

# DAILY SCIENCE LOG BOOK

MISSION  
NUMBER

2018-37

DATE:

From: 17 July 2018

To: 21 July 2018

VESSEL:

Neocaligus

PROJECT(S):

SOG Zooplankton

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

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

Captain: Mark Meester First Officer: \_\_\_\_\_  
 Second Officer: \_\_\_\_\_ Third Officer: \_\_\_\_\_  
 Fishing Master: \_\_\_\_\_ Chief Engineer: Van Lorange

Mission Participants / Agencies:

Mark Tolluosen - Packhead      Tony Bray - Packhead / Cook

**\*\* Chief Scientist to complete section below OR cut and tape from cruise plan \*\***

**1<sup>st</sup> Leg Scientific Personnel:** Chief Scientist: Glenn Cooper

| Name   | Watch | Cabin | Watch | Cabin |
|--------|-------|-------|-------|-------|
| ▶ Name |       |       |       |       |

Matt Miller. (uvic)

David Catalano Mervelo (UBC)

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**2<sup>nd</sup> Leg Scientific Personnel:** \_\_\_\_\_ **Chief Scientist:** \_\_\_\_\_

| Name | Watch | Cabin | Name | Watch | Cabin |
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**\*\* 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: \_\_\_\_\_

CTD deck unit make: \_\_\_\_\_ model: \_\_\_\_\_ serial number: \_\_\_\_\_

**Primary CTD**

Make: Seabird model: SBE 25plus serial number: \_\_\_\_\_

Primary temperature serial number: 03P 2968

Primary conductivity serial number: 042173

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

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

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

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

Fluorometer: Model Wetlab's F1 RTD Cable gain: \_\_\_\_\_ s/n: 2144 P, S or NO pump?

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

Oxygen sensor: SBE 43 Model: \_\_\_\_\_ s/n: 430766 P, S or NO pump?

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

Other sensors: NO pH sensor was installed due to failure @ ship s/n: \_\_\_\_\_ P, S or NO pump?

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

Other sensors: Pure. SBE 05T s/n: 058372 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: \_\_\_\_\_ 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?

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: Niskins on wire with messengers

Number of bottles: 8

Manufacturer: \_\_\_\_\_

Volume of bottles (litres): 5 L

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):  
Only preservation chemicals taken, samples returned to JCS for analysis.

Thermosalinograph System (SBE21):

Program: N/A 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:

N/A

Computer time zone: \_\_\_\_\_

Sampling interval (sec): \_\_\_\_\_

Bin Length: (2^x): \_\_\_\_\_

Pulse Length: \_\_\_\_\_

Buffer (bytes): \_\_\_\_\_

Gyro Offset: \_\_\_\_\_

User Exits: Name: \_\_\_\_\_ Exit points: \_\_\_\_\_

Name: \_\_\_\_\_ Exit points: \_\_\_\_\_

Name: \_\_\_\_\_ Exit points: \_\_\_\_\_

Work File: \_\_\_\_\_

*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:*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## DAILY SCIENCE LOG

## Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>July</u> |              |     | Year <u>2018</u> |           | Vessel <u>Thalys</u> |               | Cruise ID <u>2018.37</u> |                       |              |              |                       |              |               |                                     |                                             |
|-------------------|--------------|-----|------------------|-----------|----------------------|---------------|--------------------------|-----------------------|--------------|--------------|-----------------------|--------------|---------------|-------------------------------------|---------------------------------------------|
| Event Number      | Station Name | Day | Time (UTC)       | Time Code | Event Type           | Firing Method | Positional Latitude      | Information Longitude | Bottom Depth | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                     | Comments                                    |
| 1                 | GEO1         | 17  | 20:39            | BE        | NET                  |               | 49° 15.002               | 123° 44.965           | 405          |              | -                     |              | GC            | <input type="checkbox"/>            |                                             |
|                   |              |     | 20:53            | BO        |                      |               | 49° 15.006               | 123° 44.964           |              | 395          | -                     |              |               | <input type="checkbox"/>            |                                             |
|                   |              |     | 21:01            | EN        |                      |               | 49° 15.001               | 123° 44.961           |              |              | -                     |              |               | <input type="checkbox"/>            |                                             |
| 2                 | GEO1         | 17  | 21:09            | BE        | CTD                  |               | 49° 14.995               | 123° 45.011           | 406          |              | -                     |              | GC            | <input checked="" type="checkbox"/> |                                             |
|                   |              |     | 21:18            | BO        |                      |               | 49° 14.979               | 123° 45.022           |              | 396          | -                     |              |               | <input type="checkbox"/>            |                                             |
|                   |              |     | 21:25            | EN        |                      |               | 49° 14.944               | 123° 44.961           | 405          |              | -                     |              |               | <input type="checkbox"/>            |                                             |
| 3                 | GEO1         | 17  | 21:30            | BE        | BOT                  | NSR           | 49° 14.995               | 123° 45.020           |              | 396          | 1-8                   | 8            | GC            | <input type="checkbox"/>            | Too a long time to                          |
|                   |              |     | 21:46            | MR        |                      |               | 49° 14.983               | 123° 44.980           |              |              | -                     |              |               | <input type="checkbox"/>            | sample from mooring.                        |
|                   |              |     | 22:05            | EN        |                      |               | 49° 14.920               | 123° 44.942           |              |              | -                     |              |               | <input type="checkbox"/>            | It was hard to keep.                        |
| 4                 | GEO1         | 17  | 22:39            | BE        | BOT                  | NSR           | 49° 14.999               | 123° 44.972           | 405          | 5            | 9-10                  | 2            | GC            | <input type="checkbox"/>            | Murkin #6 = 5m.<br>Niskin #7 = 0m           |
|                   |              |     | 22:40            | MR        |                      |               | 49° 14.996               | 123° 44.971           |              |              | -                     |              |               | <input type="checkbox"/>            |                                             |
|                   |              |     | 22:41            | EN        | BOT                  |               | 49° 14.995               | 123° 44.965           |              |              | -                     |              |               | <input type="checkbox"/>            |                                             |
| 5                 | GEO1         | 17  | 22:42            | EN        | BOT                  | Surface       | 49° 14.995               | 123° 44.965           | 405          | 0m           | 11-                   | 1            | DCM           | <input type="checkbox"/>            | APC sampler 40m's<br>Labelled as but failed |
| 6                 | BS11         | 18  | 14:22            | BE        | NET                  |               | 49° 29.083               | 124° 46.011           | 63           |              | -                     |              |               | <input type="checkbox"/>            |                                             |
|                   |              |     | 14:24            | BO        |                      |               | 49° 29.088               | 124° 46.015           |              | 52           | -                     |              |               | <input type="checkbox"/>            |                                             |
|                   |              |     | 14:25            | EN        |                      |               | 49° 29.092               | 124° 46.024           |              |              | -                     |              |               | <input type="checkbox"/>            |                                             |
| 7                 | BS11         | 18  | 14:33            | BE        | CTD                  |               | 49° 29.099               | 124° 46.048           | 62           |              | -                     |              |               | <input checked="" type="checkbox"/> |                                             |
|                   |              |     | 14:34            | BO        |                      |               | 49° 29.108               | 124° 46.046           |              | 57           | -                     |              |               | <input type="checkbox"/>            |                                             |
|                   |              |     | 14:35            | EN        |                      |               | 49° 29.113               | 124° 46.045           |              |              | -                     |              |               | <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  
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## 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

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↓ be labelled as needed another surface m... Ran out with sample #8

## DAILY SCIENCE LOG

## Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>July</u> |              |     |            | Year <u>2018</u> |            | Vessel <u>Neocalanus</u> |                     | Cruise ID <u>2018-37</u> |              |              |                       |              |               |                                     |                                                                      |
|-------------------|--------------|-----|------------|------------------|------------|--------------------------|---------------------|--------------------------|--------------|--------------|-----------------------|--------------|---------------|-------------------------------------|----------------------------------------------------------------------|
| Event Number      | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method            | Positional Latitude | Information Longitude    | Bottom Depth | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                     | Comments                                                             |
| 8                 | BS11         | 15  | 14:24      | MR               | BOT        |                          | 49° 29.05           | 124° 46.015              | 62           | 0            | 12-                   | 1            | DC            | <input type="checkbox"/>            |                                                                      |
| 9                 | BS11         | 15  | 14:32      | MR               | BOT        |                          | 49° 29.120          | 124° 46.050              | 62           | 0            | 13-                   | 1            | GC            | <input type="checkbox"/>            |                                                                      |
| 10                | CPF2         | 15  | 15:48      | BE               | NET        |                          | 49° 27.981          | 124° 29.996              | 332          |              | -                     |              | MM/PC         | <input type="checkbox"/>            |                                                                      |
|                   |              |     | 15:58      | BO               |            |                          | 49° 27.957          | 124° 29.982              |              | 322          | -                     |              |               | <input type="checkbox"/>            |                                                                      |
|                   |              |     | 16:03      | EN               |            |                          | 49° 27.909          | 124° 29.978              |              |              | -                     |              |               | <input type="checkbox"/>            |                                                                      |
| 11                | CPF2         | 15  | 16:07      | BE               | CTD        |                          | 49° 27.898          | 124° 29.996              | 332          |              | -                     |              | GC            | <input checked="" type="checkbox"/> | Started a cast but boat repositioned so restarted 2nd file for data. |
|                   |              |     | 16:18      | BO               |            |                          | 49° 27.896          | 124° 29.997              |              | 322          | -                     |              |               | <input type="checkbox"/>            |                                                                      |
|                   |              |     | 16:21      | EN               |            |                          | 49° 22.892          | 124° 29.965              |              |              | -                     |              |               | <input type="checkbox"/>            |                                                                      |
| 12                | CPF2         | 15  | 17:23      | MR               | BOT        |                          | 49° 27.963          | 124° 29.951              |              |              | 22-23                 | 2            | PC            | <input type="checkbox"/>            | 0-5m POM. Si / Bm / F                                                |
| 13                | CPF2         | 15  | 15:55      | MR               | BOT        |                          | 49° 27.976          | 124° 29.994              |              |              | 24                    | 1            | GC/MM         | <input type="checkbox"/>            | HPLC / CHL                                                           |
| 14                | CPF2         | 15  | 16:58      | MR               | BOT        |                          | 49° 27.881          | 124° 29.947              | 334          | 324          | 14-21                 | 8            | mm/GC         | <input type="checkbox"/>            | Biogenecum cast.                                                     |
| 15                | 03           | 15  | 18:14      | BE               | CTD        |                          | 49° 26.632          | 124° 20.256              | 326          |              | -                     |              | GC            | <input checked="" type="checkbox"/> |                                                                      |
|                   |              |     | 18:21      | BO               |            |                          | 49° 26.674          | 124° 20.283              |              | 316          | -                     |              |               | <input type="checkbox"/>            |                                                                      |
|                   |              |     | 18:22      | EN               |            |                          | 49° 26.679          | 124° 20.311              |              |              | -                     |              |               | <input type="checkbox"/>            |                                                                      |
| 16                | 03           | 15  | 18:14      | MR               | BOT        |                          | 49° 26.632          | 124° 20.256              |              |              | 25-                   | 1            | MM/PC         | <input type="checkbox"/>            | 2xHPLC / CHL / SON                                                   |
| 17                | 06           | 15  | 19:09      | BE               | CTD        |                          | 49° 30.608          | 124° 27.834              | 195          |              | -                     |              |               | <input type="checkbox"/>            |                                                                      |
|                   |              |     | 19:15      | BO               |            |                          | 49° 30.606          | 124° 27.861              |              | 185          | -                     |              |               | <input type="checkbox"/>            |                                                                      |
|                   |              |     | 19:18      | EN               |            |                          | 49° 30.612          | 124° 27.877              |              |              | -                     |              |               | <input type="checkbox"/>            |                                                                      |
| 18                | 06           |     | 19:10      |                  | BOT        |                          | 49° 30.608          | 124° 27.834              | 195          | 0            | 26-                   | 1            |               | <input type="checkbox"/>            | 2xHPLC / CHL / SON                                                   |

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# DAILY SCIENCE LOG

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| Month <u>July</u> |              |     |            | Year <u>2015</u> |            | Vessel <u>Neoclepus</u> |                        |             |              | Cruise ID <u>2015-57</u> |                       |              |               |                                     |                                               |
|-------------------|--------------|-----|------------|------------------|------------|-------------------------|------------------------|-------------|--------------|--------------------------|-----------------------|--------------|---------------|-------------------------------------|-----------------------------------------------|
| Event Number      | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method           | Positional Information |             | Bottom Depth | Max Pressure             | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                     | Comments                                      |
|                   |              |     |            |                  |            |                         | Latitude               | Longitude   |              |                          |                       |              |               |                                     |                                               |
| 19                | 09           | 18  | 20:15      | BE               | CTD        |                         | 49° 35.496             | 124° 38.349 | 171          |                          | -                     |              | GC            | <input checked="" type="checkbox"/> |                                               |
|                   |              |     | 20:19      | BO               |            |                         | 49° 35.490             | 124° 38.358 |              | 161                      | -                     |              |               | <input type="checkbox"/>            |                                               |
|                   |              |     | 20:23      | EN               |            |                         | 49° 35.489             | 124° 38.355 |              |                          | -                     |              |               | <input type="checkbox"/>            | CTD: Switch was turned off then back on & off |
| 20                | 09           | 18  | 20:17      | MR               | BOT        |                         | 49° 35.496             | 124° 38.351 |              | 0                        | 27-                   | 1            |               | <input type="checkbox"/>            |                                               |
| 21                | 11           | 18  | 21:16      | BE               | NET        |                         | 49° 42.426             | 124° 43.416 | 304          |                          | -                     |              | MM            | <input type="checkbox"/>            |                                               |
|                   |              |     | 21:25      | BO               |            |                         | 49° 42.432             | 124° 43.374 |              | 294                      | -                     |              |               | <input type="checkbox"/>            |                                               |
|                   |              |     | 21:30      | EN               |            |                         | 49° 42.441             | 124° 43.345 |              |                          | -                     |              |               | <input type="checkbox"/>            |                                               |
| 22                | 11           | 18  | 21:16      | MR               | BOT        |                         | 49° 42.426             | 124° 43.416 |              | 0                        | 28-                   | 1            | PCM           | <input type="checkbox"/>            | POM SE Sample                                 |
| 23                | 11           | 18  | 21:36      | BE               | CTD        |                         | 49° 42.438             | 124° 43.315 | 304          |                          | -                     |              | GC            | <input checked="" type="checkbox"/> |                                               |
|                   |              |     | 21:42      | BO               |            |                         | 49° 42.442             | 124° 43.282 |              | 294                      | -                     |              |               | <input type="checkbox"/>            |                                               |
|                   |              |     | 21:48      | EN               |            |                         | 49° 42.448             | 124° 43.271 |              |                          | -                     |              |               | <input type="checkbox"/>            |                                               |
| 24                | 11           | 18  | 21:50      | MR               | BOT        |                         | 49° 42.451             | 124° 43.274 | 304          | 5                        | 29-30                 | 2            | G/C           | <input type="checkbox"/>            | 29 = 5m POM-FA                                |
| 25                | 12           | 18  | 22:09      | BE               | CTD        |                         | 49° 43.608             | 124° 40.831 | 358          |                          | -                     |              | GC            | <input checked="" type="checkbox"/> |                                               |
|                   |              |     | 22:18      | BO               |            |                         | 49° 43.639             | 124° 40.798 |              | 348                      | -                     |              |               | <input type="checkbox"/>            |                                               |
|                   |              |     | 22:23      | EN               |            |                         | 49° 43.635             | 124° 40.772 |              |                          | -                     |              |               | <input type="checkbox"/>            |                                               |
| 26                | 12           | 18  | 22:11      | MR               | BOT        |                         | 49° 43.618             | 124° 40.823 | 358          | 0                        | 31-                   | 1            | GC            | <input type="checkbox"/>            | 2xchl, 2xHPLC, phyto                          |
| 27                | 20           | 18  | 23:27      | BE               | CTD        |                         | 49° 47.215             | 124° 32.337 | 313          |                          | -                     |              | GC            | <input checked="" type="checkbox"/> |                                               |
|                   |              |     | 23:34      | BO               |            |                         | 49° 47.218             | 124° 32.357 |              | 303                      | -                     |              |               | <input type="checkbox"/>            |                                               |
|                   |              |     | 23:40      | EN               |            |                         | 49° 47.216             | 124° 32.349 |              |                          | -                     |              |               | <input type="checkbox"/>            |                                               |

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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: 14 February 2013

*This page is for any notes or observations*

quickly by engineer Danny by mistake. Disregard file: 2018-07-18T202303 SB60251123.xml

## DAILY SCIENCE LOG

## Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>July</u> |              |     |            | Year <u>2018</u> |            |               | Vessel <u>Neo calopus</u> |             |              | Cruise ID    |                       |              |               |                                                              |                                      |
|-------------------|--------------|-----|------------|------------------|------------|---------------|---------------------------|-------------|--------------|--------------|-----------------------|--------------|---------------|--------------------------------------------------------------|--------------------------------------|
| Event Number      | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method | Positional Information    |             | Bottom Depth | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                                              | Comments                             |
| 28                | 22           | 19  | 15:37      | BE               | NET        |               | 49° 40.157                | 124° 16.257 | 356.         |              | -                     |              | MM            | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
|                   |              |     | 15:48      | BO               |            |               | 49° 40.191                | 124° 16.292 |              | 346          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
|                   |              |     | 15:54      | EN               |            |               | 49° 40.181                | 124° 16.311 |              |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
| 29                | 22           | 19  | 15:57      | BE               | CTD        |               | 49° 40.176                | 124° 16.322 | 356          |              | 32-                   | 1            | GC            | <input checked="" type="checkbox"/> <input type="checkbox"/> | Recover water Sal                    |
|                   |              |     | 16:05      | BO               |            | MR            | 49° 40.176                | 124° 16.375 |              | 346          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
|                   |              |     | 16:14      | EN               |            |               | 49° 40.170                | 124° 16.415 |              |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
| 30                | 22           | 19  | 15:39      |                  | BST        |               | 49° 40.190                | 124° 16.290 | 356          | 0            | 33-                   | 1            | DCM           | <input type="checkbox"/> <input type="checkbox"/>            | POM-SI                               |
| 31                | 22           | 19  | 15:41      |                  | BOT        |               | 49° 40.193                | 124° 16.281 | 356          | 0            | 34-                   | 1            | DCM/GC        | <input type="checkbox"/> <input type="checkbox"/>            | CHL, HPLC, Photo                     |
| 32                | 22           | 19  | 16:17      |                  | BOT        |               | 49° 40.164                | 124° 16.422 | 356.         | 5            | 35-36                 | 2            | DCM           | <input type="checkbox"/> <input type="checkbox"/>            | POM-FA                               |
| 33                | IS-2         | 19  | 17:13      | BE               | NET        |               | 49° 38.207                | 124° 05.010 | 31           |              | -                     |              | GC/MM         | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
|                   |              |     | 17:14      | BO               |            |               | 49° 38.204                | 124° 05.009 |              | 26           | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
|                   |              |     | 17:15      | EN               |            |               | 49° 38.204                | 124° 05.007 |              |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
| 34                | IS-2         | 19  | 17:19      | BE               | CTD        |               | 49° 38.203                | 124° 04.996 | 32           |              | -                     |              | GC            | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
|                   |              |     | 17:22      | BO               |            |               | 49° 38.204                | 124° 04.990 |              | 27           | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
| *35)              |              |     | 17:23      | EN               |            |               | 49° 38.204                | 124° 04.973 |              |              | 37-                   | 1            | DCM           | <input type="checkbox"/> <input type="checkbox"/>            | *Event # 35 was added for kind after |
| 36                | 24           | 19  | 18:15      | BE               | NET        |               | 49° 30.321                | 124° 06.022 | 431          |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
|                   |              |     | 18:22      | BO               |            |               | 49° 30.316                | 124° 06.052 |              | 421          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
|                   |              |     | 18:34      | EN               |            |               | 49° 30.314                | 124° 06.072 |              |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                      |
| 37                | 24           | 19  | 18:16      |                  | BOT        |               | 49° 30.321                | 124° 06.022 | 431          | 0            | 38-                   | 1            | DCM           | <input type="checkbox"/> <input type="checkbox"/>            | POM-SI                               |

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 SET = Fish Set

## LOOP = Sea Water Loop

MOR = Mooring  
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 DRF = Drifter  
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## Bottle Firing Method:

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## Notes:

## Time Code:

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

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This page is for any notes or observations

book filled out. Event #35. bottle @ 0 m for POM-SI sample # 37. Time, Lat & Long same as 30 event for Net

## DAILY SCIENCE LOG

## Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>July</u> |              |     |            | Year <u>2018</u> |            | Vessel <u>Neuroline</u> |                        |             |              | Cruise ID <u>2018-07</u> |                       |              |               |                                     |                        |
|-------------------|--------------|-----|------------|------------------|------------|-------------------------|------------------------|-------------|--------------|--------------------------|-----------------------|--------------|---------------|-------------------------------------|------------------------|
| Event Number      | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method           | Positional Information |             | Bottom Depth | Max Pressure             | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                     | Comments               |
| 38                | 24           | 19  | 18:40      | BE               | CTD        |                         | 49° 30.314             | 124° 06.053 | 431          |                          | -                     |              | GC            | <input checked="" type="checkbox"/> |                        |
|                   |              |     | 18:50      | BO               |            |                         | 49° 30.346             | 124° 06.105 |              | 421                      | -                     |              |               | <input type="checkbox"/>            |                        |
|                   |              |     | 18:57      | EN               |            |                         | 49° 30.361             | 124° 06.258 |              |                          | -                     |              |               | <input type="checkbox"/>            |                        |
| 39                | 2            | 19  | 19:45      | BE               | CTD        |                         | 49° 24.072             | 124° 09.322 | 281          |                          | -                     |              |               | <input checked="" type="checkbox"/> |                        |
|                   |              |     | 19:51      | BO               |            |                         | 49° 24.072             | 124° 09.339 |              | 271                      | -                     |              |               | <input type="checkbox"/>            |                        |
|                   |              |     | 19:55      | EN               |            |                         | 49° 24.065             | 124° 09.360 |              |                          | -                     |              |               | <input type="checkbox"/>            |                        |
| 40                | 2            | 19  | 19:44      | MR               | BOT        |                         | 49° 24.072             | 124° 09.321 | 281          | 0                        | 39-                   | 1            | MM            | <input type="checkbox"/>            | 2x C4L, 2x HPLC, Phyto |
| 41                | CPF1         | 19  | 20:21      | BE               | NET        |                         | 49° 21.993             | 124° 05.011 | 248          |                          | -                     |              |               | <input type="checkbox"/>            |                        |
|                   |              |     | 20:30      | BO               |            |                         | 49° 22.002             | 124° 05.013 |              | 238                      | -                     |              |               | <input type="checkbox"/>            |                        |
|                   |              |     | 20:34      | EN               |            |                         | 49° 22.003             | 124° 05.011 |              |                          | -                     |              |               | <input type="checkbox"/>            |                        |
| 42                | CPF1         | 19  | 20:37      | BE               | CTD        |                         | 49° 22.006             | 124° 05.006 | 248          |                          | -                     |              | GC            | <input checked="" type="checkbox"/> |                        |
|                   |              |     | 20:43      | BO               |            |                         | 49° 22.002             | 124° 05.006 |              | 238                      | -                     |              |               | <input type="checkbox"/>            |                        |
|                   |              |     | 20:46      | EN               |            |                         | 49° 22.005             | 124° 05.016 |              |                          | -                     |              |               | <input type="checkbox"/>            |                        |
| 43                | CPF1         | 19  | 20:22      | MR               | BOT        |                         | 49° 21.995             | 124° 05.023 | 248          | 0                        | 40-                   | 1            | DCM           | <input type="checkbox"/>            | POM-SI                 |
| 44                | CPF1         | 19  | 20:49      | MR               | BOT        |                         | 49° 22.004             | 124° 05.029 |              | 5                        | 41-42                 | 2            | DCM           | <input type="checkbox"/>            | POM-FA                 |
| 45                | 28           | 19  | 22:19      | BE               | NET        |                         | 49° 24.123             | 123° 45.360 | 136          |                          | -                     |              |               | <input type="checkbox"/>            |                        |
|                   |              |     | 22:23      | BO               |            |                         | 49° 24.134             | 123° 45.370 |              | 126                      | -                     |              |               | <input type="checkbox"/>            |                        |
|                   |              |     | 22:26      | EN               |            |                         | 49° 24.137             | 123° 45.379 |              |                          | -                     |              |               | <input type="checkbox"/>            |                        |
|                   |              |     | :          |                  |            |                         | °                      | °           |              |                          | -                     |              |               | <input type="checkbox"/>            |                        |

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Notes:

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## DAILY SCIENCE LOG

## Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>July</u> |              |     | Year <u>2018</u> |           |            | Vessel <u>Neocleus</u> |                        |             | Cruise ID <u>2018-37</u> |              |                       |              |               |                                     |                         |
|-------------------|--------------|-----|------------------|-----------|------------|------------------------|------------------------|-------------|--------------------------|--------------|-----------------------|--------------|---------------|-------------------------------------|-------------------------|
| Event Number      | Station Name | Day | Time (UTC)       | Time Code | Event Type | Firing Method          | Positional Information |             | Bottom Depth             | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                     | Comments                |
|                   |              |     |                  |           |            |                        | Latitude               | Longitude   |                          |              |                       |              |               |                                     |                         |
| ✓ 46              | 28           | 19  | 22:29            | BE        | CTD        |                        | 49° 24.158             | 123° 45.382 | 136                      |              | -                     |              | GC            | <input checked="" type="checkbox"/> |                         |
|                   |              |     | 22:34            | BO        |            |                        | 49° 24.138             | 123° 45.380 |                          | 126.         | -                     |              |               | <input type="checkbox"/>            |                         |
|                   |              |     | 22:36            | EN        |            |                        | 49° 24.141             | 123° 45.385 |                          |              | -                     |              |               | <input type="checkbox"/>            |                         |
| 47                | 28           | 19  | 22:25            | MR        | BOT        |                        | 49° 24.138             | 123° 45.385 | 136                      | 0            | 43-                   | 1            | PCR.          | <input type="checkbox"/>            | POM-SL                  |
| 48                | 28           | 19  | 22:30            | MR        | BOT        |                        | 49° 24.136             | 123° 45.374 | 136.                     | 0            | 44-                   | 1            | GC/MM         | <input type="checkbox"/>            | CHL, 2x HPLC, ID        |
| ✓ 49              | 27           | 19  | 23:15            | BE        | CTD        |                        | 49° 19.112             | 123° 47.996 | 349                      |              | -                     |              |               | <input checked="" type="checkbox"/> |                         |
|                   |              |     | 23:22            | BO        |            |                        | 49° 19.137             | 123° 47.975 |                          | 339          | -                     |              |               | <input type="checkbox"/>            |                         |
|                   |              |     | :25              | EN        |            |                        | 49° 19.173             | 123° 47.974 |                          |              | -                     |              |               | <input type="checkbox"/>            |                         |
| 50                | 27           | 19  | 23:16            | MR        | BOT        |                        | 49° 19.113             | 123° 47.991 | 349                      | 0            | 45-                   | 1            | MM.           | <input type="checkbox"/>            | CHL, 2x HPLC, phyto, ID |
| 51                | 40           | 20  | 15:36            | BE        | NET        |                        | 49° 08.587             | 123° 36.770 | 156                      |              | -                     |              | MM.           | <input type="checkbox"/>            |                         |
|                   |              |     | 15:41            | BO        |            |                        | 49° 08.575             | 123° 36.770 |                          | 146.         | -                     |              |               | <input type="checkbox"/>            |                         |
|                   |              |     | 15:43            | EN        |            |                        | 49° 08.574             | 123° 36.772 |                          |              | -                     |              |               | <input type="checkbox"/>            |                         |
| ✓ 52              | 40           | 20  | 15:49            | BE        | CTD        |                        | 49° 08.568             | 123° 36.830 | 153                      |              | -                     |              |               | <input checked="" type="checkbox"/> |                         |
|                   |              |     | 15:54            | BO        |            |                        | 49° 08.557             | 123° 36.851 |                          | 143          | -                     |              |               | <input type="checkbox"/>            |                         |
|                   |              |     | 15:56            | EN        |            |                        | 49° 08.552             | 123° 36.871 |                          |              | -                     |              |               | <input type="checkbox"/>            |                         |
| ✓ 53              | 39           | 20  | 19:33            | BE        | CTD        |                        | 49° 09.824             | 123° 32.140 | 368                      |              | -                     |              |               | <input type="checkbox"/>            |                         |
|                   |              |     | 19:41            | BO        |            |                        | 49° 09.822             | 123° 32.236 |                          | 358          | -                     |              |               | <input type="checkbox"/>            |                         |
|                   |              |     | 19:48            | EN        |            |                        | 49° 09.816             | 123° 32.311 |                          |              | -                     |              |               | <input type="checkbox"/>            |                         |
| 54                | 39           | 20  | 19:37            | MR        | BOT        |                        | 49° 09.829             | 123° 32.125 | 368                      | 0            | 46-                   | 1            |               | <input type="checkbox"/>            | 2x CHL, 2x HPLC, ID     |

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 — = —

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... .. NW  
Weather blowing 20-25 knts in Salin Sea. Unable to proceed to Sta # 39. Soaking shelter until wind comes down  
+ tide changes from Flood to ebb. Departed for station #39 ~1215, wind down to 5 knts.

## DAILY SCIENCE LOG

## Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>Jan</u> |              |     |            | Year <u>2018</u> |            | Vessel <u>Neocalanus</u> |                     | Cruise ID <u>2018-37</u> |              |              |                       |              |               |                                     |                         |
|------------------|--------------|-----|------------|------------------|------------|--------------------------|---------------------|--------------------------|--------------|--------------|-----------------------|--------------|---------------|-------------------------------------|-------------------------|
| Event Number     | Station Name | Day | Time (UTC) | Time Code        | Event Type | Firing Method            | Positional Latitude | Information Longitude    | Bottom Depth | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                     | Comments                |
| 55               | 38           | 20  | 20:24      | BE               | NET        |                          | 49° 11.982          | 123° 26.414              | 312          |              | -                     |              | M/M           | <input type="checkbox"/>            |                         |
|                  |              |     | 20:33      | BO               |            |                          | 49° 11.982          | 123° 26.416              |              | 302          | -                     |              |               | <input type="checkbox"/>            |                         |
|                  |              |     | 20:39      | EN               |            |                          | 49° 11.987          | 123° 26.425              |              |              | -                     |              |               | <input type="checkbox"/>            |                         |
| 56               | 38           | 20  | 20:43      | BE               | CTD        |                          | 49° 11.987          | 123° 26.450              | 312          |              | -                     |              | GC            | <input checked="" type="checkbox"/> |                         |
|                  |              |     | 20:51      | BO               |            |                          | 49° 11.980          | 123° 26.462              |              | 302          | 47-                   | 1            |               | <input type="checkbox"/>            | Deep Sea x2             |
|                  |              |     | 20:59      | EN               |            |                          | 49° 11.953          | 123° 26.508              |              |              | -                     |              |               | <input type="checkbox"/>            |                         |
| 57               | 38           | 20  | 20:24      | MR               | BOT        |                          | 49° 11.982          | 123° 26.414              |              | 0            | 75-                   | 1            | DCM           | <input type="checkbox"/>            | POM-SI                  |
| 58               | 41           | 20  | 22:22      | BE               | NET        |                          | 49° 03.282          | 123° 22.335              | 246          |              | -                     |              | M/M           | <input type="checkbox"/>            |                         |
|                  |              |     | 22:30      | BO               |            |                          | 49° 03.321          | 123° 22.419              |              | 240          | -                     |              |               | <input type="checkbox"/>            | 2° wire angle           |
|                  |              |     | 22:34      | EN               |            |                          | 49° 03.309          | 123° 22.445              |              |              | -                     |              |               | <input type="checkbox"/>            |                         |
| 59               | 41           | 20  | 22:39      | BE               | CTD        |                          | 49° 03.303          | 123° 22.349              | 246          |              | -                     |              | GC            | <input checked="" type="checkbox"/> |                         |
|                  |              |     | 22:45      | BO               |            |                          | 49° 03.296          | 123° 22.314              |              | 236          | -                     |              |               | <input type="checkbox"/>            |                         |
|                  |              |     | 22:49      | EN               |            |                          | 49° 03.299          | 123° 22.306              |              |              | -                     |              |               | <input type="checkbox"/>            |                         |
| 60               | 41           | 20  | 22:22      | MR               | BOT        |                          | 49° 03.282          | 123° 22.335              |              | 0            | 49-                   | 1            | DCM           | <input type="checkbox"/>            | POM-SI sample           |
| 61               | 41           | 20  | 22:52      | MR               | BOT        |                          | 49° 03.301          | 123° 22.313              |              | 5            | 50-51                 | 2            | GC/DCM        | <input type="checkbox"/>            | POM-FA sample           |
| 62               | 42           | 20  | 23:14      | BE               | CTD        |                          | 49° 01.807          | 123° 26.223              | 323          |              | -                     |              |               | <input type="checkbox"/>            |                         |
|                  |              | 20  | 23:21      | BO               |            |                          | 49° 01.791          | 123° 26.234              |              | 313          | -                     |              |               | <input type="checkbox"/>            |                         |
|                  |              | 20  | 23:26      | EN               |            |                          | 49° 01.784          | 123° 26.255              |              |              | -                     |              |               | <input type="checkbox"/>            |                         |
| 63               | 42           | 20  | 23:14      | MR               | BOT        |                          | 49° 01.807          | 123° 26.223              | 323          | 0            | 52-                   | 1            |               | <input type="checkbox"/>            | chl, 2x HPLC, Phyto, IS |

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Produced by the Water Properties Group, IOS

WaterProperties.ca  
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SAR on the way to transiting to Sh#41. Failed to stand by @ ~1450. Told to stand down @ 1513 as proceeding to Sh#41.

Lots of snotty stringy bits (Genus name) in the water @ surface. @ 1013 @ 1013.

## DAILY SCIENCE LOG

## Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>July</u> |              |     | Year <u>2018</u> |           | Vessel <u>Marina</u> |               | Cruise ID <u>2018-37</u> |                       |              |              |                       |              |               |                                                              |                     |
|-------------------|--------------|-----|------------------|-----------|----------------------|---------------|--------------------------|-----------------------|--------------|--------------|-----------------------|--------------|---------------|--------------------------------------------------------------|---------------------|
| Event Number      | Station Name | Day | Time (UTC)       | Time Code | Event Type           | Firing Method | Positional Latitude      | Information Longitude | Bottom Depth | Max Pressure | Sample Serial Numbers | # of Bottles | Watch Keepers | Trns/FI Cleaned                                              | Comments            |
| 64                | 46           | 21  | 14:39            | BE        | NET                  |               | 48° 51.386               | 123° 10.790           | 181          |              | -                     |              | MM            | <input type="checkbox"/> <input type="checkbox"/>            | Long 123° 10.800    |
|                   |              |     | 14:45            | BO        |                      |               | 48° 51.384               | 123° 10.793           |              | 176          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
|                   |              |     | 14:47            | EN        |                      |               | 48° 51.383               | 123° 10.793           |              |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
| ✓ 65              | 46           | 21  | 14:52            | BE        | CTD                  |               | 48° 51.382               | 123° 10.790           | 181          |              | -                     |              | GC            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                     |
|                   |              |     | 14:56            | BO        |                      |               | 48° 51.384               | 123° 10.794           |              | 171          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
|                   |              |     | 15:00            | EN        |                      |               | 48° 51.384               | 123° 10.793           |              |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
| 66                | 46           | 21  | 14:39            | MR        | BOT                  |               | 48° 51.386               | 123° 10.806           | 181          | 0            | 60-                   | 1            | 2CM           | <input type="checkbox"/> <input type="checkbox"/>            | POM-SE              |
| 67                | 46           |     | 14:44            | MR        | BOT                  |               | 48° 51.384               | 123° 10.793           | 181          | 0            | 61-                   | 1            | MM/GC         | <input type="checkbox"/> <input type="checkbox"/>            | 2xCHL, 2xHPL        |
| 68                | 46           | 21  | 15:11            | MR        | BOT                  |               | 48° 51.388               | 123° 10.783           | 181          | 171          | 53-59                 | 7            | GC/MM         | <input type="checkbox"/> <input type="checkbox"/>            | Biochemistry        |
| ✓ 69              | 56           | 21  | 16:56            | BE        | CTD                  |               | 48° 46.432               | 123° 01.572           | 212          |              | -                     |              |               | <input type="checkbox"/> <input checked="" type="checkbox"/> |                     |
|                   |              |     | 17:02            | BO        |                      |               | 48° 46.435               | 123° 01.584           |              | 202          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
|                   |              |     | 17:06            | EN        |                      |               | 48° 46.425               | 123° 01.589           |              |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
| 70                | 56           | 21  | 16:56            | MR        | BOT                  |               | 48° 46.432               | 123° 01.572           | 212          | 0            | 62-                   | 1            |               | <input type="checkbox"/> <input type="checkbox"/>            | 2xCHL, 2xHPL, 2xTMS |
| 71                | 59           | 21  | 18:47            | BE        | NET                  |               | 48° 36.978               | 123° 14.992           | 237          |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
|                   |              |     | 18:54            | BO        |                      |               | 48° 36.953               | 123° 15.023           |              | 227          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
|                   |              |     | 18:58            | EN        |                      |               | 48° 36.967               | 123° 15.024           |              |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
| ✓ 72              | 59           | 21  | 19:02            | BE        | CTD                  |               | 48° 36.970               | 123° 15.041           | 237          |              | -                     |              |               | <input type="checkbox"/> <input checked="" type="checkbox"/> |                     |
|                   |              |     | 19:07            | BO        |                      |               | 48° 36.979               | 123° 15.032           |              | 227          | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |
|                   |              |     | 19:11            | EN        |                      |               | 48° 36.970               | 123° 15.033           |              |              | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                     |

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