

# DAILY SCIENCE LOG BOOK

MISSION  
NUMBER

IOS 2019-053

SOG 2019-03

DATE:

From: 10 SEPT. 2019

To: 28 SEPT. 2019

VESSEL:

Sea Crest

PROJECT(S):

SOG Juvenile Salmon - Neville

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

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

Captain: Nathan Dobie First Officer: Terry Mosher  
Second Officer: James Brown Third Officer: Gerry Surko  
Fishing Master: \_\_\_\_\_ Chief Engineer: Brad Geschke

Mission Participants / Agencies:

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

1<sup>st</sup> Leg Scientific Personnel: Chrys Neville 2

| Name            | Watch | Cabin |
|-----------------|-------|-------|
| Brian Recalma   | 1     | 1     |
| Yeongha Jung    | 1     | 1     |
| Colleen Haddad  | 2     | 2     |
| Lenora Turcotte | 2     | 2     |

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

[illegible]

**\*\* 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: Sea Bird model: 25 serial number: 01404

Primary temperature serial number: 4843

Primary conductivity serial number: 1764

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

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

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

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

Fluorometer: Model FLRTD Cable gain: \_\_\_\_\_ s/n: 2216 P, S or NO pump?

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

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

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

Other sensors: PRESURE Model: 29 s/n: 0464 P, S or NO pump?

Other sensors: PH Model: 18-I 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?

#### Secondary CTD

Make: Sea Bird model: 19+ serial number: 5299

Primary temperature serial number: 4862

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: 43 s/n: 0047 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-rosette casts (e.g., W.E. Ricker)*

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: Sensors:

Others:

Plankton Nets:

Bongo #1 Frame Size: 60 cm Mesh: 250 μm Flowmeter: 6069  
Bongo #2 Frame Size: cm Mesh: μm Flowmeter:  
Frame Size: cm Mesh: μm Flowmeter:  
Frame Size: cm Mesh: μm Flowmeter:

Multinet BIONESS Neuston Others:

Flowmeter coefficient = 0.14633

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:

- 
- 
- 
- 
-

# DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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| Month <u>September</u> |              |     | Year <u>2019</u> |           |            | Vessel <u>Sea Crest</u> |                        |            | Cruise ID <u>2019-053 (SOG2019-03)</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                                 |
| 001                    | 1            | 10  | 15:18            | BE        | SET        |                         | 49°14.730              | 123°52.480 | 234                                    | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 002                    | 1            | 10  | 16:09            |           | CTD        |                         | 49°13.953              | 123°48.645 | 241                                    | 230               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                          |
| 003                    | 1            | 10  | 16:22            |           | NET        |                         | 49°13.916              | 123°48.631 | 236                                    | 225               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 80010-81080                           |
| 004                    | 2            | 10  | 16:47            |           | SET        |                         | 49°14.420              | 123°47.840 | 333                                    | 30                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 005                    | 3            | 10  | 17:42            |           | SET        |                         | 49°16.150              | 123°44.240 | 404                                    | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 006                    | 3            | 10  | 18:35            |           | CTD        |                         | 49°17.704              | 123°42.398 | 294                                    | 250               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                          |
| 007                    | 3            | 10  | 18:46            |           | NET        |                         | 49°17.696              | 123°42.563 | 296                                    | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 81081-81150*                          |
| 008                    | 4            | 10  | 19:25            |           | SET        |                         | 49°19.540              | 123°39.560 | 270                                    | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 009                    | 5            | 10  | 23:50            |           | SET        |                         | 49°21.330              | 123°36.310 | 141                                    | 30                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 010                    | 6            | 11  | 00:35            |           | SET        |                         | 49°23.500              | 123°35.290 | 90                                     | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 011                    | 7            | 11  | 15:06            |           | SET        |                         | 49°24.810              | 123°44.540 | 168                                    | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 012                    | 7            | 11  | 15:53            |           | CTD        |                         | 49°25.603              | 123°46.540 | 177                                    | 170               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                          |
| 013                    | 7            | 11  | 16:01            |           | NET        |                         | 49°25.628              | 123°46.537 | 177                                    | 170               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 81150-81220*                          |
| 014                    | 8            | 11  | 16:38            |           | SET        |                         | 49°26.450              | 123°49.050 | 213                                    | 30                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 015                    | 9            | 11  | 18:00            |           | SET        |                         | 49°23.810              | 123°49.350 | 178                                    | 45                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 016                    | 9            | 11  | 18:55            |           | CTD        |                         | 49°22.729              | 123°51.798 | 333                                    | 250               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                          |
| 017                    | 9            | 11  | 19:08            |           | NET        |                         | 49°22.902              | 123°52.017 | 325                                    | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | STRONG WIND DAS<br>FM 81220-83050        |
| 018                    | 10           | 11  | 19:26            |           | SET        |                         | 49°23.490              | 123°52.830 | 298                                    | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 019                    | 11           | 11  | 20:34            | ↓         | SET        |                         | 49°26.800              | 123°59.420 | 202                                    | 30                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | WARP WIRE BROKEN<br>WHILE GETTING NET IN |

## 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

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Version: 20 April 2016

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                        |            |                 | Cruise ID <u>2019-053</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              |
| 020                    | 12           | 12  | 00:10      | BE               | SET        |                         | 49°31.910              | 124°06.910 | 393             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 021                    | 13           | 12  | 00:56      |                  | SET        |                         | 49°34.410              | 124°09.010 | 414             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 022                    | 13           | 12  | 01:46      |                  | CTD        |                         | 49°36.625              | 124°11.673 | 367             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> | STRONG WIND           |
| 023                    | 13           | 12  | 01:58      |                  | NET        |                         | 49°36.766              | 124°11.942 | 364             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 83050-84680<br>DAS |
| 024                    | 14           | 12  | 14:58      |                  | SET        |                         | 49°55.400              | 124°42.310 | 157             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 025                    | 14           | 12  | 15:37      |                  | CTD        |                         | 49°56.445              | 124°44.029 | 139             | 130                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                       |
| 026                    | 14           | 12  | 15:44      |                  | NET        |                         | 49°56.528              | 124°44.204 | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 84680-85585        |
| 027                    | 15           | 12  | 16:26      |                  | SET        |                         | 49°58.290              | 124°49.770 | 186             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 028                    | 16           | 12  | 17:13      |                  | SET        |                         | 50°00.470              | 124°52.480 | 271             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 029                    | 17           | 12  | 18:02      |                  | SET        |                         | 50°02.990              | 124°52.950 | 443             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 030                    | 18           | 12  | 19:18      |                  | SET        |                         | 50°05.660              | 124°48.860 | 497             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 031                    | 18           | 12  | 19:57      |                  | CTD        |                         | 50°06.933              | 124°47.457 | 489             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 032                    | 18           | 12  | 20:08      |                  | NET        |                         | 50°06.814              | 124°47.570 | 491             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 85585-86950        |
| 033                    | 19           | 12  | 20:57      |                  | SET        |                         | 50°06.930              | 124°52.200 | 250             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 034                    | 20           | 12  | 22:00      |                  | SET        |                         | 50°06.820              | 124°47.130 | 481             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 035                    | 21           | 12  | 22:48      |                  | SET        |                         | 50°08.450              | 124°45.680 | 470             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 036                    | 22           | 12  | 23:35      |                  | SET        |                         | 50°10.580              | 124°44.910 | 405             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 037                    | 23           | 13  | 00:21      |                  | SET        |                         | 50°12.830              | 124°46.700 | 220             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                       |
| 038                    | 23           | 13  | 01:22      | ✓                | CTD        |                         | 50°13.039              | 124°47.703 | 238             | 230                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                       |

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Notes:

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| Month <u>SEPTEMBER</u> |              |     | Year <u>2019</u> |           |            | Vessel <u>Sea Crest</u> |                     |                       | Cruise ID <u>2019-053</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                        |
| 039                    | 23           | 13  | 01:33            | BE        | NET        |                         | 50°13.000           | 124°47.644            | 243                       | 230               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM8850-8850                     |
| 040                    | 24           | 13  | 15:06            |           | SET        |                         | 50°13.350           | 124°58.050            | 295                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 041                    | 24           | 13  | 15:57            |           | CTD        |                         | 50°14.842           | 124°59.323            | 348                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 042                    | 24           | 13  | 16:09            |           | NET        |                         | 50°14.979           | 124°59.380            | 364                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM8850-89070*<br>FM MALFUNCTION |
| 043                    | 25           | 13  | 16:39            |           | SET        |                         | 50°13.540           | 125°01.310            | 495                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 044                    | 26           | 13  | 17:51            |           | SET        |                         | 50°16.740           | 124°59.040            | 480                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 045                    | 27           | 13  | 18:57            |           | SET        |                         | 50°18.760           | 124°53.360            | 436                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 046                    | 27           | 13  | 19:38            |           | CTD        |                         | 50°19.256           | 124°56.586            | 290                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                 |
| 047                    | 27           | 13  | 19:49            |           | NET        |                         | 50°19.303           | 124°56.875            | 320                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM88070-89680                   |
| 048                    | 28           | 13  | 20:11            |           | SET        |                         | 50°19.210           | 124°58.210            | 332                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 049                    | 29           | 13  | 21:14            |           | SET        |                         | 50°19.750           | 125°00.580            | 292                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 050                    | 30           | 13  | 22:20            |           | SET        |                         | 50°16.970           | 125°02.710            | -                         | 30                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | Cancelled due to ~4 humpbacks   |
| 051                    | 30           | 13  | 22:40            |           | CTD        |                         | 50°17.033           | 125°02.486            | 425                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 052                    | 30           | 13  | 22:52            |           | NET        |                         | 50°17.023           | 125°02.460            | 427                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM89680-90850                   |
| 053                    | 31           | 14  | 01:16            |           | SET        |                         | 50°18.530           | 125°17.050            | 121                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 054                    | 31           | 14  | 02:04            |           | CTD        |                         | 50°18.341           | 125°18.759            | 117                       | 110               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                 |
| 055                    | 31           | 14  | 02:14            |           | NET        |                         | 50°18.270           | 125°18.990            | 110                       | 100               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM90850-91440                   |
| 056                    | 32           | 14  | 15:15            |           | SET        |                         | 50°18.510           | 125°17.510            | 120                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 057                    | 33           | 14  | 15:12            | ✓         | SET        |                         | 50°18.470           | 125°17.940            | 111                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                        |            |                 | Cruise ID <u>2019-053</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  |                 |                           |                       |              |               |                                                              |                                         |
| 058                    | 34           | 14  | 16:49      | BE               | SET        |                         | 50°17.410              | 125°20.370 | 115             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                         |
| 059                    | 35           | 14  | 17:33      |                  | SET        |                         | 50°18.790              | 125°25.210 | 290             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                         |
| 060                    | 36           | 14  | 18:48      |                  | SET        |                         | 50°23.160              | 125°20.150 | 200             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                         |
| 061                    | 36           | 14  | 19:26      |                  | CTD        |                         | 50°22.123              | 125°22.123 | 203             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                         |
| 062                    | 36           | 14  | 19:37      |                  | NET        |                         | 50°22.087              | 125°22.159 | 208             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 91440-92560                          |
| 063                    | 37           | 14  | 20:51      |                  | SET        |                         | 50°21.410              | 125°20.230 | 90              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                         |
| 064                    | 38           | 14  | 21:45      |                  | SET        |                         | 50°21.790              | 125°20.510 | 110             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                         |
| 065                    | 38           | 14  | 22:23      |                  | CTD        |                         | 50°23.438              | 125°20.593 | 203             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | STRONG CURRENT                          |
| 066                    | 38           | 14  | 22:35      |                  | NET        |                         | 50°23.459              | 125°20.599 | 205             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 92560-93010 ?<br>NON FM SIDE FLIPPED |
| 067                    | 39           | 15  | 23:15      |                  | SET        |                         | 50°20.220              | 125°25.396 | -               | -                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | CANCELLED DUE TO<br>DOLPHINS            |
| 068                    | 39           | 15  | 00:18      |                  | CTD        |                         | 50°17.526              | 125°19.809 | 103             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                         |
| 069                    | 39           | 15  | 00:26      |                  | NET        |                         | 50°17.500              | 125°19.782 | 103             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 93010-93520                          |
| 070                    | 40           | 15  | 15:21      |                  | SET        |                         | 49°57.680              | 125°09.590 | 92              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                         |
| 071                    | 41           | 15  | 16:58      |                  | SET        |                         | 49°57.190              | 124°57.670 | 156             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                         |
| 072                    | 41           | 15  | 17:40      |                  | CTD        |                         | 49°58.909              | 124°59.371 | 150             | 140                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                         |
| 073                    | 41           | 15  | 17:49      |                  | NET        |                         | 49°59.034              | 124°59.436 | 144             | 130                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 93520-94438                          |
| 074                    | 42           | 15  | 18:11      |                  | SET        |                         | 49°59.060              | 125°01.080 | 131             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                         |
| 075                    | 43           | 15  | 18:57      |                  | SET        |                         | 50°00.630              | 125°03.900 | 235             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                         |
| 076                    | 43           | 15  | 19:40      | ↓                | CTD        |                         | 50°01.690              | 125°05.817 | 274             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                         |

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 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  
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## 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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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            |               | Vessel <u>Sea Crest</u> |            |                 |                   | Cruise ID <u>2019-053</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       |
| 077                    | 43           | 15  | 19:53      | BE               | NET        |               | 50°01.696               | 125°05.900 | 275             | 250               | -                         |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 94438-95730 |
| 078                    | 44           | 15  | 20:34      |                  | SET        |               | 50°03.610               | 125°06.510 | 258             | 0                 | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 079                    | 45           | 15  | 21:30      |                  | SET        |               | 50°06.320               | 125°07.610 | 236             | 15                | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 080                    | 46           | 15  | 22:20      |                  | SET        |               | 50°08.180               | 125°05.040 | 183             | 0                 | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 081                    | 47           | 15  | 23:05      |                  | SET        |               | 50°09.340               | 125°02.650 | 450             | 15                | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 082                    | 47           | 15  | 23:41      |                  | CTD        |               | 50°10.270               | 125°00.380 | 504             | 250               | -                         |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 083                    | 47           | 15  | 23:55      |                  | NET        |               | 50°10.224               | 125°00.239 | 487             | 250               | -                         |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 95730-94760 |
| 084                    | 48           | 16  | 00:15      |                  | SET        |               | 50°10.380               | 125°00.460 | 511             | 0                 | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 085                    | 49           | 16  | 01:00      |                  | SET        |               | 50°09.020               | 125°03.140 | 436             | 15                | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 086                    | 50           | 16  | 01:40      |                  | SET        |               | 49°56.580               | 124°58.420 | 163             | 0                 | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 087                    | 50           | 16  | 16:22      |                  | CTD        |               | 49°55.806               | 125°01.230 | 255             | 240               | -                         |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 088                    | 50           | 16  | 16:33      | ↓                | NET        |               | 49°55.800               | 125°01.476 | 280             | 250               | -                         |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 94760-96120 |
| 089                    | 51           | 16  | 17:05      | BE               | SET        |               | 49°55.650               | 125°02.880 | 279             | 30                | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 089                    | 51           | 16  | 17:35      | EN               | SET        |               | 49°55.160               | 125°05.610 | 161             | 30                | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 090                    | 52           | 16  | 18:01      | BE               | SET        |               | 49°55.310               | 125°06.530 | 113             | 0                 | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 090                    | 52           | 16  | 18:30      | EN               | SET        |               | 49°53.930               | 125°04.600 | 124             | 0                 | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 091                    | 53           | 16  | 18:55      | BE               | SET        |               | 49°53.240               | 125°03.860 | 116             | 15                | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 091                    | 53           | 16  | 19:25      | EN               | SET        |               | 49°51.500               | 125°02.060 | 96              | 15                | -                         |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 092                    | 53           | 16  | 19:42      | BE               | CTD        |               | 49°51.219               | 125°01.493 | 102             | 90                | -                         |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                     |                       |                 | Cruise ID <u>2019-053</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                                 |
| 092                    | 53           | 16  | 19:46      | BO               | CTD        |                         | 49°51.194           | 125°01.521            | 98              | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | Vmaxin = 11.1                            |
| 092                    | 53           | 16  | 19:48      | EN               | CTD        |                         | 49°51.182           | 125°01.541            | 90              | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> | DATA DOWNLOAD                            |
| 093                    | 53           | 16  | 20:03      | BE               | NET        |                         | 49°51.416           | 125°01.669            | 109             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | 1ST ATTEMPT. SHIP TURNED COB END FLIPPED |
| 093                    | 53           | 16  | 20:05      | BO               | NET        |                         | 49°51.417           | 125°01.686            | 107             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | RE-DONE FM 96120-97350                   |
| 093                    | 53           | 16  | 20:07      | EN               | NET        |                         | 49°51.417           | 125°01.695            | 105             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 094                    | 54           | 16  | 20:24      | BE               | SET        |                         | 49°51.910           | 125°00.380            | 232             | 60                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 094                    | 54           | 16  | 20:54      | EN               | SET        |                         | 49°50.730           | 124°58.360            | 189             | 60                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 095                    | 55           | 16  | 21:26      | BE               | SET        |                         | 49°49.080           | 124°57.320            | 119             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 095                    | 55           | 16  | 21:56      | EN               | SET        |                         | 49°50.770           | 124°55.600            | 299             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 096                    | 56           | 16  | 22:27      | BE               | SET        |                         | 49°51.820           | 124°54.300            | 153             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 096                    | 56           | 16  | 22:57      | EN               | SET        |                         | 49°53.620           | 124°52.630            | 249             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 097                    | 56           | 16  | 23:19      | BE               | CTD        |                         | 49°53.812           | 124°53.036            | 253             | 240                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 097                    | 56           | 16  | 23:24      | BO               | CTD        |                         | 49°53.883           | 124°53.086            | 253             | 240                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 097                    | 56           | 16  | 23:28      | EN               | CTD        |                         | 49°53.923           | 124°53.126            | 253             | 240                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 098                    | 56           | 16  | 23:30      | BE               | NET        |                         | 49°53.940           | 124°53.152            | 253             | 240                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 97970-98012                           |
| 098                    | 56           | 16  | 23:35      | BO               | NET        |                         | 49°54.000           | 124°53.210            | 251             | 240                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 098                    | 56           | 16  | 23:39      | EN               | NET        |                         | 49°54.042           | 124°53.255            | 251             | 240                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 099                    | 57           | 16  | 23:58      | BE               | SET        |                         | 49°53.230           | 124°51.280            | 170             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |
| 099                    | 57           | 17  | 00:28      | EN               | SET        |                         | 49°51.630           | 124°49.550            | 181             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                          |

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| Month <u>SEPTEMBER</u> |              |     | Year <u>2019</u> |           |            | Vessel <u>Sea Crest</u> |                     |                       | Cruise ID <u>2019-053</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       |
| 100                    | 58           | 17  | 01:00            | BE        | SET        |                         | 49°50.610           | 124°47.460            | 186                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 100                    | 58           | 17  | 01:30            | EN        | SET        |                         | 49°49.020           | 124°45.700            | 218                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 101                    | 58           | 17  | 01:52            | BE        | CTD        |                         | 49°48.663           | 124°45.157            | 228                       | 220               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 101                    | 58           | 17  | 01:57            | BO        | CTD        |                         | 49°48.698           | 124°45.263            | 224                       | 220               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 101                    | 58           | 17  | 02:00            | EN        | CTD        |                         | 49°48.722           | 124°45.346            | 220                       | 220               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 102                    | 58           | 17  | 02:02            | BE        | NET        |                         | 49°48.734           | 124°45.390            | 220                       | 210               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM98012-99495  |
| 102                    | 58           | 17  | 02:07            | BO        | NET        |                         | 49°48.774           | 124°45.531            | 220                       | 210               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 102                    | 58           | 17  | 02:10            | EN        | NET        |                         | 49°48.885           | 124°45.528            | 220                       | 210               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 103                    | 59           | 17  | 15:40            | BE        | SET        |                         | 49°45.820           | 124°10.540            | 227                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 103                    | 59           | 17  | 16:00            | EN        | SET        |                         | 49°46.180           | 124°08.520            | 488                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 104                    | 59           | 17  | 16:19            | BE        | CTD        |                         | 49°46.023           | 124°08.784            | 405                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 104                    | 59           | 17  | 16:25            | BO        | CTD        |                         | 49°46.018           | 124°08.905            | 410                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 104                    | 59           | 17  | 16:29            | EN        | CTD        |                         | 49°46.015           | 124°08.983            | 415                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 105                    | 59           | 17  | 16:31            | BE        | NET        |                         | 49°46.009           | 124°09.028            | 404                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM98528-101170 |
| 105                    | 59           | 17  | 16:35            | BO        | NET        |                         | 49°45.984           | 124°09.166            | 371                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 105                    | 59           | 17  | 16:40            | EN        | NET        |                         | 49°45.958           | 124°09.275            | 322                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 106                    | 60           | 17  | 17:36            | BE        | SET        |                         | 49°47.440           | 124°02.310            | 390                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 106                    | 60           | 17  | 17:46            | EN        | SET        |                         | 49°47.950           | 124°01.780            | 450                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 107                    | 61           | 17  | 18:11            | BE        | SET        |                         | 49°47.470           | 124°02.980            | 676                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |

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| Month <u>SEPTEMBER</u> |              |     | Year <u>2019</u> |           |            | Vessel <u>Sea Crest</u> |                     |                       | Cruise ID <u>2019-053</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                           |
| 107                    | 61           | 17  | 18:31            | EN        | SET        |                         | 49°47.710           | 124°00.900            | 640                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 108                    | 62           | 17  | 19:06            | BE        | SET        |                         | 49°48.140           | 123°56.820            | 538                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 108                    | 62           | 17  | 19:26            | EN        | SET        |                         | 49°49.090           | 123°55.380            | 670                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 109                    | 62           | 17  | 19:46            | BE        | CTD        |                         | 49°49.007           | 123°55.516            | 679                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 109                    | 62           | 17  | 19:52            | BO        | CTD        |                         | 49°48.888           | 123°55.650            | 679                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 109                    | 62           | 17  | 19:56            | EN        | CTD        |                         | 49°48.815           | 123°55.737            | 679                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 110                    | 62           | 17  | 19:57            | BE        | NET        |                         | 49°48.783           | 123°55.774            | 679                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | FM 1170-1242<br>EM MALFUNCTION     |
| 110                    | 62           | 17  | 20:02            | BO        | NET        |                         | 49°48.689           | 123°55.895            | 679                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 110                    | 62           | 17  | 20:06            | EN        | NET        |                         | 49°48.616           | 123°55.996            | 679                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 111                    | 63           | 17  | 21:19            | BE        | SET        |                         | 49°54.740           | 123°56.260            | 655                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 111                    | 63           | 17  | 21:39            | EN        | SET        |                         | 49°53.730           | 123°54.540            | 661                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 112                    | 63           | 17  | 22:06            | BE        | CTD        |                         | 49°54.141           | 123°54.886            | 664                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 112                    | 63           | 17  | 22:13            | BO        | CTD        |                         | 49°54.092           | 123°54.741            | 664                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 112                    | 63           | 17  | 22:17            | EN        | CTD        |                         | 49°54.066           | 123°54.664            | 664                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                    |
| 113                    | 63           | 17  | 22:18            | BE        | NET        |                         | 49°54.055           | 123°54.627            | 664                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 1242-2700                       |
| 113                    | 63           | 17  | 22:23            | BO        | NET        |                         | 49°54.019           | 123°54.524            | 664                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 113                    | 63           | 17  | 22:27            | EN        | NET        |                         | 49°54.993           | 123°54.450            | 664                       | 250               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 114                    | 64           | 18  | 00:42            | BE        | SET        |                         | 49°53.230           | 123°53.750            | 663                       | -                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | DEEP TOW ABOUT<br>2 MIN @ 104 FEET |
| 114                    | 64           | 18  | 00:50            | EN        | SET        |                         | 49°52.800           | 123°53.350            | 661                       | -                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | ROPE                               |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            |               | Vessel <u>Sea Crest</u> |             |                 | Cruise ID <u>2019-053</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   |                 |                           |                       |              |               |                                                              |                                    |
| 115                    | 65           | 18  | 23:22      | BE               | SET        |               | 49° 51.240              | 123° 53.680 | 668             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 115                    | 65           | 18  | 23:42      | EN               | SET        |               | 49° 49.940              | 123° 54.590 | 675             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 116                    | 66           | 18  | 15:04      | BE               | SET        |               | 49° 38.070              | 124° 11.540 | 280             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 116                    | 66           | 18  | 15:34      | EN               | SET        |               | 49° 38.300              | 124° 14.790 | 345             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 117                    | 67           | 18  | 16:07      | BE               | SET        |               | 49° 39.640              | 124° 17.300 | 333             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 117                    | 67           | 18  | 16:37      | EN               | SET        |               | 49° 40.980              | 124° 19.250 | 276             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 118                    | 67           | 18  | 16:57      | BE               | CTD        |               | 49° 41.631              | 124° 19.197 | 320             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 118                    | 67           | 18  | 17:03      | BO               | CTD        |               | 49° 41.656              | 124° 19.204 | 320             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 118                    | 67           | 18  | 17:07      | EN               | CTD        |               | 49° 41.674              | 124° 19.223 | 320             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                    |
| 119                    | 67           | 18  | 17:09      | BE               | NET        |               | 49° 41.684              | 124° 19.239 | 320             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 2700-3912                       |
| 119                    | 67           | 18  | 17:13      | BO               | NET        |               | 49° 41.728              | 124° 19.262 | 320             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 119                    | 67           | 18  | 17:18      | EN               | NET        |               | 49° 41.749              | 124° 19.277 | 320             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 120                    | 68           | 18  | 17:30      | BE               | SET        |               | 49° 42.470              | 124° 19.230 | 312             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 120                    | 68           | 18  | 17:57      | EN               | SET        |               | 49° 44.355              | 124° 19.600 | 158             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | Hauled early due to whale activity |
| 121                    | 69           | 18  | 18:54      | BE               | SET        |               | 49° 44.930              | 124° 19.350 | 108             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 121                    | 69           | 18  | 19:24      | EN               | SET        |               | 49° 45.310              | 124° 22.580 | 93              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 122                    | 70           | 18  | 19:51      | BE               | SET        |               | 49° 45.190              | 124° 25.170 | 315             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 122                    | 70           | 18  | 20:21      | EN               | SET        |               | 49° 45.870              | 124° 28.070 | 316             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 123                    | 70           | 18  | 20:39      | BE               | CTD        |               | 49° 45.963              | 124° 28.734 | 320             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |

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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)  
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DN = Down / No stop

Notes:

## Time Code:

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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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| Month <u>SEPTEMBER</u> |              |     | Year <u>2019</u> |           |            | Vessel <u>Sea Crest</u> |                        |            | Cruise ID <u>2019-053</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  |                           |                   |                       |              |               |                                                              |                             |
| 123                    | 70           | 18  | 20:45            | BO        | CTD        |                         | 49°45.934              | 124°28.763 | 320                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 123                    | 70           | 18  | 20:49            | EN        | CTD        |                         | 49°45.934              | 124°28.768 | 320                       | 250               | -                     |              |               | <input type="checkbox"/> <input checked="" type="checkbox"/> | Vmain=11.4                  |
| 124                    | 70           | 18  | 20:51            | BE        | NET        |                         | 49°45.923              | 124°28.775 | 320                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | FM 3912-3925<br>MALFUNCTION |
| 124                    | 70           | 18  | 20:55            | BO        | NET        |                         | 49°45.919              | 124°28.808 | 320                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 124                    | 70           | 18  | 21:00            | EN        | NET        |                         | 49°45.899              | 124°28.821 | 320                       | 250               | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 125                    | 71           | 18  | 21:36            | BE        | SET        |                         | 49°45.880              | 124°30.070 | 321                       | 60                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 125                    | 71           | 18  | 22:06            | EN        | SET        |                         | 49°46.060              | 124°32.730 | 216                       | 60                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 126                    | 72           | 18  | 22:36            | BE        | SET        |                         | 49°46.910              | 124°32.940 | 319                       | 30                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 126                    | 72           | 18  | 23:06            | EN        | SET        |                         | 49°48.670              | 124°34.110 | 290                       | 30                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 127                    | 73           | 18  | 23:34            | BE        | SET        |                         | 49°50.210              | 124°34.880 | 234                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 127                    | 73           | 19  | 00:04            | EN        | SET        |                         | 49°52.130              | 124°36.260 | 129                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 128                    | 73           | 19  | 00:23            | BE        | CTD        |                         | 49°52.203              | 124°36.513 | 133                       | 120               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 128                    | 73           | 19  | 00:27            | BO        | CTD        |                         | 49°52.180              | 124°36.545 | -                         | 120               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 128                    | 73           | 19  | 00:29            | EN        | CTD        |                         | 49°52.176              | 124°36.550 | 140                       | 120               | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                             |
| 129                    | 73           | 19  | 00:31            | BE        | NET        |                         | 49°52.169              | 124°36.550 | 141                       | 130               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 3925-3928<br>MALFUNCTION |
| 129                    | 73           | 19  | 00:33            | BO        | NET        |                         | 49°52.161              | 124°36.547 | 141                       | 130               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 129                    | 73           | 19  | 00:35            | EN        | NET        |                         | 49°52.155              | 124°36.543 | 141                       | 130               | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 130                    | 74           | 19  | 00:56            | BE        | SET        |                         | 49°53.460              | 124°38.070 | 108                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 130                    | 74           | 19  | 01:16            | EN        | SET        |                         | 49°53.980              | 124°39.760 | 137                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |

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## Bottle Firing Method:

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Notes:

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                     |                       |                 | Cruise ID <u>2019-053</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                            |
| 131                    | 75           | 19  | 15:33      | BE               | SET        |                         | 49°48.540           | 124°44.980            | 235             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | Changed start point due to humbawks |
| 131                    | 75           | 19  | 16:03      | EN               | SET        |                         | 49°46.920           | 124°42.930            | 194             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 132                    | 75           | 19  | 16:26      | BE               | CTD        |                         | 49°46.744           | 124°42.489            | 204             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 132                    | 75           | 19  | 16:32      | BO               | CTD        |                         | 49°46.721           | 124°42.491            | 204             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 132                    | 75           | 19  | 16:35      | EN               | CTD        |                         | 49°46.713           | 124°42.486            | 203             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 133                    | 75           | 19  | 16:36      | BE               | NET        |                         | 49°46.711           | 124°42.480            | 203             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 3940-3990 MALFUNCTION            |
| 133                    | 75           | 19  | 16:40      | BO               | NET        |                         | 49°46.703           | 124°42.467            | 203             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 133                    | 75           | 19  | 16:44      | EN               | NET        |                         | 49°46.697           | 124°42.453            | 203             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 134                    | 76           | 19  | 17:35      | BE               | SET        |                         | 49°46.240           | 124°41.530            | 207             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 134                    | 76           | 19  | 17:55      | EN               | SET        |                         | 49°45.380           | 124°43.300            | 356             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 135                    | 77           | 19  | 18:20      | BE               | SET        |                         | 49°44.430           | 124°44.950            | 344             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 135                    | 77           | 19  | 18:50      | EN               | SET        |                         | 49°44.130           | 124°47.980            | 218             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 136                    | 78           | 19  | 19:21      | BE               | SET        |                         | 49°43.010           | 124°48.540            | 115             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 136                    | 78           | 19  | 19:51      | EN               | SET        |                         | 49°40.950           | 124°47.210            | 108             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 137                    | 78           | 19  | 20:07      | BE               | CTD        |                         | 49°40.733           | 124°47.117            | 108             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 137                    | 78           | 19  | 20:10      | BO               | CTD        |                         | 49°40.733           | 124°47.131            | 109             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                     |
| 137                    | 78           | 19  | 20:11      | EN               | CTD        |                         | 49°40.734           | 124°47.139            | 110             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                     |
| 138                    | 78           | 19  | 20:13      | BE               | NET        |                         | 49°40.734           | 124°47.154            | 110             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 3990-4115                        |
| 138                    | 78           | 19  | 20:15      | BO               | NET        |                         | 49°40.733           | 124°47.165            | 110             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                     |

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Notes:

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                     |                       |                 | Cruise ID <u>2019-053</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                                  |
| 138                    | 78           | 19  | 20:16      | EN               | NET        |                         | 49°40.733           | 124°47.171            | 110             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 139                    | 79           | 19  | 20:45      | BE               | SET        |                         | 49°40.290           | 124°47.020            | 100             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 139                    | 79           | 19  | 21:05      | EN               | SET        |                         | 49°38.980           | 124°46.360            | 110             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | HUMPBACK OFF PORT BOW END OF TOW          |
| 140                    | 79           | 19  | 21:25      | BE               | CTD        |                         | 49°38.635           | 124°45.262            | 137             | 130                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 140                    | 79           | 19  | 21:30      | BO               | CTD        |                         | 49°38.618           | 124°45.283            | 137             | 130                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 140                    | 79           | 19  | 21:31      | EN               | CTD        |                         | 49°38.610           | 124°45.294            | 137             | 130                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                           |
| 141                    | 79           | 19  | 21:33      | BE               | NET        |                         | 49°38.604           | 124°45.303            | 137             | 130                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM4115-4775                               |
| 141                    | 79           | 19  | 21:35      | BO               | NET        |                         | 49°38.599           | 124°45.311            | 137             | 130                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | POSSIBLE FABRIC FROM NET HAS BEEN TANGLED |
| 141                    | 79           | 19  | 21:37      | EN               | NET        |                         | 49°38.594           | 124°45.316            | 137             | 130                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | IN FLOW METER PROPELLER                   |
| 142                    | 80           | 19  | 21:52      | BE               | SET        |                         | 49°37.590           | 124°44.670            | 96              | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 142                    | 80           | 19  | 22:12      | EN               | SET        |                         | 49°36.390           | 124°43.730            | 78              | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 143                    | 81           | 19  | 22:48      | BE               | SET        |                         | 49°35.380           | 124°43.490            | 96              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 143                    | 81           | 19  | 23:08      | EN               | SET        |                         | 49°36.640           | 124°42.740            | 115             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 144                    | 82           | 19  | 23:32      | BE               | SET        |                         | 49°38.860           | 124°41.060            | 101             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 144                    | 82           | 19  | 23:52      | EN               | SET        |                         | 49°39.910           | 124°40.560            | 166             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 145                    | 82           | 20  | 00:13      | BE               | CTD        |                         | 49°40.474           | 124°40.421            | 199             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | DOWNLOAD Vmain = 11.1                     |
| 145                    | 82           | 20  | 00:18      | BO               | CTD        |                         | 49°40.445           | 124°40.367            | 197             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                           |
| 145                    | 82           | 20  | 00:20      | EN               | CTD        |                         | 49°40.414           | 124°40.355            | 194             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                           |
| 146                    | 82           | 20  | 00:22      | BE               | NET        |                         | 49°40.404           | 124°40.352            | 194             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM4175-5165                               |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                        |            |                 | Cruise ID <u>2019-053</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  |                 |                           |                       |              |               |                                                   |             |
| 146                    | 82           | 20  | 00:26      | BO               | NET        |                         | 49°40.373              | 124°40.347 | 192             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |             |
| 146                    | 82           | 20  | 00:29      | EN               | NET        |                         | 49°40.360              | 124°40.341 | 192             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |             |
| 147                    | 83           | 20  | 00:39      | BE               | SET        |                         | 49°40.790              | 124°40.360 | 355             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 147                    | 83           | 20  | 01:09      | EN               | SET        |                         | 49°42.390              | 124°40.100 | 315             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 148                    | 84           | 20  | 01:30      | BE               | SET        |                         | 49°43.380              | 124°39.540 | 353             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 148                    | 84           | 20  | 01:58      | EN               | SET        |                         | 49°42.220              | 124°37.220 | 330             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 149                    | 85           | 20  | 15:10      | BE               | SET        |                         | 49°41.310              | 124°34.740 | 186             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 149                    | 85           | 20  | 15:30      | EN               | SET        |                         | 49°40.430              | 124°32.900 | 210             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 150                    | 86           | 20  | 15:58      | BE               | SET        |                         | 49°39.320              | 124°30.720 | 218             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 150                    | 86           | 20  | 16:28      | EN               | SET        |                         | 49°37.710              | 124°28.830 | 336             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 151                    | 86           | 20  | 16:46      | BE               | CTD        |                         | 49°37.245              | 124°28.480 | 329             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |             |
| 151                    | 86           | 20  | 16:52      | BO               | CTD        |                         | 49°37.248              | 124°28.528 | 329             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |             |
| 151                    | 86           | 20  | 16:55      | EN               | CTD        |                         | 49°37.252              | 124°28.559 | 329             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |             |
| 152                    | 86           | 20  | 16:57      | BE               | NET        |                         | 49°37.252              | 124°28.590 | 329             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> | FM5165-6360 |
| 152                    | 86           | 20  | 17:01      | BO               | NET        |                         | 49°37.257              | 124°28.639 | 329             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |             |
| 152                    | 86           | 20  | 17:05      | EN               | NET        |                         | 49°37.265              | 124°28.684 | 329             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |             |
| 153                    | 87           | 20  | 17:30      | BE               | SET        |                         | 49°36.040              | 124°25.630 | 256             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 153                    | 87           | 20  | 17:50      | EN               | SET        |                         | 49°35.230              | 124°23.820 | 184             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |
| 154                    | 88           | 20  | 18:15      | BE               | SET        |                         | 49°34.780              | 124°22.050 | 146             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |             |

## Event Type:

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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

## 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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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            |               | Vessel <u>Sea Crest</u> |            |                 | Cruise ID <u>2019-053</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  |                 |                           |                       |              |               |                                                   |                      |
| 154                    | 88           | 20  | 10:35      | EN               | SET        |               | 49°34.080               | 124°20.220 | 189             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 155                    | 89           | 20  | 20:00      | BE               | SET        |               | 49°33.460               | 124°21.600 | 335             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 155                    | 89           | 20  | 20:30      | EN               | SET        |               | 49°32.950               | 124°24.330 | 120             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 156                    | 90           | 20  | 21:00      | BE               | SET        |               | 49°32.410               | 124°25.140 | 127             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> | STRONG CROSS CURRENT |
| 156                    | 90           | 20  | 21:30      | EN               | SET        |               | 49°27.760               | 124°27.330 | 141             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 157                    | 90           | 20  | 21:43      | BE               | CTD        |               | 49°31.580               | 124°27.870 | 189             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 157                    | 90           | 20  | 21:48      | BO               | CTD        |               | 49°31.589               | 124°27.853 | 187             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 157                    | 90           | 20  | 21:50      | EN               | CTD        |               | 49°31.586               | 124°27.837 | 186             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 158                    | 90           | 20  | 21:53      | BE               | NET        |               | 49°31.585               | 124°27.820 | 186             | 175                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> | FM6360-7220          |
| 158                    | 90           | 20  | 21:56      | BO               | NET        |               | 49°31.585               | 124°27.786 | 186             | 175                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 158                    | 90           | 20  | 21:59      | EN               | NET        |               | 49°31.592               | 124°27.732 | 186             | 175                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 159                    | 91           | 20  | 22:13      | BE               | SET        |               | 49°31.620               | 124°27.240 | 152             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> | STRONG CROSS CURRENT |
| 159                    | 91           | 20  | 22:33      | EN               | SET        |               | 49°31.000               | 124°29.060 | 160             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 160                    | 92           | 20  | 23:00      | BE               | SET        |               | 49°30.540               | 124°30.820 | 144             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 160                    | 92           | 20  | 23:30      | EN               | SET        |               | 49°29.440               | 124°33.550 | 158             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 161                    | 92           | 20  | 23:48      | BE               | CTD        |               | 49°29.173               | 124°34.205 | 106             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 161                    | 92           | 20  | 23:52      | BO               | CTD        |               | 49°29.174               | 124°34.224 | 104             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 161                    | 92           | 20  | 23:54      | EN               | CTD        |               | 49°29.174               | 124°34.235 | 101             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                      |
| 162                    | 92           | 20  | 23:55      | BE               | NET        |               | 49°29.176               | 124°34.250 | 101             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> | FM 7220-7690         |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            |               | Vessel <u>Sea Crest</u> |            |                 | Cruise ID <u>2019-053</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  |                 |                           |                       |              |               |                                                   |                                                 |
| 162                    | 92           | 21  | 23:57      | BO               | NET        |               | 49°29.177               | 124°34.270 | 101             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 162                    | 92           | 21  | 23:59      | EN               | NET        |               | 49°29.177               | 124°34.278 | 101             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 163                    | 93           | 21  | 00:14      | BE               | SET        |               | 49°28.630               | 124°33.510 | 151             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 163                    | 93           | 21  | 00:34      | EN               | SET        |               | 49°27.770               | 124°32.240 | 273             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 164                    | 94           | 21  | 18:38      | BE               | SET        |               | 49°27.620               | 124°38.390 | 100             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 164                    | 94           | 21  | 18:58      | EN               | SET        |               | 49°26.730               | 124°36.750 | 110             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 165                    | 95           | 21  | 19:40      | BE               | SET        |               | 49°26.710               | 124°35.710 | 137             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 165                    | 95           | 21  | 20:10      | EN               | SET        |               | 49°25.440               | 124°33.570 | 136             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 166                    | 95           | 21  | 20:28      | BE               | CTD        |               | 49°25.110               | 124°33.107 | 137             | 250*                      | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> | BOTTOM DEPTH MIS-READ<br>DOWN TO 250 INSTEAD OF |
| 166                    | 95           | 21  | 20:33      | BO               | CTD        |               | 49°25.122               | 124°33.213 | 137             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> | 120 RINSE DOWNLOAD<br>vmain = 10.9              |
| 166                    | 95           | 21  | 20:37      | EN               | CTD        |               | 49°25.125               | 124°33.290 | 137             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 167                    | 95           | 21  | 20:40      | BE               | NET        |               | 49°25.124               | 124°33.387 | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> | FM 7690-8400                                    |
| 167                    | 95           | 21  | 20:42      | BO               | NET        |               | 49°25.123               | 124°33.433 | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 167                    | 95           | 21  | 20:44      | EN               | NET        |               | 49°25.126               | 124°33.518 | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> | DAS                                             |
| 168                    | 96           | 21  | 20:55      | BE               | SET        |               | 49°24.860               | 124°32.930 | 132             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 168                    | 96           | 21  | 21:25      | EN               | SET        |               | 49°23.560               | 124°30.620 | 104             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 169                    | 97           | 21  | 21:49      | BE               | SET        |               | 49°23.770               | 124°28.850 | 130             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 169                    | 97           | 21  | 22:19      | EN               | SET        |               | 49°22.740               | 124°26.270 | 114             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                                                 |
| 170                    | 97           | 21  | 22:36      | BE               | CTD        |               | 49°22.468               | 124°25.966 | 100             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                                                 |

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## Notes:

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                        |             |                 | Cruise ID <u>2019-053</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       |
| 170                    | 97           | 21  | 22:39      | BO               | CTD        |                         | 49° 22.482             | 124° 25.015 | 100             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 170                    | 97           | 21  | 22:41      | EN               | CTD        |                         | 49° 22.483             | 124° 25.061 | 100             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 171                    | 97           | 21  | 22:42      | BE               | NET        |                         | 49° 22.484             | 124° 25.073 | 101             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM = 8400-8930 |
| 171                    | 97           | 21  | 22:44      | BO               | NET        |                         | 49° 22.482             | 124° 25.118 | 101             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 171                    | 97           | 21  | 22:46      | EN               | NET        |                         | 49° 22.480             | 124° 25.147 | 101             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 172                    | 98           | 21  | 23:30      | BE               | SET        |                         | 49° 22.850             | 124° 25.350 | 134             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 172                    | 98           | 22  | 00:00      | EN               | SET        |                         | 49° 24.230             | 124° 23.690 | 340             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 173                    | 98           | 22  | 00:20      | BE               | CTD        |                         | 49° 25.262             | 124° 23.150 | 348             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | STRONG WIND    |
| 173                    | 98           | 22  | 00:25      | BO               | CTD        |                         | 49° 25.281             | 124° 23.230 | 348             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 173                    | 98           | 22  | 00:29      | EN               | CTD        |                         | 49° 25.291             | 124° 23.292 | 348             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 174                    | 98           | 22  | 00:30      | BE               | NET        |                         | 49° 25.296             | 124° 23.319 | 348             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 8930-9660   |
| 174                    | 98           | 22  | 00:34      | BO               | NET        |                         | 49° 25.310             | 124° 23.400 | 348             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 174                    | 98           | 22  | 00:39      | EN               | NET        |                         | 49° 25.320             | 124° 23.450 | 348             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 175                    | 99           | 22  | 01:00      | BE               | SET        |                         | 49° 26.230             | 124° 22.350 | 340             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 175                    | 99           | 22  | 01:30      | EN               | SET        |                         | 49° 27.230             | 124° 23.250 | 311             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 176                    | 100          | 22  | 15:26      | BE               | SET        |                         | 49° 27.260             | 124° 21.730 | 330             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 176                    | 100          | 22  | 15:56      | EN               | SET        |                         | 49° 25.520             | 124° 20.830 | 345             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 177                    | 101          | 22  | 17:42      | BE               | SET        |                         | 49° 24.860             | 124° 17.520 | 322             | 60                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 177                    | 101          | 22  | 18:12      | EN               | SET        |                         | 49° 24.500             | 124° 20.490 | 351             | 60                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                        |            |                 | Cruise ID <u>2019-053</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  |                 |                           |                       |              |               |                                                              |                 |
| 178                    | 101          | 22  | 18:41      | BE               | CTD        |                         | 49°24.629              | 124°19.366 | 349             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | WINDY           |
| 178                    | 101          | 22  | 18:46      | BO               | CTD        |                         | 49°24.626              | 124°19.467 | 349             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 178                    | 101          | 22  | 18:50      | EN               | CTD        |                         | 49°24.624              | 124°19.544 | 349             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 179                    | 101          | 22  | 18:52      | BE               | NET        |                         | 49°24.620              | 124°19.586 | 349             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 9686-10040   |
| 179                    | 101          | 22  | 18:56      | BO               | NET        |                         | 49°24.609              | 124°19.668 | 349             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 179                    | 101          | 22  | 19:00      | EN               | NET        |                         | 49°24.610              | 124°19.756 | 349             | 250                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 180                    | 102          | 22  | 19:27      | BE               | SET        |                         | 49°22.890              | 124°16.950 | 321             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 180                    | 102          | 22  | 19:47      | EN               | SET        |                         | 49°21.570              | 124°16.270 | 243             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 181                    | 103          | 22  | 20:25      | BE               | SET        |                         | 49°21.620              | 124°14.870 | 321             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 181                    | 103          | 22  | 20:45      | EN               | SET        |                         | 49°22.710              | 124°13.390 | 331             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 182                    | 104          | 22  | 21:14      | BE               | SET        |                         | 49°23.600              | 124°11.970 | 323             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 182                    | 104          | 22  | 21:34      | EN               | SET        |                         | 49°24.900              | 124°09.940 | 247             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 183                    | 105          | 22  | 22:09      | BE               | SET        |                         | 49°26.440              | 124°08.750 | 110             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 183                    | 105          | 22  | 22:29      | EN               | SET        |                         | 49°27.690              | 124°07.640 | 303             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 184                    | 105          | 22  | 22:51      | BE               | CTD        |                         | 49°28.407              | 124°07.488 | 227             | 220                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 184                    | 105          | 22  | 22:56      | BO               | CTD        |                         | 49°28.449              | 124°07.498 | 225             | 220                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                 |
| 184                    | 105          | 22  | 22:59      | EN               | CTD        |                         | 49°28.466              | 124°07.509 | 221             | 220                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                 |
| 185                    | 105          | 22  | 23:00      | BE               | NET        |                         | 49°28.480              | 124°07.516 | 221             | 210                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 10040-120010 |
| 185                    | 105          | 22  | 23:04      | BO               | NET        |                         | 49°28.500              | 124°07.531 | 221             | 210                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                 |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            |               | Vessel <u>Sea Crest</u> |            |                 | Cruise ID <u>2019-053</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  |                 |                           |                       |              |               |                                                              |                |
| 185                    | 105          | 22  | 23:08      | EN               | NET        |               | 49°28.524               | 124°07.554 | 221             | 210                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 186                    | 106          | 22  | 23:20      | BE               | SET        |               | 49°29.010               | 124°05.760 | 230             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 186                    | 106          | 22  | 23:50      | EN               | SET        |               | 49°30.640               | 124°05.430 | 288             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 187                    | 107          | 23  | 15:13      | BE               | SET        |               | 49°11.340               | 123°47.260 | 77              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 187                    | 107          | 23  | 15:43      | EN               | SET        |               | 49°11.030               | 123°44.350 | 134             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 188                    | 108          | 23  | 17:13      | BE               | SET        |               | 49°11.510               | 123°43.440 | 201             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 188                    | 108          | 23  | 17:43      | EN               | SET        |               | 49°10.390               | 123°41.220 | 189             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 189                    | 108          | 23  | 18:06      | BE               | CTD        |               | 49°10.504               | 123°40.990 | 192             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 189                    | 108          | 23  | 18:10      | BO               | CTD        |               | 49°10.556               | 123°40.986 | 192             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 189                    | 108          | 23  | 18:13      | EN               | CTD        |               | 49°10.581               | 123°40.983 | 192             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 190                    | 108          | 23  | 18:14      | BE               | NET        |               | 49°10.593               | 123°40.981 | 192             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 12090-13022 |
| 190                    | 108          | 23  | 18:17      | BO               | NET        |               | 49°10.633               | 123°40.977 | 192             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 190                    | 108          | 23  | 18:20      | EN               | NET        |               | 49°10.661               | 123°40.987 | 192             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 191                    | 109          | 23  | 19:06      | BE               | SET        |               | 49°06.950               | 123°37.950 | 162             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 191                    | 109          | 23  | 19:36      | EN               | SET        |               | 49°05.220               | 123°36.120 | 207             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 192                    | 110          | 23  | 21:02      | BE               | SET        |               | 49°02.410               | 123°34.000 | 200             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 192                    | 110          | 23  | 21:32      | EN               | SET        |               | 49°04.200               | 123°35.650 | 194             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 193                    | 110          | 23  | 22:01      | BE               | CTD        |               | 49°04.739               | 123°36.424 | 176             | 160                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | WINDY          |
| 193                    | 110          | 23  | 22:05      | BO               | CTD        |               | 49°04.747               | 123°36.508 | 175             | 160                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |

## Event Type:

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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  
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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            |               | Vessel <u>Sea Crest</u> |            |                 | Cruise ID <u>2019-053</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  |                 |                           |                       |              |               |                                                              |                                 |
| 193                    | 110          | 23  | 22:07      | EN               | CTD        |               | 49°04.760               | 123°36.544 | 174             | 160                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                 |
| 194                    | 110          | 23  | 22:08      | BE               | NET        |               | 49°04.768               | 123°36.571 | 174             | 160                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 13022-13932                  |
| 194                    | 110          | 23  | 22:11      | BO               | NET        |               | 49°04.785               | 123°36.626 | 170             | 160                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 194                    | 110          | 23  | 22:13      | EN               | NET        |               | 49°04.809               | 123°36.662 | 170             | 160                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | DAS                             |
| 195                    | 111          | 23  | 22:52      | BE               | SET        |               | 49°06.820               | 123°36.380 | 210             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 195                    | 111          | 23  | 23:22      | EN               | SET        |               | 49°07.910               | 123°34.680 | 221             | 45                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 196                    | 111          | 23  | 23:42      | BE               | CTD        |               | 49°08.335               | 123°34.126 | 206             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | STRONG WIND                     |
| 196                    | 111          | 23  | 23:46      | BO               | CTD        |               | 49°08.358               | 123°34.190 | 204             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 196                    | 111          | 23  | 23:49      | EN               | CTD        |               | 49°08.374               | 123°34.237 | 200             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> | NO DATA POSSIBLY DUE TO LOW BAT |
| 197                    | 111          | 23  | 23:50      | BE               | NET        |               | 49°08.387               | 123°34.267 | 200             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 13932-15000                  |
| 197                    | 111          | 23  | 23:54      | BO               | NET        |               | 49°08.406               | 123°34.346 | 200             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 197                    | 111          | 23  | 23:57      | EN               | NET        |               | 49°08.426               | 123°34.398 | 200             | 190                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 198                    | 112          | 24  | 00:48      | BE               | SET        |               | 49°06.860               | 123°29.250 | 344             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 198                    | 112          | 24  | 01:18      | EN               | SET        |               | 49°07.200               | 123°26.120 | 278             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 199                    | 113          | 24  | 15:07      | BE               | SET        |               | 49°00.680               | 123°14.150 | 108             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 199                    | 113          | 24  | 15:27      | EN               | SET        |               | 49°01.500               | 123°15.610 | 100             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 200                    | 113          | 24  | 16:01      | BE               | CTD        |               | 49°01.758               | 123°15.801 | 92              | 80                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 200                    | 113          | 24  | 16:04      | BO               | CTD        |               | 49°01.764               | 123°15.790 | 92              | 80                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                 |
| 200                    | 113          | 24  | 16:05      | EN               | CTD        |               | 49°01.767               | 123°15.785 | 91              | 80                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | BAT CHANGE DOWNLOAD             |

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Notes:

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| Month <u>SEPTEMBER</u> |              |     | Year <u>2019</u> |           |            | Vessel <u>Sea Crest</u> |                        |            | Cruise ID <u>2019-053</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  |                           |                   |                       |              |               |                                                              |                |
| 201                    | 113          | 24  | 16:07            | BE        | NET        |                         | 49°01.773              | 123°15.775 | 91                        | 80                | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 15170-15480 |
| 201                    | 113          | 24  | 16:09            | BO        | NET        |                         | 49°01.772              | 123°15.773 | 91                        | 80                | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 201                    | 113          | 24  | 16:10            | EN        | NET        |                         | 49°01.762              | 123°15.774 | 91                        | 80                | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 202                    | 114          | 24  | 16:22            | BE        | SET        |                         | 49°02.110              | 123°16.440 | 100                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 202                    | 114          | 24  | 16:42            | EN        | SET        |                         | 49°02.940              | 123°17.600 | 91                        | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 203                    | 115          | 24  | 17:44            | BE        | SET        |                         | 49°06.850              | 123°26.420 | 252                       | 30                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 203                    | 115          | 24  | 18:14            | EN        | SET        |                         | 49°06.830              | 123°23.300 | 203                       | 30                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 204                    | 116          | 24  | 19:37            | BE        | SET        |                         | 49°00.920              | 123°31.630 | 186                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 204                    | 116          | 24  | 19:57            | EN        | SET        |                         | 48°59.860              | 123°30.640 | 143                       | 0                 | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 205                    | 117          | 24  | 20:26            | BE        | SET        |                         | 48°59.150              | 123°29.530 | 154                       | 45                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 205                    | 117          | 24  | 20:56            | EN        | SET        |                         | 48°57.870              | 123°28.020 | 106                       | 45                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 206                    | 117          | 24  | 21:17            | BE        | CTD        |                         | 48°57.729              | 123°27.776 | 103                       | 90                | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 206                    | 117          | 24  | 21:21            | BO        | CTD        |                         | 48°57.748              | 123°27.880 | 102                       | 90                | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 206                    | 117          | 24  | 21:22            | EN        | CTD        |                         | 48°57.760              | 123°27.866 | 101                       | 90                | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 207                    | 117          | 24  | 21:23            | BE        | NET        |                         | 48°57.767              | 123°27.953 | 101                       | 90                | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 15480-15485 |
| 207                    | 117          | 24  | 21:25            | BO        | NET        |                         | 48°57.780              | 123°28.006 | 101                       | 90                | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 207                    | 117          | 24  | 21:26            | EN        | NET        |                         | 48°57.790              | 123°28.042 | 101                       | 90                | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 208                    | 118          | 24  | 21:48            | BE        | SET        |                         | 48°56.960              | 123°25.660 | 125                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | STRONG CURRENT |
| 208                    | 118          | 24  | 22:08            | EN        | SET        |                         | 48°55.860              | 123°23.440 | 164                       | 15                | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |

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Notes:

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                     |                       |                 | Cruise ID <u>2019-053</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       |
| 209                    | 119          | 24  | 23:27      | BE               | SET        |                         | 48°51.930           | 123°13.490            | 130             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 209                    | 119          | 24  | 23:47      | EN               | SET        |                         | 48°50.960           | 123°11.780            | 160             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 210                    | 120          | 25  | 00:20      | BE               | SET        |                         | 48°49.560           | 123°08.230            | 140             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | STRONG CURRENT |
| 210                    | 120          | 25  | 00:50      | EN               | SET        |                         | 48°48.950           | 123°04.750            | 178             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 211                    | 120          | 25  | 01:08      | BE               | CTD        |                         | 48°49.176           | 123°04.155            | 191             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 211                    | 120          | 25  | 01:12      | BO               | CTD        |                         | 48°49.117           | 123°04.098            | 188             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 211                    | 120          | 25  | 01:15      | EN               | CTD        |                         | 48°49.096           | 123°04.056            | 186             | 180                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 212                    | 120          | 25  | 01:17      | BE               | NET        |                         | 48°49.076           | 123°04.020            | 186             | 170                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM15985-16830  |
| 212                    | 120          | 25  | 01:20      | BO               | NET        |                         | 48°49.054           | 123°03.970            | 186             | 170                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 212                    | 120          | 25  | 01:23      | EN               | NET        |                         | 48°49.041           | 123°03.920            | 186             | 170                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 213                    | 121          | 25  | 01:50      | BE               | SET        |                         | 48°50.760           | 123°05.030            | 197             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 213                    | 121          | 25  | 02:20      | EN               | SET        |                         | 48°49.410           | 123°02.310            | 228             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 214                    | 122          | 25  | 15:07      | BE               | SET        |                         | 48°28.690           | 124°22.950            | 109             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 214                    | 122          | 25  | 15:37      | EN               | SET        |                         | 48°28.140           | 124°20.490            | 109             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 215                    | 122          | 25  | 15:59      | BE               | CTD        |                         | 48°27.880           | 124°20.969            | 109             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 215                    | 122          | 25  | 16:02      | BO               | CTD        |                         | 48°27.886           | 124°21.019            | 110             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 215                    | 122          | 25  | 16:03      | EN               | CTD        |                         | 48°27.892           | 124°21.034            | 110             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 216                    | 122          | 25  | 16:05      | BE               | NET        |                         | 48°27.895           | 124°21.048            | 110             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM16830-17205  |
| 216                    | 122          | 25  | 16:07      | BO               | NET        |                         | 48°27.906           | 124°21.065            | 110             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            |               | Vessel <u>Sea Crest</u> |                       |                 | Cruise ID <u>2019-053</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                    |
| 216                    | 122          | 25  | 16:09      | EN               | NET        |               | 48°27.912               | 124°21.084            | 110             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 217                    | 123          | 25  | 17:00      | BE               | SET        |               | 48°24.600               | 124°14.020            | 150             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 217                    | 123          | 25  | 17:30      | EN               | SET        |               | 48°24.090               | 124°11.620            | 148             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 218                    | 124          | 25  | 18:18      | BE               | SET        |               | 48°23.290               | 124°04.310            | 108             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 218                    | 124          | 25  | 18:48      | EN               | SET        |               | 48°22.840               | 124°00.180            | 91              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 219                    | 125          | 25  | 19:50      | BE               | SET        |               | 48°20.680               | 123°57.410            | 134             | 60                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | 90 m Head rope for 2 min at |
| 219                    | 125          | 25  | 20:10      | EN               | SET        |               | 48°20.540               | 123°57.860            | 133             | 60                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            | START                       |
| 220                    | 125          | 25  | 20:38      | BE               | CTD        |               | 48°20.352               | 123°53.104            | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 220                    | 125          | 25  | 20:41      | BO               | CTD        |               | 48°20.332               | 123°52.974            | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 220                    | 125          | 25  | 20:43      | EN               | CTD        |               | 48°20.314               | 123°52.905            | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                             |
| 221                    | 125          | 25  | 20:45      | BE               | NET        |               | 48°20.293               | 123°52.814            | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 17205-17810              |
| 221                    | 125          | 25  | 20:48      | BO               | NET        |               | 48°20.266               | 123°52.698            | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 221                    | 125          | 25  | 20:50      | EN               | NET        |               | 48°20.246               | 123°52.615            | 134             | 120                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 222                    | 126          | 25  | 21:24      | BE               | SET        |               | 48°20.590               | 123°50.110            | 133             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 222                    | 126          | 25  | 21:44      | EN               | SET        |               | 48°20.090               | 123°47.270            | 122             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 223                    | 127          | 25  | 22:08      | BE               | SET        |               | 48°19.510               | 123°45.250            | 154             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 223                    | 127          | 25  | 22:28      | EN               | SET        |               | 48°18.460               | 123°43.040            | 165             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 224                    | 127          | 25  | 22:50      | BE               | CTD        |               | 48°18.994               | 123°42.134            | 166             | 160                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |
| 224                    | 127          | 25  | 22:53      | BO               | CTD        |               | 48°18.955               | 123°42.075            | 166             | 160                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                             |

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## LOOP = Sea Water Loop

MOR = Mooring  
 NET = Plankton Net Haul  
 DRF = Drifter  
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## Bottle Firing Method:

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

## Notes:

## Time Code:

BE = Beginning Time of Cast  
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## CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                     |                       |                 | Cruise ID <u>2019-053</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       |
| 224                    | 127          | 25  | 22:56      | EN               | CTD        |                         | 48°18.935           | 123°42.035            | 166             | 160                       | -                     |              | YJ            | <input checked="" type="checkbox"/> |                |
| 225                    | 127          | 25  | 22:57      | BE               | NET        |                         | 48°18.921           | 123°42.011            | 167             | 160                       | -                     |              | YJ            | <input type="checkbox"/>            | FM 17810-18638 |
| 225                    | 127          | 25  | 23:01      | BO               | NET        |                         | 48°18.890           | 123°41.954            | 167             | 160                       | -                     |              | YJ            | <input type="checkbox"/>            |                |
| 225                    | 127          | 25  | 23:03      | EN               | NET        |                         | 48°18.862           | 123°41.908            | 167             | 160                       | -                     |              | YJ            | <input type="checkbox"/>            |                |
| 226                    | 128          | 26  | 15:13      | BE               | SET        |                         | 48°43.180           | 123°16.190            | 175             | 0                         | -                     |              |               | <input type="checkbox"/>            |                |
| 226                    | 128          | 26  | 15:28      | EN               | SET        |                         | 48°43.790           | 123°17.550            | 113             | 0                         | -                     |              |               | <input type="checkbox"/>            |                |
| 227                    | 128          | 26  | 15:54      | BE               | CTD        |                         | 48°43.751           | 123°17.585            | 107             | 100                       | -                     |              | YJ            | <input type="checkbox"/>            |                |
| 227                    | 128          | 26  | 15:58      | BO               | CTD        |                         | 48°43.743           | 123°17.562            | -               | 100                       | -                     |              | YJ            | <input type="checkbox"/>            |                |
| 227                    | 128          | 26  | 15:59      | EN               | CTD        |                         | 48°43.737           | 123°17.532            | 112             | 100                       | -                     |              | YJ            | <input type="checkbox"/>            |                |
| 228                    | 128          | 26  | 16:00      | BE               | NET        |                         | 48°43.723           | 123°17.519            | 113             | 100                       | -                     |              | YJ            | <input type="checkbox"/>            | FM 18638-19136 |
| 228                    | 128          | 26  | 16:03      | BO               | NET        |                         | 48°43.764           | 123°17.514            | 113             | 100                       | -                     |              | YJ            | <input type="checkbox"/>            |                |
| 228                    | 128          | 26  | 16:04      | EN               | NET        |                         | 48°43.691           | 123°17.510            | 114             | 100                       | -                     |              | YJ            | <input type="checkbox"/>            |                |
| 229                    | 129          | 26  | 17:12      | BE               | SET        |                         | 48°47.510           | 123°20.800            | 71              | 0                         | -                     |              |               | <input type="checkbox"/>            |                |
| 229                    | 129          | 26  | 17:27      | EN               | SET        |                         | 48°46.310           | 123°20.330            | 71              | 0                         | -                     |              |               | <input type="checkbox"/>            |                |
| 230                    | 130          | 26  | 18:00      | BE               | SET        |                         | 48°44.390           | 123°23.850            | 79              | 15                        | -                     |              |               | <input type="checkbox"/>            |                |
| 230                    | 130          | 26  | 18:20      | EN               | SET        |                         | 48°43.360           | 123°25.550            | 87              | 15                        | -                     |              |               | <input type="checkbox"/>            |                |
| 231                    | 130          | 26  | 18:48      | BE               | CTD        |                         | 48°43.379           | 123°25.872            | 80              | 70                        | -                     |              | YJ            | <input type="checkbox"/>            |                |
| 231                    | 130          | 26  | 18:51      | BO               | CTD        |                         | 48°43.376           | 123°25.888            | 80              | 70                        | -                     |              | YJ            | <input type="checkbox"/>            |                |
| 231                    | 130          | 26  | 18:52      | EN               | CTD        |                         | 48°43.373           | 123°25.901            | 80              | 70                        | -                     |              | YJ            | <input checked="" type="checkbox"/> |                |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                     |                       |                 | Cruise ID <u>2019-053</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                     |
| 232                    | 130          | 26  | 18:53      | BE               | NET        |                         | 48°43.367           | 123°25.920            | 80              | 70                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> | FM 19136-19495               |
| 232                    | 130          | 26  | 18:54      | BO               | NET        |                         | 48°43.360           | 123°25.941            | 80              | 70                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 232                    | 130          | 26  | 18:56      | EN               | NET        |                         | 48°43.355           | 123°25.959            | 80              | 70                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 233                    | 131          | 26  | 19:13      | BE               | SET        |                         | 48°42.880           | 123°27.950            | 79              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 233                    | 131          | 26  | 19:28      | EN               | SET        |                         | 48°42.430           | 123°29.590            | 76              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 234                    | 132          | 26  | 20:16      | BE               | SET        |                         | 48°42.920           | 123°31.390            | 74              | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 234                    | 132          | 26  | 20:31      | EN               | SET        |                         | 48°43.740           | 123°32.410            | 88              | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 235                    | 132          | 26  | 20:51      | BE               | CTD        |                         | 48°43.787           | 123°32.541            | 101             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 235                    | 132          | 26  | 20:54      | BO               | CTD        |                         | 48°43.802           | 123°32.577            | 108             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 235                    | 132          | 26  | 20:55      | EN               | CTD        |                         | 48°43.813           | 123°32.590            | 108             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 236                    | 132          | 26  | 20:57      | BE               | NET        |                         | 48°43.830           | 123°32.616            | 111             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> | FM 19495-20000               |
| 236                    | 132          | 26  | 20:59      | BO               | NET        |                         | 48°43.845           | 123°32.690            | 118             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 236                    | 132          | 26  | 21:00      | EN               | NET        |                         | 48°43.854           | 123°32.669            | 119             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 237                    | 133          | 26  | 21:15      | BE               | SET        |                         | 48°44.630           | 123°33.480            | 94              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> | CANCELLED AFTER 5 MIN DUE TO |
| 237                    | 133          | 26  | 21:20      | EN               | SET        |                         | 48°44.910           | 123°33.690            | 99              | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> | WHALE ACTIVITY               |
| 238                    | 134          | 26  | 22:06      | BE               | SET        |                         | 48°47.850           | 123°32.490            | 115             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> | CAUGHT STELLER SEALION DEAD  |
| 238                    | 134          | 26  | 22:16      | EN               | SET        |                         | 48°48.220           | 123°33.390            | 177             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> | 252cm Female DNA & WHISKERS  |
| 239                    | 135          | 26  | 23:03      | BE               | SET        |                         | 48°48.590           | 123°33.990            | 152             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                              |
| 239                    | 135          | 26  | 23:13      | EN               | SET        |                         | 48°48.750           | 123°34.820            | 107             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/> |                              |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                     |                       |                 | Cruise ID <u>2019-053</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                           |
| 240                    | 135          | 26  | 23:41      | BE               | CTD        |                         | 48°48.707           | 123°34.530            | 123             | 110                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 240                    | 135          | 26  | 23:45      | BO               | CTD        |                         | 48°48.689           | 123°34.520            | 120             | 110                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 240                    | 135          | 26  | 23:46      | EN               | CTD        |                         | 48°48.677           | 123°34.513            | 113             | 110                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                    |
| 241                    | 135          | 26  | 23:48      | BE               | NET        |                         | 48°48.661           | 123°34.503            | 113             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 20000 - 20025<br>FM MALFUNCTION |
| 241                    | 135          | 26  | 23:50      | BO               | NET        |                         | 48°48.642           | 123°34.488            | 113             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 241                    | 135          | 26  | 23:52      | EN               | NET        |                         | 48°48.629           | 123°34.482            | 113             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 242                    | 136          | 27  | 00:48      | BE               | SET        |                         | 48°54.660           | 123°38.250            | 141             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 242                    | 136          | 27  | 00:58      | EN               | SET        |                         | 48°55.170           | 123°38.860            | 126             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 243                    | 136          | 27  | 01:03      | BE               | CTD        |                         | 48°54.916           | 123°39.267            | 108             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 243                    | 136          | 27  | 01:06      | BO               | CTD        |                         | 48°54.890           | 123°39.278            | 107             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 243                    | 136          | 27  | 01:08      | EN               | CTD        |                         | 48°54.884           | 123°39.278            | 105             | 100                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                                    |
| 244                    | 136          | 27  | 01:09      | BE               | NET        |                         | 48°54.879           | 123°39.274            | 105             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 20025 - 20458                   |
| 244                    | 136          | 27  | 01:11      | BO               | NET        |                         | 48°54.878           | 123°39.266            | 105             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 244                    | 136          | 27  | 01:13      | EN               | NET        |                         | 48°54.876           | 123°39.259            | 105             | 90                        | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 245                    | 137          | 27  | 15:33      | BE               | SET        |                         | 49°07.900           | 123°19.430            | 117             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 245                    | 137          | 27  | 15:53      | EN               | SET        |                         | 49°09.180           | 123°19.590            | 139             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 246                    | 138          | 27  | 16:32      | BE               | SET        |                         | 49°10.670           | 123°19.420            | 141             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 246                    | 138          | 27  | 16:52      | EN               | SET        |                         | 49°11.910           | 123°19.290            | 143             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                                    |
| 247                    | 138          | 27  | 17:13      | BE               | CTD        |                         | 49°12.421           | 123°19.505            | 157             | 150                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | WIND 29 KT                         |

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| Month <u>SEPTEMBER</u> |              |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                     |                       |                 | Cruise ID <u>2019-053</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         |
| 247                    | 138          | 27  | 17:17      | BO               | CTD        |                         | 49° 12.386          | 123° 19.490           | 157             | 150                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 247                    | 138          | 27  | 17:19      | EN               | CTD        |                         | 49° 12.364          | 123° 19.482           | 157             | 150                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 248                    | 138          | 27  | 17:21      | BE               | NET        |                         | 49° 12.342          | 123° 19.475           | 157             | 150                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 20458 - 21288 |
| 248                    | 138          | 27  | 17:24      | BO               | NET        |                         | 49° 12.313          | 123° 19.471           | 155             | 150                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 248                    | 138          | 27  | 17:27      | EN               | NET        |                         | 49° 12.296          | 123° 19.460           | 153             | 150                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 249                    | 139          | 27  | 17:46      | BE               | SET        |                         | 49° 13.030          | 123° 18.730           | 137             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 249                    | 139          | 27  | 18:06      | EN               | SET        |                         | 49° 14.250          | 123° 18.430           | 138             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 250                    | 140          | 27  | 19:20      | BE               | SET        |                         | 49° 17.080          | 123° 23.480           | 245             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 250                    | 140          | 27  | 19:40      | EN               | SET        |                         | 49° 16.970          | 123° 21.550           | 241             | 30                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 251                    | 140          | 27  | 20:13      | BE               | CTD        |                         | 49° 16.485          | 123° 21.007           | 218             | 210                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 251                    | 140          | 27  | 20:18      | BO               | CTD        |                         | 49° 16.449          | 123° 20.923           | 214             | 210                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 251                    | 140          | 27  | 20:21      | EN               | CTD        |                         | 49° 16.428          | 123° 20.875           | 210             | 210                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                  |
| 252                    | 140          | 27  | 20:22      | BE               | NET        |                         | 49° 16.416          | 123° 20.859           | 210             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 21288 - 22520 |
| 252                    | 140          | 27  | 20:27      | BO               | NET        |                         | 49° 16.385          | 123° 20.812           | 210             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 252                    | 140          | 27  | 20:30      | EN               | NET        |                         | 49° 16.365          | 123° 20.773           | 210             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 253                    | 141          | 27  | 21:23      | BE               | SET        |                         | 49° 21.120          | 123° 19.780           | 255             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 253                    | 141          | 27  | 21:43      | EN               | SET        |                         | 49° 22.380          | 123° 19.000           | 235             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 254                    | 142          | 27  | 22:19      | BE               | SET        |                         | 49° 24.780          | 123° 15.240           | 237             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                  |
| 254                    | 142          | 27  | 22:39      | EN               | SET        |                         | 49° 26.120          | 123° 15.230           | 240             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                  |

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| Month <u>SEPTEMBER</u> |               |     |            | Year <u>2019</u> |            | Vessel <u>Sea Crest</u> |                        |            |                 | Cruise ID <u>2019-053</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       |
| 255                    | 142           | 27  | 23:02      | BE               | CTD        |                         | 49°26.030              | 123°15.334 | 210             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 255                    | 142           | 27  | 23:07      | BO               | CTD        |                         | 49°26.041              | 123°15.338 | 238             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 255                    | 142           | 27  | 23:11      | EN               | CTD        |                         | 49°26.033              | 123°15.336 | 240             | 200                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 256                    | 142           | 27  | 23:12      | BE               | NET        |                         | 49°26.032              | 123°15.340 | 241             | 230                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 22520-23628 |
| 256                    | 142           | 27  | 23:17      | BO               | NET        |                         | 49°26.035              | 123°15.360 | 241             | 230                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 256                    | 142           | 27  | 23:21      | EN               | NET        |                         | 49°26.036              | 123°15.371 | 241             | 230                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 257                    | 143           | 28  | 00:19      | BE               | SET        |                         | 49°25.950              | 123°20.090 | 240             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 257                    | 143           | 28  | 00:39      | EN               | SET        |                         | 49°25.610              | 123°22.240 | 148             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 258                    | 143           | 28  | 01:02      | BE               | CTD        |                         | 49°25.025              | 123°23.088 | 237             | 230                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 258                    | 143           | 28  | 01:08      | BO               | CTD        |                         | 49°24.980              | 123°23.155 | 233             | 230                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 258                    | 143           | 28  | 01:11      | EN               | CTD        |                         | 49°24.944              | 123°23.198 | 230             | 230                       | -                     |              | YJ            | <input type="checkbox"/> <input checked="" type="checkbox"/> |                |
| 259                    | 143           | 28  | 01:12      | BE               | NET        |                         | 49°24.925              | 123°23.228 | 230             | 220                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            | FM 23628-24915 |
| 259                    | 143           | 28  | 01:16      | BO               | NET        |                         | 49°24.887              | 123°23.286 | 226             | 220                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 259                    | 143           | 28  | 01:19      | EN               | NET        |                         | 49°24.850              | 123°23.335 | 220             | 220                       | -                     |              | YJ            | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 260                    | 144           | 28  | 15:14      | BE               | SET        |                         | 49°16.930              | 123°26.700 | 158             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 260                    | 144           | 28  | 15:44      | EN               | SET        |                         | 49°16.420              | 123°29.880 | 256             | 0                         | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 261                    | 145           | 28  | 16:52      | BE               | SET        |                         | 49°15.390              | 123°38.280 | 371             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| 261                    | 145           | 28  | 17:22      | EN               | SET        |                         | 49°15.680              | 123°40.680 | 388             | 15                        | -                     |              |               | <input type="checkbox"/> <input type="checkbox"/>            |                |
| ★★                     | END OF SURVEY | ★★  |            |                  |            |                         | °                      | °          |                 |                           | -                     |              |               | <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

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