

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2018-36

DATE:

From:

26 MAY 2018

To:

VESSEL:

NEOCALIGUS

PROJECT(S):

SOG - ZOOPLANKTON

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

WaterProperties.ca

**** 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: 1123

Data acquisition program: _____

CTD deck unit make: _____ model: _____ serial number: _____

Primary CTD

Make: SEALED model: 25 serial number: 404

Primary temperature serial number: 0382449

Primary conductivity serial number: 041764

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: _____ Model: _____ s/n: _____

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model FIRD ^{WET LABS} Cable gain: 7 s/n: 4185 P, S or NO pump?

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

Oxygen sensor: SEALED Model: 43 s/n: 43176 P, S or NO pump?

PAR sensor: _____ Model: _____ s/n: _____ Surface PAR? Y / N

Other sensors: PH Sensor SEALED max 18-T s/n: 180852 P, S or (NO) pump?

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

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

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

Secondary CTD

Make: _____ model: _____ serial number: _____

Primary temperature serial number: _____

Primary conductivity serial number: _____

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: _____ Model: _____ s/n: _____

Transmissometer: _____ Model: _____ s/n: _____

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

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

Oxygen sensor: _____ Model: _____ s/n: _____ P, S or NO pump?

PAR sensor: _____ Model: _____ s/n: _____ Surface PAR? Y / N

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

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

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

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

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

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

Room → { ST
054843
Room → { 29-1.5K
290464

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: 56 cm Mesh: ²³⁶~~250~~ μ m Flowmeter: ~~13K~~ 7129 105 set

Bongo #2 Frame Size: _____ cm Mesh: _____ μ m Flowmeter: _____
Frame Size: _____ cm Mesh: _____ μ m Flowmeter: _____

Multinet ☐ BIONESS ☐ Neuston ☐ Others: _____

RBR on bongo: Solo D # 79108

Trawl Gear:

Midwater Trawls: SOG ☐ Highseas ☐ Pelagic ☐ Other: _____

Bottom Trawls: Atlantic Western I/A ☐ Yankee 36 Hard & Soft Bottom ☐ Other: _____

American Shrimp Trawl ☐

Notes: _____

Trawl Doors: USA Jet ☐ Tyburon ☐ _____

Sounders : Wesmar 380 ☐ Others: _____

Acoustics:

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

Others: _____

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

Others: _____

Software & Notes: _____

Other Gear in Operation:

1. _____
2. _____
3. _____
4. _____
5. _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>MAY</u> <u>LOCAL</u>				Year <u>2018</u>		Vessel <u>NEOCALIGUS</u>		Cruise ID <u>2018-36</u>							
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
1	38	26	15:35	BE	CTD		49°12.027	123°26.393	309		-		MB	☒	2x DEEP SAL
			15:43	BE	BOT	MSG	49°12.085	123°26.390		300	1-	1	MB	☐	↓
			15:50	EN			49°12.142	123°26.369			-			☐	
2	38	26	15:53	BE	BOT	MSG	49°12.169	123°26.350	309	5	2-	1	MB	☐	Pom-SEA 5m
3	38	26	16:02	BE	NET		49°12.017	123°26.356	309		-	-	MB	☐	
			16:13	BE			49°12.056	123°26.378		300	-			☐	
			16:18	EN			49°12.091	123°26.374			-			☐	
4	39	26	17:02	BE	CTD		49°9.890	123°32.937	373		-	-	JW/MB	☒	- stopped @ 58m on wire down to straighten the wire
			17:14	BO			49°10.040	123°32.742		363	-			☐	
			17:21	EN			49°10.114	123°32.694			-			☐	*254mL filtered
5	39	26	17:22	BE	BOT	MSG	49°10.145	123°32.666	388	0	3-	1	JW/MB	☐	1x chl 2x HPLC
6	GE01	27	8:11	BE	CTD		49°15.072	123°44.916	400		-			☒	620mL each
			8:18	BO	BOT	MSG	49°15.076	123°44.800		390	4-	1	JW/MB	☐	2x DEEP SAL
			8:27	EN			49°15.081	123°44.682			-			☐	
7	GE01	27	8:29	BE	BOT	MSG	49°15.089	123°44.665	400	0	5-	1	JW/MB	☐	1x chl 2x HPLC
8	GE01	27	8:34	BE	BOT	MSG	49°15.172	123°44.653	400	50	6-	1	JW/MB	☐	Pom-SEA 5m
9	GE01	27	8:41	BE	BOT	MSG	49°15.253	123°44.569	400	10	7-	2		☐	Pom-FA@ 5+10m
			:				°	°			-			☐	
			:				°	°			-			☐	

Event Type:

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

LOOP = Sea Water Loop

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

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

Notes:

Time Code:

BE = Beginning Time of Cast
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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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RE = Recover Mooring Time

Produced by the Water Properties Group, IOS

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This page is for any notes or observations

→ START OF MAY NEOMALIGUS CRUISE, DEPARTING FROM WEST VAN LAB

→ ALL TIMES RECORDED LOCAL

→ ALL CHLOROPHYLL SAMPLES 304 mls UNLESS OTHERWISE NOTED

- CTD LEFT ON UNTIL 1044 FOLLOWING CAST

Sta. 39 ch. $304 - 50 = 254 \text{ mL}$ water filtered

- BIG WIRE ANGLE ON CTD CAST, HAVING TROUBLE KEEPING WIRE UP & DOWN

* VERY SLOW CHLOROPHYLL FILTRATION, FILTERED 254 mls

• TIE UP @ PBS

→ DAY 2, DEPART ~ 0700

→ Send message to Hugh & MEDIAN TR Spare Niskins need: tight tubing/rubbers (most are loose) & most all need Bolts/Butterfly nuts

→ Formalin dispenser is broken - using backup

DAILY SCIENCE LOG

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Month MAY				Year 2018			Vessel AEO CALIXUS			Cruise ID 2018-36					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
10	GE01	27	08:51	BE	NET	-	49°15.046	123°44.929	400		-	-	MB	☐ ☐	
			09:05	BO			49°15.134	123°44.845		390	-			☐ ☐	
			9:13	EN			49°15.166	123°44.837			-			☐ ☐	
11	27	27	9:52	BE	CTD	-	49°19.142	123°47.993	345		-	-	JW/MB	☐ ☒	
			9:58	BO			49°19.163	123°48.009		335	-			☐ ☐	
			10:04	EN			49°19.225	123°48.009			-			☐ ☐	
12	27	27	10:05	BE	BOT	MSG	49°19.236	123°48.013	3-5	0	8-	1	MB	☐ ☐	2x chl 2x HPLC 1x Phyto
13	28	27	10:45	BE	CTD	-	49°24.162	123°45.409	130		-	-	MB	☐ ☒	
			10:47	BO			49°24.195	123°45.456		120	-			☐ ☐	
			10:49	EN			49°24.202	123°45.493			-			☐ ☐	
14	28	27	10:50	BE	BOT	MSG	49°24.204	123°45.512	130	0	9-	1	MB	☐ ☐	1x chl 2x HPLC
15	28	27	10:52	BE	BOT	MSG	49°24.206	123°45.547	130	5	10-	1	MB	☐ ☐	POM-SE @ 5m
16	28	27	10:56	BE	NET	-	49°24.195	123°45.667	130		-	-	JW/MB	☐ ☐	
			11:01	BO			49°24.209	123°45.739		120	-			☐ ☐	
			11:09	EN			.	123°45.			-			☐ ☐	Approximate time did not get 1st 11:09
17	CPF1	27	13:12	BE	CTD		49°22.025	124°05.027	240		-	-	JW/MB	☐ ☒	
			13:17	BO			49°22.065	124°05.072		230	-			☐ ☐	Stopped @ 130m & came up a bit, then went down to 230m. → see notes
			13:21	EN			49°22.118	124°05.105			-			☐ ☐	
18	CPF1	27	13:23	BE	BOT	MSG	49°22.142	124°05.120	240	5	11-	1		☐ ☐	POM-SE @ 5m

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- CPF1 CTD cast, went down to 130m, came up a bit, realized didn't go down enough, dropped down to 230m, then came up as normal

Lat updated CPF1 on 21 Mar 2016 12:41

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Month <u>May</u> <u>1021</u>			Year <u>2018</u>			Vessel <u>Neocaligus</u>			Cruise ID <u>2018-36</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
19	CPF1	27	13:27	BE	BOT	MSG	49°22.207	124°05.150	245	10	12 -	2	JW/MB	☐ ☐	POM-FA@5+10m
20	CPF1	27	13:31	BE	NET	-	49°22.239	124°05.183	245		-	-	JW/MB	☐ ☐	
			13:40	BO			49°22.299	124°05.278		235	-			☐ ☐	
			13:44	EN			49°22.334	124°05.326			-			☐ ☐	
21	24	27	14:41	BE	CTD		49°30.351	124°06.028	425		-	1	JW/MB	☐ ☒	2x deep salinity
			14:49	BO	BOT	MSG	49°30.389	124°06.076		415	13 -			☐ ☐	
			14:59	EN			49°30.447	124°06.117			-			☐ ☐	
22	24	27	15:01	BE	BOT	MSG	49°30.477	124°06.130	425	5	14 -	1	JW/MB	☐ ☐	POM-S1@5m
23	24	27	15:07	BE	NET		49°30.359	124°06.079	420		-	-	JW/MB	☐ ☐	
			15:22	BO			49°30.450	124°06.172		410	-			☐ ☐	
			15:30	EN			49°30.509	124°06.194			-			☐ ☐	
24	IS-2	27	16:22	BE	CTD	-	49°38.200	124°04.994	29		-	-	JW/MB	☐ ☒	
			16:22	BO			49°38.200	124°04.995		20	-			☐ ☐	
			16:23	EN			49°38.201	124°04.995			-			☐ ☐	
25	IS-2	27	16:25	BE	NET	-	49°38.198	124°04.999	29		-	-	JW/MB	☐ ☐	
			16:26	BO			49°38.198	124°05.000		20	-			☐ ☐	
			16:27	EN			49°38.198	124°05.000			-			☐ ☐	
26	22	28	8:23	BE	CTD		49°40.215	124°16.286	353		-		JW/MB	☐ ☒	
			8:29	BO			49°40.250	124°16.296		343	15 -	1		☐ ☐	2x deep salinity

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115 → 113 → 115

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→ Tied up @ Pender Harbor

DAILY SCIENCE LOG

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Month <u>May</u>				Year <u>2018</u>		Vessel <u>Neocaligus</u>				Cruise ID <u>2018-36</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
		28	8:37	EN			49°40.310	124°16.304			-			☐ ☐	
27	22	28	8:39	BE	BOT	MSG	49°40.317	124°16.302	353	0	16 -	1	JW/MB	☐ ☐	1xchl 2xHPLC 1xphyto
28	22	28	8:40	BE	BOT	MSG	49°40.332	124°16.303	353	5	17 -	1	JW/MB	☐ ☐	POM-SI@5m
29	22	28	8:44	BE	BOT	MSG	49°40.354	124°16.304	353	10	18 -	2	JW/MB	☐ ☐	POM-FA@5m+10m
30	22	28	8:48	BE	NET	-	49°40.379	124°16.312	362		-	-	JW/MB	☐ ☐	
			9:00	BO			49°40.394	124°16.353		352	-			☐ ☐	
			9:07	EN			49°40.395	124°16.370			-			☐ ☐	
31	20	28	10:28	BE	CTD	-	49°47.142	124°32.256	315		-	-	JW/MB	☒ ☐	
			10:33	BO			49°47.150	124°32.289		305	-			☐ ☐	
			10:39	EN			49°47.168	124°32.332			-			☐ ☐	
32	12	28	11:57	BE	CTD	-	49°43.593	124°40.814	355		-			☐ ☐	
			12:03	BO			49°43.596	124°40.781		345	-			☐ ☐	we saw whales!
			12:09	EN			49°43.573	124°40.701			-			☐ ☐	
33	12	28	12:10	BE	BOT	MSG	49°43.566	124°40.688	357	0	19 -	1	JW/MB	☐ ☐	2xchl 2xHPLC 1xphyto
34	11	28	12:36	BE	CTD	-	49°42.368	124°43.375	290		-	-	JW/MB	☒ ☐	
			12:41	BO			49°42.377	124°43.354		280	-			☐ ☐	
			12:46	EN			49°42.392	124°43.346			-			☐ ☐	
35	11	28	12:47	BE	BOT	MSG	49°42.399	124°43.342	290	5	20 -	1	JW/MB	☐ ☐	POM-SI@5m
36	11	28	12:50	BE	BOT	MSG	49°42.414	124°43.338	290	10	21 -	2	JW/MB	☐ ☐	POM-FA@5m+10m

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Notes:

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11.2

This page is for any notes or observations

Changed upload config in seeker.m; SBE3 → 2409 SBE4 → 1764 AFTER SENDING FILE TO CORNMANE
TO CHECK. NEED TO REUPLOAD ALL CASTS BEFORE ↗

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>May</u>			Year <u>2016</u>			Vessel <u>Neocastigos</u>			Cruise ID <u>2018-36</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
37	11	28	12:54	BE	NET	-	49°42.425	124°43.333	290		-	-	JW/MB	☐ ☐	
			13:01	BO			49°42.424	124°43.297		280	-			☐ ☐	280-170 m, the net was coming up 0.5 m/s
			13:12	EN			49°42.	124°43.			-			☐ ☐	When @ 170m down, speed net up to 1m/s till reached the surface
38	9	28	14:06	BE	CTD	-	49°35.500	124°38.296	168		-	-	JW/MB	☐ ☒	
			14:09	BO			49°35.508	124°38.296		158	-			☐ ☐	
			14:12	EW			49°35.515	124°38.297			-			☐ ☐	
39	9	28	14:13	BE	BOT	MSG	49°35.519	124°38.299	168	0	9021	1	JW/MB	☐ ☐	
40	BS-11	28	15:44	BE	CTD	-	49°28.990	124°46.007	59		-	-	JW/MB	☒ ☒	
			15:45	BO			49°28.994	124°46.007		49	-			☐ ☐	
			15:46	EW			49°28.995	124°46.005			-			☐ ☐	
41	BS-11	28	15:47	BE	BOT	MSG	49°28.996	124°46.003	59	0	22-	1	JW/MB	☐ ☐	Accl 1. Phyto 2x Phy
42	BS-11	28	15:49	BE	BOT	MSG	49°29.002	124°46.000	59	5	23-	1	JW/MB	☐ ☐	Pom-SI@ 5m
43	BS-11	28	15:51	BE	NET	-	49°29.003	124°46.000	59		-	-	JW/MB	☐ ☐	
			15:53	BO			49°29.003	124°45.994		49	-			☐ ☐	
			15:54	EW			49°28.998	124°45.991			-			☐ ☐	
44	CPF2	29	8:24	BE	CTD		49°27.890	124°29.970	329		-	-	JW/MB	☒ ☒	Super wavy conditions
			8:30	BO	BOT	MSG	49°27.810	124°29.927		319	24-	1		☐ ☐	2x deep salinity
			8:37	EN			49°27.781	124°29.859			-			☐ ☐	
45	CPF2	29	8:39	BE	BOT	MSG	49°27.740	124°29.840	329	5	25-	1	JW/MB	☐ ☐	POM-SI@ 5m.

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CHANGED NUMBER TO (9021), SINCE ALREADY USED.

BATTERIES @ 11.4 V FOLLOWING LAST DOWNLOAD.

→ TIED UP @ DEEP SAT

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Month <u>MAY</u>				Year <u>2018</u>		Vessel <u>Neocaligus</u>				Cruise ID <u>2018-36</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
46	CPF2	29	8:43	BE	BOT	MSG	49°27.626	124°29.789	329	10	26-	2	JW/MB	☐ ☐	POM-FAC@5m+10m
47	CPF2	29	8:59	BE	NET	-	49°27.860	124°30.026	329		-	-	JW/MB	☐ ☐	the messenger didn't deploy Phalarope so re-deploying to
			9:11	BO			49°27.784	124°29.936		319	-			☐ ☐	
			9:18	EN			49°27.737	124°29.883			-			☐ ☐	
48	6	29	9:57	BE	CTD	-	49°30.544	124°27.693	190		-	-	MB/JW	☒ ☐	
			10:00	BO			49°30.517	124°27.643		180	-			☐ ☐	
			10:04	EN			49°30.499	124°27.600			-			☐ ☐	
49	6	29	10:05	BE	BOT	MSG	49°30.478	124°27.576	192	0	27-	1	MB/JW	☐ ☐	1xchl 2xHPLC
 	 	 	 	BE	NET	-	49°30.	124°27.	192	 	-	-	MB/JW	☐☐	
 	 	 	 	BO	 	 	49°30.	124°27.	 	182	-	 	 	☐☐	
 	 	 	 	EN	 	 	49°30.	124°27.	 	 	-	 	 	☐☐	
50	3	29	10:47	BE	CTD	-	49°26.620	124°20.289	323		-	-	MB/JW	☒ ☐	
			10:52	BO			49°26.582	124°20.338		313	-			☐ ☐	
			10:58	EN			49°26.537	124°20.378			-			☐ ☐	
51	3	29	10:59	BE	BOT	MSG	49°26.529	124°20.383	327	0	28-	1	MB/JW	☐ ☐	1xchl 2xHPLC
52	2	29	12:11	BE	CTD	-	49°24.079	124°09.372	275		-	-	MB/JW	☒ ☐	
			12:16	BO			49°24.050	124°09.384		265	-			☐ ☐	
			12:21	EN			49°24.032	124°09.415			-			☐ ☐	
53	2	29	12:23	BE	BOT	MSG	49°24.024	124°09.432	275	0	29-	1	MB/JW	☐ ☐	2xchl 2xHPLC

Event Type:

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SET = Fish Set

LOOP = Sea Water Loop

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

Bottle Firing Method:

US = Up / Stop (default)
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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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- event 46 → the messenger didn't deploy the 10m, so re-deploying.
- threw chl 29 sample bottle in empty to clear (hand wrote a label for ACTUAL sample)

→ CAME INTO NANAIMO ~1500, END DAY EARLY FOR SHEEP MAINTENANCE ISSUES (TOILET REMEDIES)

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>MAY</u>				Year <u>2018</u>		Vessel <u>Neocaligus</u>				Cruise ID <u>2018-36</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
✓ 54	56	30	12:42	BE	CTD	—	48°46.392	123°01.657	210		—	—	MB/JW	☒	
			12:46	BO			48°46.363	123°01.711		200	-			☒	
			12:50	EN			48°46.357	123°01.768			-			☒	
55	56	30	12:51	BE	BOT	MSG	48°46.348	123°01.780	210	Ø	30-	1	MB/JW	☒	2xchl 2xHPLC
✓ 56	59	30	14:28	BE	CTD	—	48°36.968	123°14.994	230		-	—	MB/JW	☒	
			14:32	BO			48°36.983	123°15.005		220	—			☒	~40° wire angle
			14:36	EN			48°37.038	123°15.025			-			☒	
57	59	30	14:37	BE	BOT	MSG	48°37.039	123°15.031	230	Ø	31-	1	MB/JW	☒	1xchl 2xHPLC 1xphth
58	59	30	14:39	BE	BOT	MSG	48°37.027	123°15.039	230	5	32-	1	MB/JW	☒	POM-SK35m
59	59	30	14:42	BE	BOT	MSG	48°37.012	123°15.046	230	10	33-	2	MB/JW	☒	POM-FA@5m+10m
60	59	30	14:47	BE	NET	—	48°36.989	123°14.978	230		—	—	MB/JW	☒	
			~14:54	BO			~48°37.065	123°15.058		210	-			☒	Approx time/lat/long
			15:00	EN			48°37.122	123°15.089			-			☒	
✓ 61	CBC2	31	8:31	BE	CTD		48°44.232	123°34.428	64		-	-	MB/JW	☒	
			8:32	BO			48°44.236	123°34.425		54	-			☒	
			8:33	BO			48°44.239	123°34.423			-			☒	
62	CBC2	31	8:36	BE	NET		48°44.217	123°34.433	64		-	-	MB/JW	☒	
			8:38	BO			48°44.225	123°34.413		54	-			☒	
			8:39	BO			48°44.230	123°34.408			-			☒	

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CTD VOLTAGE @ 11.3 FOLLOWING DOWNWARD.

→ CAME INTO IOS ~ 1700, PICKED UP REPLACEMENT CORD GND FOR NET

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month		Year		Vessel		Cruise ID									Page		of	
Event Number		Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Pressure	Sample Serial Numbers		# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments	
				Latitude	Longitude													
63		SC-04	31	9:36	BC	CTD	-	48° 43.486 123° 24.985		92		-		-	JW/MB	☐	☒	
				9:38	BO			48° 43.478 123° 24.985			82	-				☐	☐	
				9:39	EW			48° 43.472 123° 24.977				-				☐	☐	
64		SC-04	31	9:40	BC	BOT	MBC	48° 43.463 123° 24.967		92	0	34-		1	JW/MB	☐	☐	1x Chl 1x Phyto
65		SC-04	31	9:42	BC	BOT	MBC	48° 43.450 123° 24.946		92	5	35-		1	JW/MB	☐	☐	Pom. SC @ 5m
66		SC-04	31	9:47	BC	NET	-	48° 43.482 123° 24.999		92		-			JW/MB	☐	☐	
				9:49	BO			48° 43.466 123° 24.963			82	-				☐	☐	
				9:51	EW			48° 43.460 123° 24.941				-				☐	☐	
67		GE-01	31	10:40	BC	CTD	-	48° 45.872 123° 20.489		64		-		-	JW/MB	☐	☒	
				10:41	BO			48° 45.802 123° 20.477			54	-				☐	☐	
				10:47	EW			48° 45.780 123° 20.461				-				☐	☐	
68		GE-01	31	10:44	BC	NET	-	48° 45.765 123° 20.415		65		-		-	JW/MB	☐	☐	
				10:46	BO			48° 45.715 123° 20.388			54	-				☐	☐	
				10:47	EW			48° 45.688 123° 20.377				-				☐	☐	
69		46	31	12:31	BC	CTD	-	48° 51.414 123° 10.778		176		-				☐	☒	N10° Wire angle
				12:55	BO			48° 51.412 123° 10.719			166	-				☐	☐	
				12:57	EW			48° 51.411 123° 10.689				-				☐	☐	
70		46	31	12:59	BC	BOT	MBC	48° 51.407 123° 10.658		176	5	36-		1	JW/MB	☐	☐	Pom. SC @ 5m
				:				° °				-				☐	☐	
Event Type:		LOOP = Sea Water Loop Bottle Firing Method: Time Code:																

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