | BE        | SET              |               | 058          | 49°29.45               | 124°32.16             | 209          |           |                |                          |               |                | 30m                        |
| 30                | 37           | 1537       | BE        | SET              |               | 059          | 49°32.31               | 124°27.93             | 124          |           |                |                          |               |                | 15m                        |
| 30                | 38           | 1632       | BE        | SET              |               | 060          | 49°35.32               | 124°24.33             | 237          |           |                |                          |               |                | SURFACE                    |
| 30                | 39           | 1732       | BE        | SET              |               | 061          | 49°38.72               | 124°30.62             | 332          |           |                |                          |               |                | 45m                        |
| 30                | 40           | 1830       | BE        | SET              |               | 062          | 49°41.77               | 124°35.68             | 239          |           |                |                          |               |                | SURFACE                    |

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Notes: \_\_\_\_\_

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| Month |              | JUNE/JULY  |           | Year      |               |              |                        | 2013      |              |           |                | Ship         |               |                |                                                        | WE RICKER |  |  |  | Cruise ID |  |  |  | 201343 |  |  |  | Page |  | 9 |  | of |  |
|-------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|-----------|--------------|-----------|----------------|--------------|---------------|----------------|--------------------------------------------------------|-----------|--|--|--|-----------|--|--|--|--------|--|--|--|------|--|---|--|----|--|
| Day   | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                                               |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
|       |              |            |           |           |               |              | Latitude               | Longitude |              |           |                |              |               |                |                                                        |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
| 30    | GS12         | 1915       | BE        | CTD       |               | 063          | 49°43.16               | 124°39.07 | 352          |           |                | 1            | MT            | ✓              | BOT@10m (X)NOTE<br>NUT, CHL & SAL →<br>T: 16.5 S: 17.2 |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
|       |              | 1919       | BO        |           |               |              | 49°43.17               | 124°39.13 |              | 250       |                |              |               |                |                                                        |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
|       |              | 1924       | EN        |           |               |              | 49°43.17               | 124°39.17 |              |           |                |              |               |                |                                                        |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
| 30    | GS12         | 1928       | BE        | NET       |               | 064          | 49°43.17               | 124°39.20 | 353          | 150       |                |              |               |                | BONGO                                                  |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
| 30    | 41           | 1951       | BE        | SET       |               | 065          | 49°42.4                | 124°40.75 | 305          |           |                |              |               |                | 60m                                                    |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
| 30    | 42           | 2049       | BE        | SET       |               | 066          | 49°38.88               | 124°40.64 | 130          |           |                |              |               |                | 15m                                                    |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
| 30    | 43           | 2150       | BE        | SET       |               | 067          | 49°34.81               | 124°43.06 | 76           |           |                |              |               |                | SURFACE                                                |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
| 01    | 44           | 2243       | BE        | SET       |               | 068          | 49°37.50               | 124°45.92 | 54           |           |                |              |               |                | 15m                                                    |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
| 01    | GS13         | 0036       | BE        | CTD       |               | 069          | 49°40.33               | 124°47.76 | 73           |           |                |              |               |                | BOT@10m<br>NUTS, CHL & SAL<br>T: 15.4 S: 23.4          |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
|       |              | 0038       | BO        |           |               |              | 49°40.35               | 124°47.77 |              | 68        |                |              |               |                |                                                        |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
|       |              | 0040       | EN        |           |               |              | 49°40.36               | 124°47.77 |              |           |                |              |               |                |                                                        |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |
| 01    | GS13         | 0046       | BE        | NET       |               | 070          | 49°40.41               | 124°47.77 | 70           | 60        |                |              |               |                | BONGO                                                  |           |  |  |  |           |  |  |  |        |  |  |  |      |  |   |  |    |  |

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GS12: pH buffer solution left off between GS11 & GS12.

GS13: Messenger didn't trip Niskin on 1st attempt. Stopped archiving data, then sent CTD back down to 15m to get BOT@10m.

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| Month <u>JULY</u> |              |            |           | Year <u>2013</u> |               |              | Ship <u>WE RICKER</u>  |           |              |           | Cruise ID <u>2013 43</u> |              |               |                |                                                 |
|-------------------|--------------|------------|-----------|------------------|---------------|--------------|------------------------|-----------|--------------|-----------|--------------------------|--------------|---------------|----------------|-------------------------------------------------|
| Day               | Station Name | Time (UTC) | Time Code | Cast Type        | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth | Sample Numbers           | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                                        |
|                   |              |            |           |                  |               |              | Latitude               | Longitude |              |           |                          |              |               |                |                                                 |
| 01                | 45           | 1310       | BE        | SET              |               | 071          | 49°49.97               | 124°45.37 | 182          |           |                          |              |               |                | SURFACE                                         |
| 01                | GS14         | 1405       | BE        | CTD              |               | 072          | 49°49.00               | 124°49.76 | 333          |           |                          | 1            | MT            | ✓              | BOT @ 10m<br>NUTS, CHL & SAL<br>T: 17.1 S: 18.6 |
|                   |              | 1410       | BO        |                  |               |              | 49°49.00               | 124°49.81 |              | 250       |                          |              |               |                |                                                 |
|                   |              | 1415       | EN        |                  |               |              | 49°49.02               | 124°49.86 |              |           |                          |              |               |                |                                                 |
| 01                | GS14         | 1419       | BE        | NET              |               | 073          | 49°49.01               | 124°49.88 | 337          | 150       |                          |              |               |                | BONGO                                           |
| 01                | 46           | 1441       | BE        | SET              |               | 074          | 49°48.24               | 124°51.17 | 307          |           |                          |              |               |                | 15m                                             |
| 01                | 47           | 1536       | BE        | SET              |               | 075          | 49°49.12               | 124°56.08 | 62           |           |                          |              |               |                | 30m                                             |
| 01                | 48           | 1636       | BE        | SET              |               | 076          | 49°49.85               | 125°00.30 | 87           |           |                          |              |               |                | SURFACE                                         |
| 01                | 49           | 1734       | BE        | SET              |               | 077          | 49°52.39               | 125°04.06 | 96           |           |                          |              |               |                | 60m                                             |
| 01                | 50           | 1829       | BE        | SET              |               | 078          | 49°53.11               | 124°58.29 | 201          |           |                          |              |               |                | 15m                                             |

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| Month <u>JULY</u> |              |            |           | Year <u>2013</u> |               |              |                        | Ship <u>WE RICKER</u> |              |           |                | Cruise ID <u>2013 43</u> |               |                |                            |
|-------------------|--------------|------------|-----------|------------------|---------------|--------------|------------------------|-----------------------|--------------|-----------|----------------|--------------------------|---------------|----------------|----------------------------|
| Day               | Station Name | Time (UTC) | Time Code | Cast Type        | Firing Method | Event Number | Positional Information |                       | Bottom Depth | Max Depth | Sample Numbers | # of Bottles             | Watch Keepers | Trans. Cleaned | Comments                   |
|                   |              |            |           |                  |               |              | Latitude               | Longitude             |              |           |                |                          |               |                |                            |
| 01                | GS15         | 1927       | BE        | CTD              |               | 079          | 49°54.22               | 124°54.81             | 219          |           |                | 1                        | MT            | ✓              | BOT@10m<br>NUTS, CHL, SAL  |
|                   |              | 1931       | BO        |                  |               |              | 49°54.26               | 124°54.84             |              | 210       |                |                          |               |                | T: 17.9 S: 20.3            |
|                   |              | 1935       | EN        |                  |               |              | 49°54.29               | 124°54.89             |              |           |                |                          |               |                |                            |
| 01                | GS15         | 1939       | BE        | NET              |               | 080          | 49°54.33               | 124°54.92             | 216          | 150       |                |                          |               |                | BONGO                      |
| 01                | 51           | 2010       | BE        | SET              |               | 081          | 49°54.76               | 124°52.34             | 141          |           |                |                          |               |                | SURFACE                    |
| 01                | 52           | 2102       |           | SET              |               | 082          | 49°56.93               | 124°55.78             | 151          |           |                |                          |               |                | 45m                        |
| 01                | 53           | 2158       |           | SET              |               | 083          | 49°58.99               | 124°59.70             | 142          |           |                |                          |               |                | 30m                        |
| 01                | 54           | 2257       |           | SET              |               | 084          | 49°58.55               | 125°04.75             | 263          |           |                |                          |               |                | SURFACE                    |
| 01                | GS16         | 2351       | BE        | CTD              |               | 085          | 49°57.82               | 125°05.05             | 246          |           |                | 1                        | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|                   |              | 2355       | BO        |                  |               |              | 49°57.87               | 125°05.09             |              | 235       |                |                          |               |                | T: 17.4 S: 22.5            |
| 02                |              | 0000       | EN        |                  |               |              | 49°57.88               | 125°05.13             |              |           |                |                          |               |                |                            |
| 02                | GS16         | 0005       | BE        | NET              |               | 086          | 49°57.91               | 125°05.16             | 239          | 150       |                |                          |               |                | BONGO                      |

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| Month JULY |              |            | Year 2013 |           |               | Ship WE RICKER |                        |           | Cruise ID 201343 |           |                |              |               |                |                            |
|------------|--------------|------------|-----------|-----------|---------------|----------------|------------------------|-----------|------------------|-----------|----------------|--------------|---------------|----------------|----------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number   | Positional Information |           | Bottom Depth     | Max Depth | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                   |
|            |              |            |           |           |               |                | Latitude               | Longitude |                  |           |                |              |               |                |                            |
| 02         | 55           | 1345       | BE        | SET       |               | 087            | 49°59.77               | 125°06.28 | 157              |           |                |              |               |                | SURFACE                    |
| 02         | GS17         | 1440       | BE        | CTD       |               | 088            | 50°01.94               | 125°08.47 | 180              |           |                | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 1444       | BO        |           |               |                | 50°01.93               | 125°08.47 |                  | 170       |                |              |               |                | T:17.4 S:22.1              |
|            |              | 1448       | EN        |           |               |                | 50°01.92               | 125°08.48 |                  |           |                |              |               |                |                            |
| 02         | GS17         | 1453       | BE        | NET       |               | 089            | 50°01.88               | 125°08.49 | 178              | 150       |                |              |               |                | BONGO                      |
| 02         | 56           | 1520       | BE        | SET       |               | 090            | 50°03.32               | 125°09.10 | 169              |           |                |              |               |                | 15m                        |
| 02         | 57           | 1615       | BE        | SET       |               | 091            | 50°06.56               | 125°08.21 | 201              |           |                |              |               |                | 30m                        |
| 02         | 58           | 1717       | BE        | SET       |               | 092            | 50°08.80               | 125°03.57 | 382              |           |                |              |               |                | SURFACE (20min<br>TOW)     |
| 02         | 59           | 1811       | BE        | SET       |               | 093            | 50°12.28               | 125°00.44 | 493              |           |                |              |               |                | 15m (29 min<br>TOW)        |
| 02         | GS18         | 1901       | BE        | CTD       |               | 094            | 50°14.57               | 125°00.48 | 472              |           |                | 1            | MT            |                | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 1906       | BO        |           |               |                | 50°14.57               | 125°00.44 |                  | 250       |                |              |               |                | T:16.4 S:20.3              |
|            |              | 1910       | EN        |           |               |                | 50°14.56               | 125°00.43 |                  |           |                |              |               |                |                            |

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| Month JULY |              |            |           | Year 2013 |               |              |                        | Ship WE RICKER |              |           |                | Cruise ID 201343 |               |                |                                              |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|----------------|--------------|-----------|----------------|------------------|---------------|----------------|----------------------------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |                | Bottom Depth | Max Depth | Sample Numbers | # of Bottles     | Watch Keepers | Trans. Cleaned | Comments                                     |
|            |              |            |           |           |               |              | Latitude               | Longitude      |              |           |                |                  |               |                |                                              |
| 02         | GS18         | 1915       | BE        | NET       |               | 095          | 50°14.57               | 125°00.44      | 462          | 150       |                |                  |               |                | BONGO                                        |
| 02         | 60           | 1937       | BE        | SET       |               | 096          | 50°15.90               | 125°01.00      | 492          |           |                |                  |               |                | SURFACE                                      |
| 02         | 61           | 2041       | BE        | SET       |               | 097          | 50°19.44               | 125°05.72      | 330          |           |                |                  |               |                | SURFACE (15 min. tow)                        |
| 02         | 62           | 2156       | BE        | SET       |               | 098          | 50°26.89               | 125°05.34      | 474          |           |                |                  |               |                | SURFACE (20 min. tow)                        |
| 02         | GS19         | 2239       | BE        | CTD       |               | 099          | 50°28.93               | 125°04.84      | 646          |           |                | 1                | MT            | ✓              | BOT @10m<br>NUTS, CHL & SAL<br>T:11.9 S:23.7 |
|            |              | 2243       | BO        |           |               |              | 50°28.95               | 125°04.85      |              | 250       |                |                  |               |                |                                              |
|            |              | 2248       | EN        |           |               |              | 50°28.96               | 125°04.87      |              |           |                |                  |               |                |                                              |
| 02         | GS19         | 2252       | BE        | NET       |               | 100          | 50°28.94               | 125°04.88      | 646          | 150       |                |                  |               |                | BONGO                                        |
| 03         | 63           | 0031       | BE        | SET       |               | 101          | 50°19.51               | 125°01.28      | 279          |           |                |                  |               |                | SURFACE                                      |

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| Month JULY |              |            |           | Year 2013 |               |              |                        | Ship WE RICKER |              |           |                | Cruise ID 2013-43 |               |                |                            |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|----------------|--------------|-----------|----------------|-------------------|---------------|----------------|----------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |                | Bottom Depth | Max Depth | Sample Numbers | # of Bottles      | Watch Keepers | Trans. Cleaned | Comments                   |
|            |              |            |           |           |               |              | Latitude               | Longitude      |              |           |                |                   |               |                |                            |
| 03         | GS20         | 0124       | BE        | CTD       |               | 102          | 50° 21.94              | 124° 57.88     | 423          |           |                | 1                 | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 0129       | BO        |           |               |              | 50° 21.94              | 124° 57.87     |              | 250       |                |                   |               |                | T: 15.7 S: 23.4            |
|            |              | 0134       | EN        |           |               |              | 50° 21.95              | 124° 57.86     |              |           |                |                   |               |                |                            |
| 03         | GS20         | 0138       | BE        | NET       |               | 103          | 50° 21.97              | 124° 57.87     | 422          | 150       |                |                   |               |                | BONGO                      |
| END OF DAY |              |            |           |           |               |              |                        |                |              |           |                |                   |               |                |                            |
| 03         | 64           | 1308       | BE        | SET       |               | 104          | 50° 10.59              | 124° 38.98     | 578          |           |                |                   |               |                | SURFACE                    |
| 03         | GS21         | 1403       | BE        | CTD       |               | 105          | 50° 09.13              | 124° 43.54     | 758          |           |                | 1                 | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 1408       | BO        |           |               |              | 50° 09.13              | 124° 43.59     |              | 250       |                |                   |               |                | T: 18.0 S: 18.1            |
|            |              | 1413       | EN        |           |               |              | 50° 09.14              | 124° 43.65     |              |           |                |                   |               |                |                            |
| 03         | GS21         | 1418       | BE        | NET       |               | 106          | 50° 09.18              | 124° 43.66     | 758          | 150       |                |                   |               |                | BONGO                      |
| 03         | 65           | 1441       | BE        | SET       |               | 107          | 50° 08.61              | 124° 45.22     | 406          |           |                |                   |               |                | 15m                        |
| 03         | 66           | 1538       | BE        | SET       |               | 108          | 50° 05.54              | 124° 48.80     | 507          |           |                |                   |               |                | 30m                        |

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## Bottle Firing Method:

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UN = Up / No stop  
DN = Down / No stop

Notes:

## Time Code:

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RE = Recover Mooring Time

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GS21  $O_2$  minimum @  $\sim 120m$  ( $\sim 2.0 mL/L$ )  $\Rightarrow$   $2.9 mL/L$  @ depth

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Year 2013

Ship WERICKER

Cruise ID 2013-43

| Day | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |            | Bottom Depth | Max Depth | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                   |
|-----|--------------|------------|-----------|-----------|---------------|--------------|------------------------|------------|--------------|-----------|----------------|--------------|---------------|----------------|----------------------------|
|     |              |            |           |           |               |              | Latitude               | Longitude  |              |           |                |              |               |                |                            |
| 03  | 67           | 1638       | BE        | SET       |               | 109          | 50°01.18               | 124°52.85  | 262          |           |                |              |               |                | SURFACE                    |
| 03  | GS22         | 1731       | BE        | CTD       |               | 110          | 49°58.62               | 124°49.54  | 190          |           |                | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|     |              | 1734       | BO        |           |               |              | 49°58.61               | 124°49.54  |              | 180       |                |              |               |                | T: 15.0 S: 24.4            |
|     |              | 1738       | EN        |           |               |              | 49°58.60               | 124°49.53  |              |           |                |              |               |                |                            |
| 03  | GS22         | 1742       | BE        | NET       |               | 111          | 49°58.60               | 124°49.507 | 188          | 150       |                |              |               |                | BONGO                      |
| 03  | 68           | 1819       | BE        | SET       |               | 112          | 49°56.92               | 124°44.83  | 91           |           |                |              |               |                | 15m                        |
| 03  | 69           | 1929       | BE        | SET       |               | 113          | 49°51.29               | 124°43.25  | 145          |           |                |              |               |                | SURFACE                    |
| 03  | 70           | 2023       | BE        | SET       |               | 114          | 49°47.57               | 124°42.06  | 204          |           |                |              |               |                | 15m                        |
| 03  | GS23         | 2111       | BE        | CTD       |               | 115          | 49°45.04               | 124°42.65  | 352          |           |                |              |               |                | BOT@10m<br>NUTS, CHL & SAL |
|     |              | 2116       | BO        |           |               |              | 49°45.03               | 124°42.63  |              | 250       |                |              |               |                | T: 16.7 S: 22.8            |
|     |              | 2121       | EN        |           |               |              | 49°45.02               | 124°42.59  |              |           |                |              |               |                |                            |
| 03  | GS23         | 2124       | BE        | NET       |               | 116          | 49°45.02               | 124°42.57  | 352          | 150       |                |              |               |                | BONGO                      |

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## Bottle Firing Method:

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Notes:

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*This page is for any notes or observations*

GS 22. Messenger tripped @ ~14m.

## DAILY SCIENCE LOG

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| Month JULY |              |            |           | Year 2013 |               |              | Ship WE RICKER         |           |              | Cruise ID 201343 |                |              |               |                |                            |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|-----------|--------------|------------------|----------------|--------------|---------------|----------------|----------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth        | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                   |
|            |              |            |           |           |               |              | Latitude               | Longitude |              |                  |                |              |               |                |                            |
| 03         | 71           | 2147       | BE        | SET       |               | 117          | 49°45.21               | 124°44.35 | 354          |                  |                |              |               |                | 60m                        |
| 03         | 72           | 2250       | BE        | SET       |               | 118          | 49°42.97               | 124°48.72 | 119          |                  |                |              |               |                | SURFACE                    |
| END OF DAY |              |            |           |           |               |              |                        |           |              |                  |                |              |               |                |                            |
| 04         | 73           | 1310       | BE        | SET       |               | 119          | 49°26.49               | 124°37.36 | 73           |                  |                |              |               |                | SURFACE                    |
| 04         | GS24         | 1403       | BE        | CTD       |               | 120          | 49°24.81               | 124°33.71 | 98           |                  |                | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 1405       | BO        |           |               |              | 49°24.81               | 124°33.72 |              | 93               |                |              |               |                | T: 19.2 S: 20.1            |
|            |              | 1407       | EN        |           |               |              | 49°24.81               | 124°33.73 |              |                  |                |              |               |                |                            |
| 04         | GS24         | 1411       | BE        | NET       |               | 121          | 49°24.80               | 124°33.76 | 97           | 87               |                |              |               |                | BONGO                      |
| 04         | 74           | 1434       | BE        | SET       |               | 122          | 49°23.83               | 124°31.31 | 100          |                  |                |              |               |                | 15m                        |
| 04         | 75           | 1530       | BE        | SET       |               | 123          | 49°22.94               | 124°26.61 | 113          |                  |                |              |               |                | 45m                        |
| 04         | 76           | 1632       | BE        | SET       |               | 124          | 49°24.83               | 124°21.76 | 346          |                  |                |              |               |                | SURFACE                    |

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*This page is for any notes or observations*

COPRA Stns.

|      |         |           |                 |
|------|---------|-----------|-----------------|
| CPF1 | 49.3666 | -124.0833 | South of Texada |
| CPF2 | 49.4666 | -124.5000 | Off Hornby      |
| GE01 | 49.2500 | -123.7483 | NE Entrance Is  |

# DAILY SCIENCE LOG

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| Month JULY |                    |            |           | Year 2013 |               |              |                        | Ship W.E. RICKER |              |           |                | Cruise ID 2013 43 |               |                |                            |
|------------|--------------------|------------|-----------|-----------|---------------|--------------|------------------------|------------------|--------------|-----------|----------------|-------------------|---------------|----------------|----------------------------|
| Day        | Station Name       | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |                  | Bottom Depth | Max Depth | Sample Numbers | # of Bottles      | Watch Keepers | Trans. Cleaned | Comments                   |
|            |                    |            |           |           |               |              | Latitude               | Longitude        |              |           |                |                   |               |                |                            |
| 04         | 77                 | 1733       | BE        | SET       |               | 125          | 49°24.23               | 124°16.00        | 324          |           |                |                   |               |                | 15m                        |
| 04         | 78                 | 1828       | BE        | SET       |               | 126          | 49°20.84               | 124°14.11        | 249          |           |                |                   |               |                | SURFACE                    |
| 04         | GS25               | 1918       | BE        | CTD       |               | 127          | 49°22.22               | 124°11.49        | 327          |           |                | 1                 | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |                    | 1923       | BO        |           |               |              | 49°22.20               | 124°11.50        |              | 256       |                |                   |               |                | T: 16.1 S: 22.9            |
|            |                    | 1927       | EN        |           |               |              | 49°22.20               | 124°11.51        |              |           |                |                   |               |                |                            |
| 04         | GS25               | 1931       | BE        | NET       |               | 128          | 49°22.20               | 124°11.50        | 325          | 150       |                |                   |               |                | BONGO                      |
| 04         | 79                 | 1952       | BE        | SET       |               | 129          | 49°23.00               | 124°10.83        | 352          |           |                |                   |               |                | 60m                        |
| 04         | 80                 | 2047       | BE        | SET       |               | 130          | 49°24.09               | 124°06.88        | 241          |           |                |                   |               |                | SURFACE                    |
| 04         | GS26               | 2217       | BE        | CTD       |               | 131          | 49°21.99               | 124°05.00        | 242          |           |                |                   |               |                | BOT@10m<br>NUTS, CHL & SAL |
|            | (COPRASTN)<br>CPF1 | 2222       | BO        |           |               |              | 49°22.00               | 124°05.00        |              | 232       |                |                   |               |                | T: 18.7 S: 20.1            |
|            |                    | 2226       | EN        |           |               |              | 49°22.00               | 124°05.01        |              |           |                |                   |               |                |                            |
| 04         | GS26               | 2230       | BE        | NET       |               | 132          | 49°21.99               | 124°04.99        | 242          | 150       |                |                   |               |                | BONGO                      |

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GS26: On site of COPRA stn CPF1

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| Month JULY |              | Year 2013  |           | Ship WE RICKER |               |              |                        | Cruise ID 2013 43 |              |           |                |              |               |                |                            |
|------------|--------------|------------|-----------|----------------|---------------|--------------|------------------------|-------------------|--------------|-----------|----------------|--------------|---------------|----------------|----------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type      | Firing Method | Event Number | Positional Information |                   | Bottom Depth | Max Depth | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                   |
|            |              |            |           |                |               |              | Latitude               | Longitude         |              |           |                |              |               |                |                            |
| 04         | 81           | 2328       | BE        | SET            |               | 133          | 49°28.03               | 124°03.48         | 369          |           |                |              |               |                | 30m                        |
| END OF DAY |              |            |           |                |               |              |                        |                   |              |           |                |              |               |                |                            |
| 05         | 82           | 1307       | BE        | SET            |               | 134          | 48°48.39               | 123°20.99         | 71           |           |                |              |               |                | SURFACE                    |
| 05         | 83           | 1404       | BE        | SET            |               | 135          | 48°44.47               | 123°23.52         | 79           |           |                |              |               |                | 15m (20min)                |
| 05         | 84           | 1455       | BE        | SET            |               | 136          | 48°43.05               | 123°26.70         | 51           |           |                |              |               |                | 15m                        |
| 05         | GS27         | 1546       | BE        | CTD            |               | 137          | 48°42.09               | 123°29.41         | 72           |           |                | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL |
|            |              | 1547       | BO        |                |               |              | 48°42.10               | 123°29.39         |              | 67        |                |              |               |                | T:13.1 S:26.7              |
|            |              | 1549       | EN        |                |               |              | 48°42.10               | 123°29.38         |              |           |                |              |               |                |                            |
| 05         | GS27         | 1554       | BE        | NET            |               | 138          | 48°42.10               | 123°29.36         | 72           | 62        |                |              |               |                | BONGO                      |
| 05         | 85           | 1726       | BE        | SET            |               | 139          | 48°51.68               | 123°35.11         | 195          |           |                |              |               |                | SURFACE (20min)            |

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## DAILY SCIENCE LOG

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| Month JULY |              |            |           | Year 2013 |               |              |                        | Ship WERICKER |              |           |                | Cruise ID 201343 |               |                |                                             |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|---------------|--------------|-----------|----------------|------------------|---------------|----------------|---------------------------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |               | Bottom Depth | Max Depth | Sample Numbers | # of Bottles     | Watch Keepers | Trans. Cleaned | Comments                                    |
|            |              |            |           |           |               |              | Latitude               | Longitude     |              |           |                |                  |               |                |                                             |
| 05         | 86           | 1812       | BE        | SET       |               | 140          | 48°54.15               | 123°38.02     | 138          |           |                |                  |               |                | 15m (20min)                                 |
|            |              |            |           |           |               |              |                        |               |              |           |                |                  |               |                |                                             |
| 05         | GS28         | 1936       | BE        | CTD       |               | 141          | 49°00.43               | 123°43.93     | 65           |           |                |                  |               |                | BOT@10m<br>NUTS, CHL & SAL<br>T:16.4 S:22.5 |
|            |              | 1937       | BO        |           |               |              | 49°00.43               | 123°43.95     |              | 60        |                |                  |               |                |                                             |
|            |              | 1939       | EN        |           |               |              | 49°00.43               | 123°43.94     |              |           |                |                  |               |                |                                             |
|            |              |            |           |           |               |              |                        |               |              |           |                |                  |               |                |                                             |
| 05         | GS28         | 1944       | BE        | NET       |               | 142          | 49°00.42               | 123°43.95     | 65           | 55        |                |                  |               |                | BONGO                                       |
|            |              |            |           |           |               |              |                        |               |              |           |                |                  |               |                |                                             |
| 05         | 87           | 2003       | BE        | SET       |               | 143          | 48°59.70               | 123°44.03     | 77           |           |                |                  |               |                | SURFACE (20min)                             |
|            |              |            |           |           |               |              |                        |               |              |           |                |                  |               |                |                                             |
| 05         | 88           | 2223       | BE        | SET       |               | 144          | 48°44.68               | 123°33.54     | 98           |           |                |                  |               |                | SURFACE (15min)                             |
| END OF DAY |              |            |           |           |               |              |                        |               |              |           |                |                  |               |                |                                             |
|            |              |            |           |           |               |              |                        |               |              |           |                |                  |               |                |                                             |
| 06         | 89           | 1309       | BE        | SET       |               | 145          | 49°26.61               | 123°56.90     | 201          |           |                |                  |               |                | SURFACE                                     |
|            |              |            |           |           |               |              |                        |               |              |           |                |                  |               |                |                                             |
| 06         | GS29         | 1357       | BE        | CTD       |               | 146          | 49°26.07               | 123°52.25     | 216          |           |                |                  |               |                | BOT@10m<br>NUTS, CHL & SAL<br>T:14.0 S:21.5 |
|            |              | 1401       | BO        |           |               |              | 49°26.06               | 123°52.30     |              | 210       |                |                  |               |                |                                             |
|            |              | 1406       | EN        |           |               |              | 49°26.05               | 123°52.32     |              |           |                |                  |               |                |                                             |
|            |              |            |           |           |               |              |                        |               |              |           |                |                  |               |                |                                             |

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*This page is for any notes or observations*

GS 29: Peculiar pH spike @ ~130m on upcast. Bottle tripped @ ~9m.

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>JULY</u> |              |            |           | Year <u>2013</u> |                            |              |                        | Ship <u>WESTICKER</u> |              |           |                | Cruise ID <u>2013-43</u> |               |                |                  |
|-------------------|--------------|------------|-----------|------------------|----------------------------|--------------|------------------------|-----------------------|--------------|-----------|----------------|--------------------------|---------------|----------------|------------------|
| Day               | Station Name | Time (UTC) | Time Code | Cast Type        | Firing Method              | Event Number | Positional Information |                       | Bottom Depth | Max Depth | Sample Numbers | # of Bottles             | Watch Keepers | Trans. Cleaned | Comments         |
|                   |              |            |           |                  |                            |              | Latitude               | Longitude             |              |           |                |                          |               |                |                  |
| ⇒                 | START        | OF         | LEG       | 2                | (Rusty as Chief Scientist) |              |                        |                       |              |           |                |                          |               |                |                  |
| 07                | GS30         | 1428       | BE        | CTD              |                            | 153          | 48° 56.50              | 123° 31.72            | 50.5m        |           |                | -                        | SP            |                |                  |
|                   |              | 1429       | BO        |                  |                            |              | 48° 56.50              | 123° 31.72            |              | 40m       |                |                          |               |                |                  |
|                   |              | 1430       | EN        |                  |                            |              | 48° 56.50              | 123° 31.75            |              |           |                |                          |               |                |                  |
| 07                | GS31         | 1814       | BE        | CTD              |                            | 154          | 48° 45.46              | 123° 18.98            | 105m         |           |                | -                        | SP            |                |                  |
|                   |              | 1815       | BO        |                  |                            |              | 48° 45.46              | 123° 18.96            |              | 95m       |                |                          |               |                |                  |
|                   |              | 1817       | EN        |                  |                            |              | 48° 45.45              | 123° 18.95            |              |           |                |                          |               |                |                  |
| ≡                 | END OF DAY   |            |           |                  |                            |              |                        |                       |              |           |                |                          |               |                |                  |
| 08                | GS32         | 1347       | BE        | CTD              |                            | 155          | 48° 44.33              | 123° 34.68            | 63m          |           |                | -                        | SP            |                | * I don't think  |
|                   |              | 1348       | BO        |                  |                            |              | 48° 44.36              | 123° 34.62            |              | 55m       |                |                          |               |                | files for event  |
|                   |              | 1349       | EN        |                  |                            |              | 48° 44.39              | 123° 34.57            |              |           |                |                          |               |                | saved correctly. |
| 08                | GS33         | 1807       | BE        | CTD              |                            | 156          | 48° 45.02              | 123° 19.64            | 65           |           |                | -                        | SP            |                |                  |
|                   |              | 1809       | BO        |                  |                            |              | 48° 45.02              | 123° 19.66            |              | 55m       |                |                          |               |                |                  |
|                   |              |            | EN        |                  |                            |              | 48° 45                 | 123° 19.              |              |           |                |                          |               |                |                  |
| ≡                 | END OF DAY   |            |           |                  |                            |              |                        |                       |              |           |                |                          |               |                |                  |

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Notes:

S.P 2/3

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>JULY</u> |              |            |           | Year <u>2013</u> |               |              | Ship <u>WE PICKER</u>  |            |              | Cruise ID <u>2013-13</u> |                |              |               |                |          |
|-------------------|--------------|------------|-----------|------------------|---------------|--------------|------------------------|------------|--------------|--------------------------|----------------|--------------|---------------|----------------|----------|
| Day               | Station Name | Time (UTC) | Time Code | Cast Type        | Firing Method | Event Number | Positional Information |            | Bottom Depth | Max Depth                | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments |
|                   |              |            |           |                  |               |              | Latitude               | Longitude  |              |                          |                |              |               |                |          |
| 09                | G534         | 1418       | BE        | CTD              |               | 157          | 47° 31.84              | 122° 24.63 | 196m         |                          |                | -            | SP            |                |          |
|                   |              | 1421       | BO        |                  |               |              | 47° 31.86              | 122° 24.64 |              | 150m                     |                |              |               |                |          |
|                   |              | 1425       | EN        |                  |               |              | 47° 31.86              | 122° 24.64 |              |                          |                |              |               |                |          |
| 09                | G535         | 1803       | BE        | CTD              |               | 158          | 47° 21.08              | 122° 26.24 | 170m         |                          |                | -            | SP            |                |          |
|                   |              | 1806       | BO        |                  |               |              | 47° 21.10              | 122° 26.23 |              | 150m                     |                |              |               |                |          |
|                   |              | 1809       | EN        |                  |               |              | 47° 21.11              | 122° 26.23 |              |                          |                |              |               |                |          |
| 09                | G536         | 2327       | BE        | CTD              |               | 159          | 47° 28.25              | 122° 30.76 | 99m          |                          |                | -            | SP            |                |          |
|                   |              | 2329       | BO        |                  |               |              | 47° 28.26              | 122° 30.77 |              | 90m                      |                |              |               |                |          |
|                   |              |            | EN        |                  |               |              | 47° 28.26              | 122° 30.77 |              |                          |                |              |               |                |          |
| END OF DAY        |              |            |           |                  |               |              |                        |            |              |                          |                |              |               |                |          |
| 10                | G537         | 1418       | BE        | CTD              |               | 160          | 47° 44.00              | 122° 24.97 | 204m         |                          |                | -            | SP            |                |          |
|                   |              | 1421       | BO        |                  |               |              | 47 43.98               | 122° 24.99 |              | 150m                     |                |              |               |                |          |
|                   |              | 1424       | EN        |                  |               |              | 47 43.97               | 122° 24.99 |              |                          |                |              |               |                |          |

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## Bottle Firing Method:

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## Notes:

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Transmissometer to be cleaned before each cast, do not use Ammonia products

Produced by the Water Properties Group, IOS

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Version: 16 April 2010

## DAILY SCIENCE LOG

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| Month <u>JULY</u> |              |            |           | Year <u>2013</u> |               |              | Ship <u>WESTER</u>     |            |              | Cruise ID <u>20P-13</u> |                |              |               |                |                       |
|-------------------|--------------|------------|-----------|------------------|---------------|--------------|------------------------|------------|--------------|-------------------------|----------------|--------------|---------------|----------------|-----------------------|
| Day               | Station Name | Time (UTC) | Time Code | Cast Type        | Firing Method | Event Number | Positional Information |            | Bottom Depth | Max Depth               | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments              |
|                   |              |            |           |                  |               |              | Latitude               | Longitude  |              |                         |                |              |               |                |                       |
| 10                | G538         | 1809       | BE        | CTD              |               | 161          | 47° 53.90              | 122° 30.42 | 77m          |                         |                | —            | SP            |                |                       |
|                   |              | 1810       | BD        |                  |               |              | 47° 53.91              | 122° 30.42 |              | 65m                     |                |              |               |                |                       |
|                   |              | 1811       | EN        |                  |               |              | 47° 53.94              | 122° 30.43 |              |                         |                |              |               |                |                       |
| 10                | G539         | 2102       | BE        | CTD              |               | 162          | 48° 00.15              | 122° 39.44 | 64m          |                         |                | —            | SP            |                | * File doesn't appear |
|                   |              | 2104       | BD        |                  |               |              | 48° 00.16              | 122° 39.44 |              | 55m                     |                |              |               |                | to have recorded      |
|                   |              | 2105       | EN        |                  |               |              | 48° 00.16              | 122° 39.44 |              |                         |                |              |               |                | properly!             |
| END OF DAY        |              |            |           |                  |               |              |                        |            |              |                         |                |              |               |                |                       |
| 11                | JFA01        | 1400       | BE        | CTD              |               | 163          | 48° 24.79              | 124° 37.17 | 123m         |                         |                | —            | SP            |                |                       |
|                   |              | 1402       | BD        |                  |               |              | 48° 24.80              | 124° 37.25 |              | 110m                    |                |              |               |                |                       |
|                   |              | 1404       | EN        |                  |               |              | 48° 24.80              | 124° 37.25 |              |                         |                |              |               |                |                       |
| 11                | JFA02        | 1813       | BE        | CTD              |               | 164          | 48° 18.36              | 124° 21.03 | 91m          |                         |                | —            | SP            |                |                       |
|                   |              | 1814       | BD        |                  |               |              | 48° 18.37              | 124° 21.04 |              | 60m                     |                |              |               |                |                       |
|                   |              | 1816       | EN        |                  |               |              | 48° 18.39              | 124° 21.09 |              |                         |                |              |               |                |                       |
| 11                | JFA03        | 2212       | BE        | CTD              |               | 165          | 48° 11.67              | 123° 54.48 | 53m          |                         |                | —            | SP            |                |                       |
|                   |              | 2213       | BD        |                  |               |              | 48° 11.66              | 123° 54.46 |              | 40m                     |                |              |               |                |                       |
|                   |              | 2214       | EN        |                  |               |              | 48° 11.66              | 123° 54.45 |              |                         |                |              |               |                |                       |

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Notes:

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| Month JULY |              |            |           | Year 2013 |               |              | Ship WE RICKER         |           |              | Cruise ID 2013 43 |                |              |               |                |                                             |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|-----------|--------------|-------------------|----------------|--------------|---------------|----------------|---------------------------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth         | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                                    |
|            |              |            |           |           |               |              | Latitude               | Longitude |              |                   |                |              |               |                |                                             |
|            |              |            |           |           |               |              |                        |           |              |                   |                |              |               |                |                                             |
|            |              |            |           |           |               |              |                        |           |              |                   |                |              |               |                |                                             |
| 12         | JF01         | 1439       | BE        | CTD       |               | 166          | 48°17.32               | 123°39.34 | 167          |                   |                | 1            | MT            | ✓              | BOT@10m<br>NUTS, CHL & SAL<br>T:10.1 S:30.6 |
|            |              | 1442       | BO        |           |               |              | 48°17.32               | 123°39.31 |              | 160               |                |              |               |                |                                             |
|            |              | 1446       | EN        |           |               |              | 48°17.32               | 123°39.31 |              |                   |                |              |               |                |                                             |
|            |              |            |           |           |               |              |                        |           |              |                   |                |              |               |                |                                             |
|            |              | 1450       | BE        | NET       |               | 167          | 48°17.35               | 123°39.28 | 166          | 150               |                |              |               |                | BONGO                                       |
|            |              |            |           |           |               |              |                        |           |              |                   |                |              |               |                |                                             |
|            |              | 1517       | BE        | SET       |               | 168          | 48 17.38               | 123 40.64 |              |                   | TOW AT SURFACE |              |               |                | TRAWL                                       |
|            |              |            |           |           |               |              |                        |           |              |                   |                |              |               |                |                                             |
| 12         | JF02         | 1629       | BE        | CTD       |               | 169          | 48°20.24               | 123°51.16 | 133          |                   |                | 1            | MT            |                | BOT@10m<br>NUTS, CHL & SAL<br>T:10.6 S:30.6 |
|            |              | 1631       | BO        |           |               |              | 48°20.25               | 123°51.25 |              | 125               |                |              |               |                |                                             |
|            |              | 1634       | EN        |           |               |              | 48°20.25               | 123°51.34 |              |                   |                |              |               |                |                                             |
|            |              |            |           |           |               |              |                        |           |              |                   |                |              |               |                |                                             |
|            |              | 1638       | BE        | NET       |               | 170          | 48°20.28               | 123°51.44 | 131          | 121               |                |              |               |                | BONGO                                       |
|            |              |            |           |           |               |              |                        |           |              |                   |                |              |               |                |                                             |
|            |              | 17:00      | BE        | SET       |               | 171          | 48 20.58               | 123 53.27 |              |                   | TOW AT 15m     |              |               |                | TRAWL                                       |

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Produced by the Water Properties Group, IOS

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Version: 16 April 2010

T/S Differences between sensors:  $-0.089$  (T) and  $0.078$  (S)

T/S Differences  $-0.092$  (T) &  $0.082$  (S)

JFOZ: Bottle tripped @ 19 m

## DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month JULY |              |            |           | Year 2013 |               |              | Ship WE RICKER         |           |              |                | Cruise ID 201343 |              |               |                |                              |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|-----------|--------------|----------------|------------------|--------------|---------------|----------------|------------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth      | Sample Numbers   | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                     |
|            |              |            |           |           |               |              | Latitude               | Longitude |              |                |                  |              |               |                |                              |
| 12         | JF03         | 1812       | BE        | CTD       |               | 172          | 48°23.26               | 124°05.08 | 110          |                |                  | 1            | MT            |                | BOT @ 10m<br>NUTS, CHL & SAL |
|            |              | 1814       | BO        |           |               |              | 48°23.29               | 124°05.16 |              | 105            |                  |              |               |                | T: 10.4 S: 31.2              |
|            |              | 1816       | EN        |           |               |              | 48°23.32               | 124°05.26 |              |                |                  |              |               |                |                              |
|            |              |            |           |           |               |              |                        |           |              |                |                  |              |               |                |                              |
|            |              | 1820       | BE        | NET       |               | 173          | 48°23.37               | 124°05.41 | 107          | 95             |                  |              |               |                | BONGO                        |
|            |              |            |           |           |               |              |                        |           |              |                |                  |              |               |                |                              |
|            |              | 1840       | BE        | SET       |               | 174          | 48°23.87               | 124°07.67 |              | TOW AT SURFACE |                  |              |               |                | TRAWL                        |
|            |              |            |           |           |               |              |                        |           |              |                |                  |              |               |                |                              |
| 12         | JF04         | 1939       | BE        | CTD       |               | 175          | 48°25.74               | 124°12.40 | 90           |                |                  | 1            | MT            |                | BOT @ 10m<br>NUTS, CHL & SAL |
|            |              | 1940       | BO        |           |               |              | 48°25.75               | 124°12.48 |              | 80             |                  |              |               |                | T: 10.3 S: 31.5              |
|            |              | 1943       | EN        |           |               |              | 48°25.78               | 124°12.60 |              |                |                  |              |               |                |                              |
|            |              |            |           |           |               |              |                        |           |              |                |                  |              |               |                |                              |
|            |              | 1947       | BE        | NET       |               | 176          | 48°25.83               | 124°12.76 | 90           | 80             |                  |              |               |                | BONGO                        |
|            |              |            |           |           |               |              |                        |           |              |                |                  |              |               |                |                              |
|            |              | 2004       | BE        | SET       |               | 177          | 48°26.07               | 124°14.51 |              | TOW AT 30m     |                  |              |               |                | TRAWL                        |
|            |              |            |           |           |               |              |                        |           |              |                |                  |              |               |                |                              |
|            |              |            |           |           |               |              |                        |           |              |                |                  |              |               |                |                              |
|            |              |            |           |           |               |              |                        |           |              |                |                  |              |               |                |                              |
|            |              |            |           |           |               |              |                        |           |              |                |                  |              |               |                |                              |

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Notes:

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Transmissometer to be cleaned before each cast, do not use Ammonia products

Produced by the Water Properties Group, IOS

WaterProperties.ca  
 Version: 16 April 2010

T/S difference:  $-0.104$  (T) &  $0.078$  (S)

Bottle tripped @  $\sim 9$  m

T/S difference:  $-0.120$  (T) &  $0.089$  (S)

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month JULY |              |            |           | Year 2013 |               |              | Ship WE RICKER         |           |              | Cruise ID 2013 43 |                |              |               |                |                              |
|------------|--------------|------------|-----------|-----------|---------------|--------------|------------------------|-----------|--------------|-------------------|----------------|--------------|---------------|----------------|------------------------------|
| Day        | Station Name | Time (UTC) | Time Code | Cast Type | Firing Method | Event Number | Positional Information |           | Bottom Depth | Max Depth         | Sample Numbers | # of Bottles | Watch Keepers | Trans. Cleaned | Comments                     |
|            |              |            |           |           |               |              | Latitude               | Longitude |              |                   |                |              |               |                |                              |
| 12         | JF05         | 2110       | BE        | CTD       |               | 178          | 48°28.21               | 124°20.85 | 98           |                   |                | 1            | MT            |                | BOT @ 10m<br>NUTS, CHL & SAL |
|            |              | 2112       | BO        |           |               |              | 48°28.21               | 124°20.87 |              | 90                |                |              |               |                | T: 11.1 S: 31.0              |
|            |              | 2114       | EN        |           |               |              | 48°28.21               | 124°20.89 |              |                   |                |              |               |                |                              |
|            |              | 2118       | BE        | NET       |               | 179          | 48°28.21               | 124°20.92 | 99           | 89                |                |              |               |                | BONGO                        |
|            |              | 2139       | BE        | SET       |               | 180          | 48 28.55               | 124 22.51 |              |                   |                |              |               |                | TOW AT SURFACE<br>TRAWL      |
| 12         | JF06         | 2307       | BE        | CTD       |               | 181          | 48°31.61               | 124°30.15 | 72           |                   |                | 1            | MT            | ✓              | BOT @ 10m<br>NUTS, CHL & SAL |
|            |              | 2308       | BO        |           |               |              | 48°31.58               | 124°30.14 |              | 65                |                |              |               |                | T: 12.0 S: 30.7              |
|            |              | 2310       | EN        |           |               |              | 48°31.55               | 124°30.11 |              |                   |                |              |               |                |                              |
|            |              | 2316       | BE        | NET       |               | 182          | 48°31.35               | 124°30.08 | 90           | 80                |                |              |               |                | BONGO                        |
|            |              | 2325       | BE        | SET       |               | 183          | 48 31.21               | 124 30.13 |              |                   |                |              |               |                | TOW AT SURFACE<br>TRAWL      |
| END OF DAY |              |            |           |           |               |              |                        |           |              |                   |                |              |               |                |                              |

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Produced by the Water Properties Group, IOS

WaterProperties.ca  
Version: 16 April 2010

T/S Difference:  $-0.089$  (T) &  $0.079$  (S)

T/S Difference:  $-0.119$  (T) &  $0.090$  (S)

Ship moved to avoid crab trap after cast data acquisition was started. Stopped archiving & over-wrote file once ship was in position.

## DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>JULY</u> |              |            |           | Year <u>2013</u> |               |              |                        | Ship <u>WE RICKER</u> |              |           |                | Cruise ID <u>201343</u> |               |                |                                                 |
|-------------------|--------------|------------|-----------|------------------|---------------|--------------|------------------------|-----------------------|--------------|-----------|----------------|-------------------------|---------------|----------------|-------------------------------------------------|
| Day               | Station Name | Time (UTC) | Time Code | Cast Type        | Firing Method | Event Number | Positional Information |                       | Bottom Depth | Max Depth | Sample Numbers | # of Bottles            | Watch Keepers | Trans. Cleaned | Comments                                        |
|                   |              |            |           |                  |               |              | Latitude               | Longitude             |              |           |                |                         |               |                |                                                 |
| 13                | IVIO1        | 1308       | BE        | CTD              |               | 184          | 48°57.78               | 125°06.90             | 93           |           |                | 1                       | MT            | ✓              | BOT @ 10m<br>NUTS, CHL & SAL<br>T: 16.6 S: 28.6 |
|                   |              | 1310       | BO        |                  |               |              | 48°57.79               | 125°06.90             |              | 85        |                |                         |               |                |                                                 |
|                   |              | 1312       | EN        |                  |               |              | 48°57.81               | 125°06.90             |              |           |                |                         |               |                |                                                 |
|                   |              | 1317       | BE        | NET              |               | 185          | 48°57.82               | 125°06.91             | 94           | 84        |                |                         |               |                | BONGO                                           |
|                   |              | 1340       | BE        | SET              |               | 186          | 48°54.06               | 125°7.74              |              |           | TOW AT SURFACE |                         |               |                | TRAWL                                           |
| 13                | IVIO2        | 1434       | BE        | CTD              |               | 187          | 48°54.73               | 125°12.29             | 95           |           |                | 1                       | MT            | ✓              | BOT @ 10m<br>NUTS, CHL & SAL<br>T: 14.4 S: 30.4 |
|                   |              | 1436       | BO        |                  |               |              | 48°54.72               | 125°12.29             |              | 90        |                |                         |               |                |                                                 |
|                   |              | 1439       | EN        |                  |               |              | 48°54.73               | 125°12.31             |              |           |                |                         |               |                |                                                 |
|                   |              | 1442       | BE        | NET              |               | 188          | 48°54.73               | 125°12.33             | 95           | 85        |                |                         |               |                | BONGO                                           |
|                   |              | 1455       | BE        | SET              |               | 189          | 48°54.7                | 125°12.6              |              |           | TOW AT 15m     |                         |               |                | TRAWL                                           |

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Notes: \_\_\_\_\_

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Produced by the Water Properties Group, IOS

WaterProperties.ca  
 Version: 16 April 2010

T/S Difference:  $-0.085$  (T) &  $0.083$  (S)

T/S Difference:  $-0.084$  (T) &  $0.065$  (S)

## DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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*Produced by the Water Properties Group, IOS*

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**Version: 16 April 2010**