

# DAILY SCIENCE LOG BOOK

MISSION  
NUMBER

2018-35

DATE:

From:

27 APR 2018

To:

2 MAY 2018

VESSEL:

NEOCALIGUS

PROJECT(S):

ZOOPLANKTON SOG

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

WaterProperties.ca



**\*\* The following 3 pages are VERY IMPORTANT as they document equipment and settings used on board \*\***

These pages are to be completed by the CTD Technician setting up the equipment, the Watch Leader on board, and the Chief Scientist MUST verify that all relevant sections are completed prior to leaving the vessel. Any mid-cruise changes to be noted by watch leader in the notes.

Data logging computer: \_\_\_\_\_

Data acquisition program: Seaterm

CTD deck unit make: N/A model: \_\_\_\_\_ serial number: \_\_\_\_\_

~~Primary CTD~~

|                                             |                   |                             |
|---------------------------------------------|-------------------|-----------------------------|
| Make: _____                                 | model: _____      | serial number: _____        |
| Primary temperature serial number: _____    |                   |                             |
| Primary conductivity serial number: _____   |                   |                             |
| Secondary temperature serial number: _____  |                   |                             |
| Secondary conductivity serial number: _____ |                   |                             |
| Transmissometer: _____                      | Model: _____      | s/n: _____                  |
| Transmissometer: _____                      | Model: _____      | s/n: _____                  |
| Fluorometer: Model _____                    | Cable gain: _____ | s/n: _____ P, S or NO pump? |
| Fluorometer: Model _____                    | Cable gain: _____ | s/n: _____ P, S or NO pump? |
| Oxygen sensor: _____                        | Model: _____      | s/n: _____ P, S or NO pump? |
| PAR sensor: _____                           | Model: _____      | s/n: _____ Surface PAR? Y/N |
| 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?            |
| Other sensors: _____                        | s/n: _____        | P, S or NO pump?            |

~~Primary  
Secondary CTD~~

Make: SBE model: 25 serial number: 0404

Primary temperature serial number: 2449

Primary conductivity serial number: 1764

Secondary temperature serial number: \_\_\_\_\_

Secondary conductivity serial number: \_\_\_\_\_

Transmissometer: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_

Transmissometer: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_

Fluorometer: Model Wellabs ECA Cable gain: 28 s/n: 4185 P, S or NO pump?

Fluorometer: Model \_\_\_\_\_ Cable gain: \_\_\_\_\_ s/n: \_\_\_\_\_ P, S or NO pump?

Oxygen sensor: SBE Model: 43 s/n: 1176 P, S or NO pump?

PAR sensor: \_\_\_\_\_ Model: \_\_\_\_\_ s/n: \_\_\_\_\_ Surface PAR? Y/N

Other sensors: pressure SBE 29 s/n: 0464 P, S or NO pump?

Other sensors: pt SBE 18 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?

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

This also includes the bottle location above the CTD on non-rossette casts (e.g., W.E. Ricker)



**Rosette Setup:**

Number of bottles: \_\_\_\_\_  
Manufacturer: \_\_\_\_\_  
Volume of bottles (litres): \_\_\_\_\_

**Winches:**

1. Make: \_\_\_\_\_ Model: \_\_\_\_\_ Serial #: \_\_\_\_\_ Used for: \_\_\_\_\_
2. Make: \_\_\_\_\_ Model: \_\_\_\_\_ Serial #: \_\_\_\_\_ Used for: \_\_\_\_\_
3. Make: \_\_\_\_\_ Model: \_\_\_\_\_ Serial #: \_\_\_\_\_ Used for: \_\_\_\_\_

*Comments on performance during cruise* (comments should also be reflected in the post-cruise report):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Salinometer:**

Make: \_\_\_\_\_ Model: \_\_\_\_\_ Serial Number: \_\_\_\_\_  
*Comments on performance during cruise* (comments should also be reflected in the post-cruise report):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Oxygen Kit(s):**

Make: \_\_\_\_\_ Model: \_\_\_\_\_ Kit Number: \_\_\_\_\_  
Make: \_\_\_\_\_ Model: \_\_\_\_\_ Kit Number: \_\_\_\_\_  
*Comments on performance during cruise* (comments should also be reflected in the post-cruise report):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Thermosalinograph System (SBE21):**

Program: \_\_\_\_\_ Version: \_\_\_\_\_  
Sampling interval (seconds): \_\_\_\_\_  
Fluorometer sensor serial number: \_\_\_\_\_  
*Comments on performance during cruise* (comments should also be reflected in the post-cruise report):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ADCP Setup:**

Computer time zone: \_\_\_\_\_ User Exits: Name: \_\_\_\_\_ Exit points: \_\_\_\_\_  
Sampling interval (sec): \_\_\_\_\_ Name: \_\_\_\_\_ Exit points: \_\_\_\_\_  
Bin Length: (2^x): \_\_\_\_\_ Name: \_\_\_\_\_ Exit points: \_\_\_\_\_  
Pulse Length: \_\_\_\_\_ Work File: \_\_\_\_\_  
Buffer (bytes): \_\_\_\_\_  
Gyro Offset: \_\_\_\_\_

*Comments on performance during cruise* (comments should also be reflected in the post-cruise report):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**CTD Test Cast Information**

Test Cast along side?    Yes    No

*Comments* \_\_\_\_\_

Test Cast in Saanich Inlet or other location?    Yes    No

*Comments* \_\_\_\_\_

CTD pressure reading on deck (db), before cast: \_\_\_\_\_ after cast: \_\_\_\_\_

Pumps working?    Yes (0011)    No (0010)

Secondary Temp – Primary Temp: \_\_\_\_\_  
(Average from the mixed region)

Secondary Salinity – Primary Salinity: \_\_\_\_\_  
(Average from the mixed region)

*Additional Comments:* \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Scientific Equipment Used During Cruise

This sheet allows you to enter all of the equipment used while on board. Please use the separate CTD sheet for entry for SBE 9/16/19/25.

Other CTD units:

RBR Serial Number: 79108 Sensors: (on bongo - RBR solo)

Others:

Plankton Nets:

Bongo #1 Frame Size: 58 cm Mesh: 236  $\mu$ m Flowmeter: 7292 (RBS set)  
Bongo #2 Frame Size:        cm Mesh:         $\mu$ m Flowmeter:         
Frame Size:        cm Mesh:         $\mu$ m Flowmeter:         
Frame Size:        cm Mesh:         $\mu$ m Flowmeter:       

Multinet ☐ BIONESS ☐ Neuston ☐ Others:       

Trawl Gear:

Midwater Trawls: SOG ☐ Highseas ☐ Pelagic ☐ Other:         
Bottom Trawls: Atlantic Western IIA ☐ Yankee 36 Hard & Soft Bottom ☐ Other:         
American Shrimp Trawl ☐

Notes:

Trawl Doors: USA Jet ☐ Tyburon ☐

Sounders : Wesmar 380 ☐ Others:       

Acoustics:

Echosounder #1        Frequencies (KHz): 12 ☐ 18 ☐ 38 ☐ 70 ☐ 120 ☐ 200 ☐  
Others:       

Echosounder #2        Frequencies (KHz): 12 ☐ 18 ☐ 38 ☐ 70 ☐ 120 ☐ 200 ☐  
Others:       

Software & Notes:

Other Gear in Operation:

1.
2.
3.
4.
5.



ALL TIMES RECORDED AS LOCAL

## Ocean Sciences Division, Institute of Ocean Sciences

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## DAILY SCIENCE LOG

| Month <u>APRIL</u> <u>LOCAL</u> |              |     |            | Year <u>2018</u> |            | Vessel <u>NOCAKIGUS</u> |                     | Cruise ID <u>2018-35</u> |                    |                    |                       |              |               |                                     |                                      |
|---------------------------------|--------------|-----|------------|------------------|------------|-------------------------|---------------------|--------------------------|--------------------|--------------------|-----------------------|--------------|---------------|-------------------------------------|--------------------------------------|
| Event Number                    | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method           | Positional Latitude | Information Longitude    | Bottom Pressure    | Max Cast Pressure  | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                     | Comments                             |
| 1                               | GE01         | 27  | 16:05      | BE               | CTD        |                         | 49° 15' .059        | 123° 45' .419            | 400                |                    |                       |              | MB            | <input checked="" type="checkbox"/> |                                      |
|                                 |              |     | 16:12      | BO               | BOT        | MSG                     | 49° 15' .121        | 123° 45' .390            |                    | 390                | 1                     | 1            |               | <input type="checkbox"/>            | 2x DEEP SAL                          |
|                                 |              |     | 16:21      | EN               |            |                         | 49° 15' .169        | 123° 45' .367            |                    |                    |                       |              |               | <input type="checkbox"/>            |                                      |
| 2                               | GE01         | 27  | 16:24      | BE               | BOT        | MSG                     | 49° 15' .225        | 123° 45' .404            | 400                | 0                  | 2                     | 1            | MB            | <input type="checkbox"/>            | 1x CHL 3041 mL<br>2x MPLC 1240 mL on |
| 3                               | GE01         | 27  | 16:28      | BE               | BOT        | MSG                     | 49° 15' .288        | 123° 45' .426            | 400                | 5+10               | 3                     | 2            |               | <input type="checkbox"/>            | POM-FA 5m 40m                        |
| 4                               | GE01         | 27  | 16:36      | BE               | BOT        | MSG                     | 49° 15' .419        | 123° 45' .414            | 400                | 5                  | 4                     | 1            |               | <input type="checkbox"/>            | POM-SE                               |
| 5                               | GE01         | 27  | 16:42      | BE               | NET        | -                       | 49° 15' .533        | 123° 45' .374            | 400                |                    |                       |              | MB            | <input type="checkbox"/>            |                                      |
|                                 |              |     | 16:54      | BO               |            |                         | 49° 15' .617        | 123° 45' .291            |                    | 390                |                       |              |               | <input type="checkbox"/>            |                                      |
|                                 |              |     | 17:01      | EN               |            |                         | 49° 15' .647        | 123° 45' .253            |                    |                    |                       |              |               | <input type="checkbox"/>            |                                      |
| 6                               | 40           | 28  | 11:41      | BE               | CTD        | -                       | 49° 08' .590        | 123° 36' .757            | 146                |                    |                       |              | MB            | <input checked="" type="checkbox"/> |                                      |
|                                 |              |     | 11:43      | BO               |            |                         | 49° 08' .594        | 123° 36' .739            |                    | 136                |                       |              |               | <input type="checkbox"/>            |                                      |
|                                 |              |     | 11:45      | EN               |            |                         | 49° 08' .603        | 123° 36' .723            |                    |                    |                       |              |               | <input type="checkbox"/>            |                                      |
| 7                               | 40           | 28  | 11:49      | BE               | MSG        | -                       | 49° 08' .616        | 123° 36' .684            | 146                |                    |                       |              | MB            | <input type="checkbox"/>            |                                      |
|                                 |              |     | 11:53      | BO               |            |                         | 49° 08' .633        | 123° 36' .662            |                    | 136                |                       |              |               | <input type="checkbox"/>            |                                      |
|                                 |              |     | 11:55      | EN               |            |                         | 49° 08' .649        | 123° 36' .642            |                    |                    |                       |              |               | <input type="checkbox"/>            |                                      |
| 8                               | 39           | 28  | 12:23      | BE               | CTD        | -                       | 49° 09' .810        | 123° 33' .008            | 388 <sup>57+</sup> |                    |                       |              | MB            | <input checked="" type="checkbox"/> |                                      |
|                                 |              |     | 12:30      | BO               |            |                         | 49° 09' .824        | 123° 33' .012            |                    | 376 <sup>36+</sup> |                       |              |               | <input type="checkbox"/>            |                                      |
|                                 |              |     | 12:36      | EN               |            |                         | 49° 09' .859        | 123° 33' .048            |                    |                    |                       |              |               | <input type="checkbox"/>            |                                      |
|                                 |              |     | :          |                  |            |                         | .                   | .                        |                    |                    |                       |              |               | <input type="checkbox"/>            |                                      |

## Event Type:

BOT = Bottle cast (no CTD)  
CTD = Standalone CTD  
ROS = CTD in Rosette  
SET = Fish Set

LOOP = Sea Water Loop  
MOR = Mooring  
NET = Plankton Net Haul  
DRF = Drifter

## Bottle Firing Method:

US = Up / Stop (default)  
UN = Up / No stop  
DN = Down / No stop

## Time Code:

BE = Beginning Time of Cast  
BO = Bottom Time of Cast  
EN = End Time of Cast  
DE = Deployment Time  
MR = Messenger Release Time  
RE = Recover Mooring Time

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

Produced by the Water Properties Group, IOS

WaterProperties.ca  
Version: 20 April 2016

Notes:

CTD startup: 2min timing w/ down 10m + up to surface flush

This page is for any notes or observations

See Rosette logsheet for sample #'s

START 2018-35. ARRIVE PBS (3) ~ 11:30, LEAD, SETUP, HEAD OUT ~ 1440

\* Note all chlorophyll samples will be 304 mls filtered, unless otherwise noted

START DAY 2 - OVERCAST (RAINY). HEAD OUT ~ 10:00, LATE START PROBLEM WITH THE HEAD

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month        |              |     | Year       |           | Vessel     |               |                     | Cruise ID             |                 |                   |                       |              |               |                                                              |                                    |
|--------------|--------------|-----|------------|-----------|------------|---------------|---------------------|-----------------------|-----------------|-------------------|-----------------------|--------------|---------------|--------------------------------------------------------------|------------------------------------|
| Event Number | Station Name | Day | Time (UTC) | Time Code | Event Type | Firing Method | Positional Latitude | Information Longitude | Bottom Pressure | Max Cast Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                                              | Comments                           |
| 9            | 37           | 28  | 12:38      | BE        | BOT        | MSG           | 49° 05.866          | 123° 33.051           | 388.5ft         | Ø                 | 5                     | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 1x chl<br>2x HPLC 620 mL           |
| 10           | 38           | 28  | 13:16      | BE        | CTD        |               | 49° 12.055          | 123° 26.063           | 300             |                   | -                     |              | MB            | <input checked="" type="checkbox"/> <input type="checkbox"/> |                                    |
|              |              |     | 13:22      | BO        | BOT        | MSG           | 49° 12.106          | 123° 26.448           |                 | 290               | 6                     | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 2x DEEP SK                         |
|              |              |     | 13:28      | EN        |            |               | 49° 12.187          | 123° 26.455           |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 11           | 38           | 28  | 13:29      | BE        | BOT        | MSG           | 49° 12.287          | 123° 26.433           | 300             | 5                 | 7                     | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-SI @ 5m                        |
| 12           | 38           | 28  | 13:34      | BE        | NET        | -             | 49° 12.324          | 123° 26.425           | 300             |                   | -                     | -            | MB            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
|              |              |     | 13:44      | BO        |            |               | 49° 12.391          | 123° 26.440           |                 | 290               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
|              |              |     | 13:49      | EN        |            |               | 49° 12.413          | 123° 26.445           |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 13           | 27           | 28  | 15:40      | BE        | CTD        | -             | 49° 19.128          | 123° 48.020           | 348             |                   | -                     | -            | MB            | <input checked="" type="checkbox"/> <input type="checkbox"/> |                                    |
|              |              |     | 15:46      | BO        |            |               | 49° 19.183          | 123° 48.068           |                 | 337               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
|              |              |     | 15:51      | EN        |            |               | 49° 19.227          | 123° 48.081           |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 14           | 27           | 28  | 15:52      | BE        | BOT        | MSG           | 49° 19.230          | 123° 48.093           | 347             | Ø                 | 8                     | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 2x chl 1x PARFO<br>2x HPLC 1240 mL |
| 15           | 28           | 28  | 16:31      | BE        | CTD        | -             | 49° 24.118          | 123° 45.340           | 134             |                   | -                     | -            | MB            | <input checked="" type="checkbox"/> <input type="checkbox"/> |                                    |
|              |              |     | 16:33      | BO        |            |               | 49° 24.123          | 123° 45.350           |                 | 124               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
|              |              |     | 16:35      | EN        |            |               | 49° 24.124          | 123° 45.364           |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 16           | 28           | 28  | 16:36      | BE        | BOT        | MSG           | 49° 24.124          | 123° 45.379           | 134             | Ø                 | 9                     | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 1x chl<br>2x HPLC 620 mL           |
| 17           | 28           | 28  | 16:38      | BE        | BOT        | MSG           | 49° 24.124          | 123° 45.403           | 134             | 5                 | 10                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-SI @ 5m                        |
|              |              |     | :          |           |            |               | °                   | °                     |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
|              |              |     | :          |           |            |               | °                   | °                     |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |

## Event Type:

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— =

## Bottle Firing Method:

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Notes:

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CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time  
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Version: 20 April 2016



# DAILY SCIENCE LOG

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| Month <u>APRIL local</u> |              |     |            | Year <u>2018</u> |            | Vessel <u>NEOCALIGUS</u> |                     |                       | Cruise ID <u>2018-35</u> |                   |                       |              |               |                                     |              |
|--------------------------|--------------|-----|------------|------------------|------------|--------------------------|---------------------|-----------------------|--------------------------|-------------------|-----------------------|--------------|---------------|-------------------------------------|--------------|
| Event Number             | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method            | Positional Latitude | Information Longitude | Bottom Pressure          | Max Cast Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                     | Comments     |
| 18                       | 28           | 28  | 16:42      | BE               | NET        | -                        | 49° 24.132          | 123° 45.435           | 134                      |                   | -                     | -            | MB            | <input checked="" type="checkbox"/> |              |
|                          |              |     | 16:46      | BO               |            |                          | 49° 24.141          | 123° 45.462           |                          | 124               | -                     |              |               | <input type="checkbox"/>            |              |
|                          |              |     | 16:48      | EN               |            |                          | 49° 24.144          | 123° 45.482           |                          |                   | -                     |              |               | <input type="checkbox"/>            |              |
| 19                       | 24           | 28  | 18:31      | BE               | CTD        |                          | 49° 30.314          | 124° 6.002            | 425                      |                   | -                     |              |               | <input checked="" type="checkbox"/> |              |
|                          |              |     | 18:39      | BO               | BOT        | MSG                      | 49° 30.334          | 124° 5.973            |                          | 415               | 11                    | 1            | MB            | <input type="checkbox"/>            | 2- DEEP SAL  |
|                          |              |     | 18:49      | EN               |            |                          | 49° 30.358          | 124° 5.944            |                          |                   | -                     |              |               | <input type="checkbox"/>            |              |
| 20                       | 24           | 28  | 18:57      | BE               | BOT        | MSG                      | 49° 30.434          | 124° 5.974            | 425                      | 5                 | 12                    | 1            | MB            | <input type="checkbox"/>            | Am-JS @ 5m   |
| 21                       | 24           | 28  | 18:55      | BE               | NET        | -                        | 49° 30.433          | 124° 5.976            | 425                      |                   | -                     | -            | MB            | <input type="checkbox"/>            |              |
|                          |              |     | 19:08      | BO               |            |                          | 49° 30.441          | 124° 5.876            |                          | 415               | -                     |              |               | <input type="checkbox"/>            |              |
|                          |              |     | 19:16      | EN               |            |                          | 49° 30.463          | 124° 5.867            |                          |                   | -                     |              |               | <input type="checkbox"/>            |              |
| 22                       | IS-2         | 29  | 07:32      | BE               | CTD        | -                        | 49° 38.196          | 124° 5.013            | 30                       |                   | -                     | -            | MB            | <input type="checkbox"/>            | → NOPE       |
|                          |              |     | 07:33      | BO               |            |                          | 49° 38.197          | 124° 5.013            |                          | 20                | -                     |              |               | <input type="checkbox"/>            |              |
|                          |              |     | 07:33      | EN               |            |                          | 49° 38.198          | 124° 5.014            |                          |                   | -                     |              |               | <input type="checkbox"/>            |              |
| 23                       | IS-2         | 29  | 07:37      | BE               | NET        | -                        | 49° 38.178          | 124° 5.002            | 30                       |                   | -                     | -            | MB            | <input type="checkbox"/>            |              |
|                          |              |     | 07:37      | BO               |            |                          | 49° 38.184          | 124° 5.011            |                          | 20                | -                     |              |               | <input type="checkbox"/>            |              |
|                          |              |     | 07:38      | EN               |            |                          | 49° 38.185          | 124° 5.012            |                          |                   | -                     |              |               | <input type="checkbox"/>            |              |
| 24                       | 22           | 29  | 08:29      | BE               | CTD        |                          | 49° 40.248          | 124° 16.296           | 353                      |                   | -                     |              | MB            | <input checked="" type="checkbox"/> |              |
|                          |              |     | 08:45      | BO               | BOT        | MSG                      | 49° 40.261          | 124° 16.248           |                          | 343               | 13                    | 1            | MB            | <input type="checkbox"/>            | 2- DEEP SAL. |
|                          |              |     | 08:53      | EN               |            |                          | 49° 40.252          | 124° 16.157           |                          |                   | -                     |              |               | <input type="checkbox"/>            |              |

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This page is for any notes or observations

START OF DAY 3: RAINY, OVERCAST

# DAILY SCIENCE LOG

## Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>APRIL</u> |              |     |            | Year <u>2018</u> |            | Vessel <u>NEOLAKTOS</u> |                        |             |                 | Cruise ID <u>2018-35</u> |                       |              |               |                          |                                     |                 |
|--------------------|--------------|-----|------------|------------------|------------|-------------------------|------------------------|-------------|-----------------|--------------------------|-----------------------|--------------|---------------|--------------------------|-------------------------------------|-----------------|
| Event Number       | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method           | Positional Information |             | Bottom Pressure | Max Cast Pressure        | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned          | Comments                            |                 |
|                    |              |     |            |                  |            |                         | Latitude               | Longitude   |                 |                          |                       |              |               |                          |                                     |                 |
| 25                 | 22           | 29  | 08:54      | RE               | BOT        | MSG                     | 49° 40.250             | 124° 16.141 | 353             | Ø                        | 14                    | 1            | MB            | <input type="checkbox"/> | <input type="checkbox"/>            | 1xch 1xPY       |
| 27                 | 22           | 29  | 09:01      | BE               | BOT        | MSG                     | 49° 40.249             | 124° 16.042 | 353             | 5m                       | 15                    | 1            | MB            | <input type="checkbox"/> | <input type="checkbox"/>            | 2xMPC 1240m     |
| 26                 | 22           | 29  | 09:59      | BE               | BOT        | MSG                     | 49° 40.249             | 124° 16.071 | 353             | 10m                      | 16                    | 2            | MB            | <input type="checkbox"/> | <input type="checkbox"/>            | 5m POM-SE       |
| 28                 | 22           | 29  | 09:08      | BE               | NET        | -                       | 49° 40.191             | 124° 16.263 | 353             |                          | -                     | -            | MB            | <input type="checkbox"/> | <input type="checkbox"/>            | POM-FA & 5m+10m |
|                    |              |     | 09:19      | BO               |            |                         | 49° 40.160             | 124° 16.153 |                 | 343                      | -                     | -            | MB            | <input type="checkbox"/> | <input type="checkbox"/>            |                 |
|                    |              |     | 09:25      | EN               |            |                         | 49° 40.181             | 124° 16.104 |                 |                          | -                     | -            |               | <input type="checkbox"/> | <input type="checkbox"/>            |                 |
| 29                 | 20           | 29  | 11:01      | BE               | CTD        | -                       | 49° 47.200             | 124° 32.299 | 311             |                          | -                     | -            | MB            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                 |
|                    |              |     | 11:06      | BO               |            |                         | 49° 47.171             | 124° 32.328 |                 | 309                      | -                     | -            |               | <input type="checkbox"/> | <input type="checkbox"/>            |                 |
|                    |              |     | 11:11      | EN               |            |                         | 49° 47.138             | 124° 32.365 |                 |                          | -                     | -            |               | <input type="checkbox"/> | <input type="checkbox"/>            |                 |
| 30                 | 12           | 29  | 12:19      | BE               | CTD        |                         | 49° 43.582             | 124° 40.842 | 355             |                          | -                     | -            | MB            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                 |
|                    |              |     | 12:25      | BO               |            |                         | 49° 43.574             | 124° 40.907 |                 | 345                      | -                     | -            |               | <input type="checkbox"/> | <input type="checkbox"/>            |                 |
|                    |              |     | 12:31      | EN               |            |                         | 49° 43.569             | 124° 40.959 |                 |                          | -                     | -            |               | <input type="checkbox"/> | <input type="checkbox"/>            |                 |
| 31                 | 12           | 29  | 12:32      | BE               | BOT        | MSG                     | 49° 43.570             | 124° 40.961 | 357             | Ø                        | 17                    | 1            | MB            | <input type="checkbox"/> | <input type="checkbox"/>            | 2xch 1xPY       |
| 32                 | 11           | 29  | 12:51      | BE               | CTD        | -                       | 49° 42.406             | 124° 43.396 | 300             |                          | -                     | -            | MB            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | 2xMPC 1670m+5m  |
|                    |              |     | 12:56      | BO               |            |                         | 49° 42.426             | 124° 43.398 |                 | 280                      | -                     | -            |               | <input type="checkbox"/> | <input type="checkbox"/>            |                 |
|                    |              |     | 13:00      | EN               |            |                         | 49° 42.440             | 124° 43.391 |                 |                          | -                     | -            |               | <input type="checkbox"/> | <input type="checkbox"/>            |                 |
| 33                 | 11           | 29  | 13:04      | BE               | BOT        | MSG                     | 49° 42.447             | 124° 43.387 | 290             | 10                       | 18                    |              | MB            | <input type="checkbox"/> | <input type="checkbox"/>            | POM-FA @ 5+10m  |
| 34                 | 11           | 29  | 13:06      | BE               | BOT        | MSG                     | 49° 42.451             | 124° 43.396 | 290             | 5                        | 19                    |              |               | <input type="checkbox"/> | <input type="checkbox"/>            | POM-SE @ 5m     |
|                    |              |     | :          |                  |            |                         | °                      | °           |                 |                          | -                     | -            |               | <input type="checkbox"/> | <input type="checkbox"/>            |                 |

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

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| Month <u>April</u> |              |     | Year <u>2018</u> |           |            | Vessel <u>NEOCARIGUS</u> |                     |                       | Cruise ID <u>2018-35</u> |                   |                       |              |               |                                                              |                             |
|--------------------|--------------|-----|------------------|-----------|------------|--------------------------|---------------------|-----------------------|--------------------------|-------------------|-----------------------|--------------|---------------|--------------------------------------------------------------|-----------------------------|
| Event Number       | Station Name | Day | Time (UTC)       | Time Code | Event Type | Firing Method            | Positional Latitude | Information Longitude | Bottom Pressure          | Max Cast Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/Fl Cleaned                                              | Comments                    |
| 35                 | 11           | 29  | 13:10            | BE        | NET        | -                        | 49° 42.454          | 124° 43.412           | 301                      |                   | -                     | -            | MB            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
|                    |              |     | 13:19            | BO        |            |                          | 49° 42.461          | 124° 43.423           |                          | 280               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
|                    |              |     | 13:23            | EN        |            |                          | 49° 42.483          | 124° 43.426           |                          |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 36                 | 9            | 29  | 14:20            | BE        | CTD        | -                        | 49° 35.493          | 124° 38.269           | 168                      |                   | -                     |              |               | <input type="checkbox"/> <input checked="" type="checkbox"/> |                             |
|                    |              |     | 14:23            | BO        |            |                          | 49° 35.493          | 124° 38.250           | 7                        | 158               | -                     | -            | MB            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
|                    |              |     | 14:25            | EN        |            |                          | 49° 35.487          | 124° 38.246           |                          | 60                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 37                 | 9            | 29  | 14:27            | BE        | BOT        | MSG                      | 49° 35.474          | 124° 38.226           | 170                      | 0                 | 20                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 1x CH/<br>2x HPLC 620ml ea. |
| 38                 | BS-11        | 29  | 16:03            | BE        | CTD        | -                        | 49° 29.002          | 124° 46.008           | 59                       |                   | -                     | -            | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                             |
|                    |              |     | 16:04            | BO        |            |                          | 49° 29.006          | 124° 46.016           |                          | 49                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
|                    |              |     | 16:05            | EN        |            |                          | 49° 29.006          | 124° 46.019           |                          |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 39                 | BS-11        | 29  | 16:06            | BE        | BOT        | MSG                      | 49° 29.007          | 124° 46.033           | 58                       | 0                 | 21                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 1x CH<br>2x HPLC 620ml      |
| 40                 | BS-11        | 29  | 16:08            | BE        | BOT        | MSG                      | 49° 29.008          | 124° 46.034           | 58                       | 5                 | 22                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-Sr @ 5m                 |
| 41                 | BS-11        | 29  | 16:11            | BE        | NET        | -                        | 49° 29.001          | 124° 46.017           | 58                       |                   | -                     | -            | MB            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
|                    |              |     | 16:12            | BO        |            |                          | 49° 29.002          | 124° 46.019           |                          | 48                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
|                    |              |     | 16:14            | EN        |            |                          | 49° 29.002          | 124° 46.021           |                          |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 42                 | 6            | 30  | 07:40            | BE        | CTD        |                          | 49° 30.597          | 124° 27.815           | 194                      |                   | -                     |              |               | <input type="checkbox"/> <input checked="" type="checkbox"/> |                             |
|                    |              |     | 07:43            | BO        |            |                          | 49° 30.588          | 124° 27.863           |                          | 182               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
|                    |              |     | 07:46            | EN        |            |                          | 49° 30.550          | 124° 27.753           |                          |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 43                 | 6            |     | 07:47            | BE        | BOT        | MSG                      | 49° 30.555          | 124° 27.743           | 194                      | 0                 | 23                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 1x CH/<br>2x HPLC 620ml     |

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## Notes:

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START DAY 4: SUNNY, WIND ~ 10 Kts NW

# DAILY SCIENCE LOG

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| Month <u>APRIL</u> |              |     |            | Year <u>2018</u> |            |               | Vessel <u>NEOCALIGUS</u> |                       |                 | Cruise ID <u>2018-35</u> |                       |              |               |                                                              |                         |
|--------------------|--------------|-----|------------|------------------|------------|---------------|--------------------------|-----------------------|-----------------|--------------------------|-----------------------|--------------|---------------|--------------------------------------------------------------|-------------------------|
| Event Number       | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method | Positional Latitude      | Information Longitude | Bottom Pressure | Max Cast Pressure        | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/Fl Cleaned                                              | Comments                |
| 44                 | CPF2         | 30  | 08:13      | BE               | CTD        |               | 49° 27.995               | 124° 29.992           | 329             |                          | -                     |              | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                         |
|                    |              |     | 08:19      | BO               | BOT        | MSG           | 49° 27.967               | 124° 29.931           |                 | 35                       | 24                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 2x DEEP SAL             |
|                    |              |     | 08:26      | EN               |            |               | 49° 27.918               | 124° 29.862           |                 |                          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                         |
| 45                 | CPF2         | 30  | 08:28      | BE               | BOT        | MSG           | 49° 27.881               | 124° 29.821           | 325             | 10                       | 25                    | 2            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-pom Smt-On          |
| 46                 | CPF2         | 30  | 08:32      | BE               | BOT        | MSG           | 49° 27.843               | 124° 29.802           | 325             | 5                        | 26                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-SZ @ Sm             |
| 47                 | CPF2         | 30  | 08:37      | BE               | NET        | -             | 49° 27.972               | 124° 30.006           | 325             |                          | -                     | -            | MB            | <input type="checkbox"/> <input type="checkbox"/>            |                         |
|                    |              |     | 08:48      | BO               |            |               | 49° 27.903               | 124° 29.914           |                 | 35                       | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                         |
|                    |              |     | 08:53      | EN               |            |               | 49° 27.854               | 124° 29.873           |                 |                          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                         |
| 48                 | 3            | 30  | 09:43      | BE               | CTD        | -             | 49° 26.596               | 124° 20.193           | 325             |                          | -                     | -            | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                         |
|                    |              |     | 09:48      | BO               |            |               | 49° 26.566               | 124° 20.110           |                 | 315                      | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                         |
| 1                  |              |     | 09:54      | EN               |            |               | 49° 26.540               | 124° 20.035           |                 |                          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                         |
| 49                 | 3            | 30  | 09:56      | BE               | BOT        | MSG           | 49° 26.535               | 124° 20.021           | 327             | 0                        | 27                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 1xchl<br>2xH2C 1240 mLs |
| 50                 | 2            | 30  | 10:48      | BE               | CTD        |               | 49° 24.080               | 124° 9.287            | 277             |                          | -                     | -            | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                         |
|                    |              |     | 10:53      | BO               |            |               | 49° 24.058               | 124° 9.257            |                 | 267                      | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                         |
|                    |              |     | 10:58      | EN               |            |               | 49° 24.014               | 124° 9.182            |                 |                          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                         |
| 51                 | 2            | 30  | 11:00      | BE               | BOT        | MSG           | 49° 24.009               | 124° 9.176            | 277             | 0                        | 28                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 2xchl<br>2xH2C 1240mL   |
| 52                 | CPF1         | 30  | 11:24      | BE               | CTD        | -             | 49° 21.965               | 124° 4.961            | 244             |                          | -                     | -            | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                         |
|                    |              |     | 11:28      | BO               |            |               | 49° 21.930               | 124° 4.963            |                 | 234                      | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                         |
|                    |              |     | 11:32      | EN               |            |               | 49° 21.920               | 124° 4.964            |                 |                          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                         |

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## DAILY SCIENCE LOG

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| Month <u>APRIL</u> |              |     |            | Year <u>2018</u> |            | Vessel <u>NEOCALIGUS</u> |                     |                       |                 | Cruise ID <u>208-35</u> |                       |              |               |                                                              |                |
|--------------------|--------------|-----|------------|------------------|------------|--------------------------|---------------------|-----------------------|-----------------|-------------------------|-----------------------|--------------|---------------|--------------------------------------------------------------|----------------|
| Event Number       | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method            | Positional Latitude | Information Longitude | Bottom Pressure | Max Cast Pressure       | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                                              | Comments       |
| 53                 | CPE1         | 30  | 11:33      | BE               | BOT        | MSG                      | 49° 21' . 916       | 124° 4' . 960         | 245             | 5                       | 29                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-SE 5       |
| 54                 | CPE1         | 30  | 11:36      | BE               | BOT        | MSG                      | 49° 21' . 904       | 124° 4' . 930         | 245             | 10                      | 30                    | 2            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-FA 5 to 10 |
| 55                 | CPE1         | 30  | 11:43      | BE               | NET        | -                        | 49° 22' . 011       | 124° 5' . 021         | 245             |                         | -                     | -            | MB            | <input type="checkbox"/> <input type="checkbox"/>            |                |
|                    |              |     | 11:51      | BO               |            |                          | 49° 21' . 970       | 124° 4' . 913         | 232             | 235                     | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
|                    |              |     | 11:55      | EN               |            |                          | 49° 21' . 955       | 124° 4' . 881         |                 |                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 56                 | 108          | 30  | 15:44      | BE               | CTD        | -                        | 49° 4' . 386        | 123° 19' . 139        | 90              |                         | -                     | -            | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
|                    |              |     | 15:46      | BO               |            |                          | 49° 4' . 391        | 123° 19' . 151        |                 | 80                      | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
|                    |              |     | 15:48      | EN               |            |                          | 49° 4' . 395        | 123° 19' . 160        |                 |                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 57                 | 41           | 30  | 16:08      | BE               | CTD        |                          | 49° 3' . 315        | 123° 22' . 393        | 243             |                         | -                     |              | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
|                    |              |     | 16:13      | BO               | BOT        | MSG                      | 49° 3' . 357        | 123° 22' . 482        |                 | 233                     | 31                    | 1            |               | <input type="checkbox"/> <input type="checkbox"/>            | 2x DEPSAL      |
|                    |              |     | 16:18      | EN               |            |                          | 49° 3' . 371        | 123° 22' . 603        |                 |                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 58                 | 41           | 30  | 16:19      | BE               | BOT        | MSG                      | 49° 3' . 375        | 123° 22' . 618        | 243             | 5                       | 32                    | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-SE 5m      |
| 59                 | 41           | 30  | 16:23      | BE               | BOT        | MSG                      | 49° 3' . 404        | 123° 22' . 705        | 243             | 10                      | 33                    | 2            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-FA 5 + 10m |
| 60                 | 41           | 30  | 16:28      | BE               | NET        | -                        | 49° 3' . 318        | 123° 22' . 316        | 242             |                         | -                     |              | MB            | <input type="checkbox"/> <input type="checkbox"/>            |                |
|                    |              |     | 16:37      | BO               |            |                          | 49° 3' . 396        | 123° 22' . 459        |                 | 233                     | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
|                    |              |     | 16:41      | EN               |            |                          | 49° 3' . 440        | 123° 22' . 535        |                 |                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 61                 | 42           | 30  | 17:08      | BE               | CTD        | -                        | 49° 1' . 820        | 123° 26' . 193        | 322             |                         | -                     | -            | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
|                    |              |     | 17:14      | BO               |            |                          | 49° 1' . 882        | 123° 26' . 210        |                 | 312                     | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
|                    |              |     | 17:19      | EN               |            |                          | 49° 1' . 898        | 123° 26' . 220        |                 |                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |

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| Month <u>APRIL / MAY</u> |              |       | Year <u>2018</u> |           |            | Vessel <u>NEOCALIGOS</u> |                     |                       | Cruise ID       |                   |                       |              |               |                                                              |                            |
|--------------------------|--------------|-------|------------------|-----------|------------|--------------------------|---------------------|-----------------------|-----------------|-------------------|-----------------------|--------------|---------------|--------------------------------------------------------------|----------------------------|
| Event Number             | Station Name | Day   | Time (UTC)       | Time Code | Event Type | Firing Method            | Positional Latitude | Information Longitude | Bottom Pressure | Max Cast Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                                              | Comments                   |
| 62                       | 42           | 30    | 17:21            | BE        | BOT        | MSG                      | 49° 1' 9.00         | 123° 26' 23           | 326             | 0                 | 34-                   | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 1xchl 2xHPLC 275mL* 600mLs |
| 63                       | 46           | max 1 | 07:48            | BE        | CTD        | -                        | 48° 51' 338         | 123° 10' 777          | 179             |                   | -                     |              |               | <input type="checkbox"/> <input checked="" type="checkbox"/> |                            |
|                          |              |       | 07:51            | BO        |            |                          | 48° 51' 357         | 123° 10' 736          |                 | 166               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                            |
|                          |              |       | 07:54            | EN        |            |                          | 48° 51' 284         | 123° 10' 696          |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                            |
| 64                       | 46           | 1     | 07:55            | BE        | BOT        | MSG                      | 48° 51' 248         | 123° 10' 650          | 176             | 5                 | 35-                   | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-SI @ 5m                |
| 65                       | 46           | 1     | 07:58            | BE        | NET        | -                        | 48° 51' 175         | 123° 10' 570          | 176             |                   | -                     | -            | MB            | <input type="checkbox"/> <input type="checkbox"/>            |                            |
|                          |              |       | 08:04            | BO        |            |                          | 48° 51' 141         | 123° 10' 498          |                 | 166               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                            |
|                          |              |       | 08:07            | EN        |            |                          | 48° 51' 127         | 123° 10' 454          |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                            |
| 66                       | 56           | 1     | 09:08            | BE        | CTD        | -                        | 48° 46' 177         | 123° 1' 773           | 215             |                   | -                     | -            | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                            |
|                          |              |       | 09:11            | BO        |            |                          | 48° 46' 165         | 123° 1' 783           |                 | 204               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                            |
|                          |              |       | 09:14            | EN        |            |                          | 48° 46' 102         | 123° 1' 866           |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                            |
| 67                       | 56           | 1     | 09:15            | BE        | BOT        | MSG                      | 48° 46' 071         | 123° 1' 891           | 214             | 0                 | 36-                   | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 2xchl 1xPHY 2xHPLC 1240mL  |
| 68                       | 59           |       | 10:54            | BE        | CTD        |                          | 48° 36' 872         | 123° 14' 886          | 225             |                   | -                     | -            | MB            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                            |
|                          |              |       | 10:58            | BO        |            |                          | 48° 36' 745         | 123° 14' 806          |                 | 215               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                            |
|                          |              |       | 11:02            | EN        |            |                          | 48° 36' 633         | 123° 14' 739          |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                            |
| 69                       | 59           | 1     | 11:02            | BE        | BOT        | MSG                      | 48° 36' 586         | 123° 14' 714          | 225             | 0                 | 37-                   | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | 1xchl 1xPHY 2xHPLC         |
| 70                       | 59           | 1     | 11:05            | BE        | BOT        | MSG                      | 48° 36' 478         | 123° 14' 646          | 225             | 5                 | 38-                   | 1            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-SI @ 5m                |
| 71                       | 59           | 1     | 11:07            | BE        | BOT        | MSG                      | 48° 36' 408         | 123° 14' 557          | 225             | 10                | 39-                   | 2            | MB            | <input type="checkbox"/> <input type="checkbox"/>            | Pom-FA @ 5+10m             |
|                          |              |       | :                |           |            |                          | °                   | °                     |                 |                   | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                            |

## Event Type:

BOT = Bottle cast (no CTD)  
 CTD = Standalone CTD  
 ROS = CTD in Rosette  
 SET = Fish Set

## LOOP = Sea Water Loop

MOR = Mooring  
 NET = Plankton Net Haul  
 DRF = Drifter  
 =

## Bottle Firing Method:

US = Up / Stop (default)  
 UN = Up / No stop  
 DN = Down / No stop

## Notes:

## Time Code:

BE = Beginning Time of Cast  
 BO = Bottom Time of Cast  
 EN = End Time of Cast

## CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time  
 MR = Messenger Release Time  
 RE = Recover Mooring Time

Produced by the Water Properties Group, IOS

WaterProperties.ca  
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This page is for any notes or observations

CHLOROPHYLL FILTER REALLY SLOW, DID 275 ml AND STOPPED, FORGOT TO COLLECT PHYTO @ 42.

START DAYS: CLEAR, WIND 7-10 KNOTS

RESTARTED CAST @ 40 DUE TO EXTREME WIRE ANGLE, WILL BE CAST '22' + '23' ON CTD. <sup>WAS TURNED ON BRIEFLY</sup>