

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2020-031

DATE:

From: 7 OCTOBER 2020

To: 18 OCTOBER 2020

VESSEL:

Vector

PROJECT(S):

STRAIT OF GEORGIA

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: New gaming laptop (Rowans)

Data acquisition program: Seasave

CTD deck unit make: SRBE model: 11+ serial number: 0424

Primary CTD

Make: SRBE model: 9+ serial number: 550

Primary temperature serial number: 2106

Primary conductivity serial number: 2280

Secondary temperature serial number: 2663

Secondary conductivity serial number: 2754

Transmissometer: Wet Labs Model: C-STAR s/n: 983DR

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model Seapoint Cable gain: 3X s/n: _____ P, S or NO pump?

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

Oxygen sensor: SRBE Model: 43 s/n: 0997 P, S or NO pump?

PAR sensor: Biospherical Model: QSP200L48 s/n: 4565 Surface PAR? Y/N

Other sensors: pH SRBE 18 s/n: 0692 P, S or NO pump?

Other sensors: SPAR s/n: 20518 P, S or NO pump?

Other sensors: Altimeter s/n: 42381 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-rosette casts (e.g., W.E. Ricker)

Rosette Setup:

Number of bottles: 24
Manufacturer: IN HIDE
Volume of bottles (litres): 10 L

Winches:

1. Make: SWANN Model: 420 Serial #: 462 Used for: NETS
2. Make: SWANN Model: 420 Serial #: 1567 Used for: CHAINS
3. Make: SWANN Model: 379 Serial #: 1483 Used for: CTD DEPLOYMENT

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

Good

Salinometer:

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

Oxygen Kit(s):

Make: SCIPPS Model: STO-UV based Kit Number: #1
Make: _____ Model: _____ Kit Number: _____

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

EXCELLENT

Thermosalinograph System (SBE21):

Program: Seasave Version: _____ S/N: 3411
Sampling interval (seconds): 30
Fluorometer sensor serial number: N/A

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

DELAYED DEACTIVATE DUE TO REQUIRED SETUP.

ADCP Setup:

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

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

CTD Test Cast Information

Test Cast along side? Yes ☐ No ☒

Comments

Test Cast in Saanich Inlet or other location? Yes ☐ No ☒

Comments

FUNCTIONING NORMALLY. FILE SENT TO GERMANY - GOOD
FLUOROMETER SIGNAL NOISE, CLEANED CABLE - BETTER

CTD pressure reading on deck (db), before cast: 0.379 after cast: -0.142

Pumps working? Yes ☒ (0011) No ☐ (0010)

Secondary Temp - Primary Temp:
(Average from the mixed region) 0.004

Secondary Salinity - Primary Salinity: -0.002
(Average from the mixed region)

Additional Comments:

Scientific Equipment Used During Cruise

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

Other CTD units:

RBR Serial Number: _____ Sensors: _____

Others: _____

Plankton Nets:

Bongo #1 Frame Size: _____ cm Mesh: _____ μ m Flowmeter: _____
Bongo #2 Frame Size: _____ cm Mesh: _____ μ m Flowmeter: _____
SCOR Frame Size: 56 cm Mesh: 236 μ m Flowmeter: TSK 7057 + RSR Solo
Frame Size: _____ cm Mesh: _____ μ m Flowmeter: _____

Multinet ☐ BIONESS ☐ Neuston ☐ Others: _____

Trawl Gear:

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

Bottom Trawls: Atlantic Western IIA ☐ Yankee 36 Hard & Soft Bottom ☐ Other: _____

American Shrimp Trawl ☐

Notes: _____

Trawl Doors: USA Jet ☐ Tyburon ☐

Sounders : Wesmar 380 ☐ Others: _____

Acoustics:

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

Others: _____

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

Others: _____

Software & Notes:

DDD NOT HAVE A DFO SWINDELL FUNCTIONING.

Other Gear in Operation:

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

DAILY SCIENCE LOG

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Page 1 of

Month <u>October</u>				Year <u>2020</u>		Vessel <u>Vector</u>			Cruise ID <u>2020-031</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
1	SI	8	02:55	BE	ROS	US	48°39.167	123°20.628	184		-		SR	☒	
			:	BO			48°39.167	123°30.628		178	1-12	12		☐	
			:	EN	ROS		48°39.162	123°30.622			-			☐	
2	103	8	17:06	BE	CTD		48°33.002	124°43.039	119		-	-	MB	☒	→
			17:09	BO			°33.006	°43.031		115	-			☐	
			17:11	EN			°33.008	°43.033			-			☐	
3	102	8	17:54	BE	ROS	US	48°30.004	124°43.999	255		-		LP	☒	
			:	BO			°	°		253	13-27			☐	
			:	EN			°	°			-			☐	computer crash
4	102	8	18:18	BO	ROS	252	48°30.011	124°44.032		252	13-27		LP	☒	
			18:38	EN			°30.014	°44.012			-			☐	
5	101	8	20:34	BE	CTD	239	48°25.459	124°45.012	233		-		LP	☒	
			20:39	BO			°25.466	°45.007		233	-			☐	
			20:42	EN	ROS		°25.469	°45.034			-			☐	
6	74	8	21:38	BE	CTD		48°25.109	124°35.614	188		-		LP	☒	
			21:42	BO			°25.116	°35.624		183	-			☐	
			21:45	EN			°25.129	°35.646			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

Event Type:

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

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

Bottle Firing Method:

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

Time Code:

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

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

Notes:

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TRANSIT OVER-NIGHT TO MOUTH OF JUAN DE FUCA.

→ CLEANED FL CABLE. SIGNAL APPEARED AFTER.

* → Note: All Stations with "CTD" Designations are just "ROS" without samples taken. LP.

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Page 2 of

Month			Year			Vessel			Cruise ID						Page		of	
OCTOBER			2020			VECTOR			2020-031									
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										
7	75	8	22:32	BE	ROS	US	48° 28 205	124° 37.713	221		28 - 41	14	LP	☒				
			22:37	BO			° 28 230	° 32.718		218	-			☐				
			22:54	EN	ROS		° 28 238	° 32.735			-			☐				
8	76	8	23:33	BE	STD		48° 31.379	124° 30.028	88		-		LP	☒				
			23:35	BO			° 31.379	° 30.034	83		-			☐				
			23:37	EN			° 31.380	° 30.032			-			☐				
9	73	9	14:05	BE	STD		48° 15.011	124° 6.703	159		-		LP	☒				
			14:08	BO			° 15.011	° 6.692		158	-			☐				
			14:11	EN			° 15.008	° 6.686			-			☐				
10	72	9	14:52	BE	NET		48° 18.602	124° 03.948	187		-		K-1	☐				
			14:56	BO			° 18.610	° 03.973		181	-			☐				
			14:59	EN			° 18.621	° 03.966			-			☐				
11	72	9	15:10	BE	ROS	US	48° 18.629	124° 04.012	186		42 - 55	14	LP	☒				
			15:14	BO			° 18.628	° 04.030		185	-			☐				
			15:32	EN	ROS		° 18.635	° 04.052			-			☐				
12	71	9	16:12	BE	STD		48° 22.170	123° 59.303	107		-		LP	☐	ORCAS/HUMPHRIS			
			16:15	BO			° 22.177	° 59.322		106	-			☐				
			16:17	EN			° 22.177	° 59.320			-			☐				
			:				°	°			-			☐				
Event Type: LOOP = Sea Water Loop Bottle Firing Method: Time Code: CTD Temperature: 100																		

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Notes:

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ORCAS & DALL'S PORPOISES ON STN.

→ ANCHOR OFF OF EAST SOOKE.

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Page 3 of

Month <u>OCTOBER</u>			Year <u>2020</u>			Vessel <u>VECTOR</u>			Cruise ID <u>2020-031</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
13	70	9	17:46	BE	CTD ^{ROS}		48° 19.205	123° 43.163	150		-		LP	☒ ☐	
			17:49	BO			° 19.205	° 43.160		148	-			☐ ☐	
			17:51	EN			° 19.201	° 43.158			-			☐ ☐	
14	69	9	18:23	BE	ROS	US	48° 15.586	123° 43.170	178		56-67	12	LP	☒ ☐	
			18:27	BO			° 15.586	° 43.165		175	-			☐ ☐	
			18:41	EN			° 15.600	° 43.201			-			☐ ☐	
15	68	9	19:28	BE	CTD ^{ROS}		48° 12.212	123° 43.016	139		-		LP	☒ ☐	
			19:31	BO			48° 12.215	123° 43.013		136	-			☐ ☐	
			19:34	EN			° 12.210	° 42.998			-			☐ ☐	
16	105	9	21:26	BE	CTD ^{ROS}		48° 10.990	123° 19.033	184		-		LP	☒ ☐	
			21:28	BO			° 10.994	° 19.039		82	-			☐ ☐	
			21:30	EN			° 10.996	° 19.042			-			☐ ☐	
17	74	9	22:35	BE	CTD ^{ROS}		48° 12.786	123° 05.798	108		-		LP	☒ ☐	
			22:37	BO			° 12.792	° 05.789		107	-			☐ ☐	
			22:40	EN			° 12.793	° 05.794			-			☐ ☐	
18	63	9	23:27	BE	NET		48° 14.604	122° 58.495	151		-		KY	☐ ☐	
			23:32	BO			° 14.606	° 58.500		146	-			☐ ☐	
			23:34	EN			° 14.604	° 58.502			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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Page 4 of

Month <u>OCTOBER</u>			Year <u>2020</u>			Vessel <u>VECTOR</u>			Cruise ID <u>2020-031</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
19	63	9	23:43	BE	ROS	US	48° 14.604	122° 58.502	151		63-71	4	LP	☒ ☐	
			23:46	BO			° 14.600	° 58.504		149	-			☐ ☐	
			23:53	EN			° 14.604	° 58.507			-			☐ ☐	
20	65	10	00:50	BE	ROS	US	48° 15.902	123° 09.788	124		72-81	10	LP	☒ ☐	
			00:53	BO			° 15.902	° 09.785		123	-			☐ ☐	
			01:04	EN			° 15.987	° 09.782			-			☐ ☐	
21	ADCP		01:49	BE	ROS	US	48° 14.008	128° 13.011	121		82-91	10	LP	☒ ☐	
			01:51	BO			° 14.010	° 13.012		118	-			☐ ☐	
			02:02	EN			° 14.000	° 13.000			-			☐ ☐	
22	104	10	14:08	BE	CTD		48° 19.981	123° 17.983	84		-		LP	☒ ☐	
			14:10	BO			° 19.980	° 17.982		81	-			☐ ☐	
			14:13	EN			° 19.987	° 17.974			-			☐ ☐	
23	66	10	14:39	BE	CTD		48° 19.264	123° 13.169	102		-		LP	☒ ☐	Cleaned floor cable noisy channel 4
			14:42	BO			° 19.304	° 13.907		98	-			☐ ☐	
			14:44	EN			° 19.352	° 13.853			-			☐ ☐	
24	67	10	15:20	BE	CTD		48° 22.813	123° 18.142	103		-			☒ ☐	
			15:22	BO			° 22.811	° 18.047		102	-			☐ ☐	
			15:26	EN			° 22.810	° 18.086			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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- ANCHOR OFF OF VICTORIA

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Page 5 of

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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
25	62	10	16:41	BE	ROS	US	48°22.819	123°02.462	145		92-102	11	LP	☒	
			16:44	BO			°22.825	°02.452		143	-			☐	
			16:59	EN			°22.837	°02.324			-			☐	
26	61	10	18:09	BE	ROS	-	48°29.198	123°9.200	267		-	-	MB	☒	
			18:14	BO			48°29.200	123°9.212		283	-			☐	
			18:20	EN			48°29.198	123°9.212			-			☐	
27	60	10	19:36	BE	ROS	-	48°33.931	123°12.781	287		-	-	MB	☒	
			19:42	BO			48°33.912	123°12.785		277	-			☐	
			19:47	EN			48°33.923	123°12.835			-			☐	
28	59	10	20:42	BE	NET		48°37.899	123°14.534	242		-		KY	☐	added 8m for
			20:51	BO			°37.882	°14.456		245	-			☐	15° LP
			20:55	EN			°37.865	°14.430			-			☐	
29	59	10	21:05	BE	ROS	US	48°37.793	123°14.450	238		103-117	15	LP	☒	
			21:10	BO			°37.812	°14.454		236	-			☐	
			21:26	EN	ROS		°37.799	°14.370			-			☐	
30	SC-04	10	22:57	BE	CTD		48°43.492	123°24.977	92		-		LP	☒	
			22:59	BO			°43.494	°24.952		89	-			☐	
			23:01	EN			°43.510	°24.950			-			☐	
			:				°	°			-			☐	

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STOPPED @ 10 m above bottom, very large lead on wire; Lots of wire going out & pressure not increasing.

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Page 6 of

Month <u>OCTOBER</u>			Year <u>2020</u>			Vessel <u>VECTOR</u>			Cruise ID <u>2020-031</u>						
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							Latitude	Longitude							
31	SC-04	10	23:06	BE	NET		48° 43.500	123° 24.966	92		-		KY	☐	
			23:09	BO			° 43.499	° 24.947		87	-			☐	
			23:11	EN			° 43.493	° 24.961			-			☐	
32	GI-01		23:43	BE	NET		48° 45.880	123° 20.508	64		-		KY	☐	
			23:46	BO			° 45.882	° 20.478		59	-			☐	
			23:47	EN			° 45.890	° 20.479			-			☐	
33	GI-01	10	23:56	BE	CTD		48° 45.899	123° 20.489	65		-		LP	☒	
			23:58	BO			48° 45.901	123° 20.477		63	-			☐	
		11	00:00	EN			48° 45.904	123° 20.486			-			☐	
34	58	11	00:46	BE	CTD		48° 43.006	123° 14.363	337		-		LP	☒	
			00:52	BO			° 43.024	° 14.396		333	-			☐	
			00:59	EN			° 42.997	° 14.443			-			☐	
35	57	11	01:39	BE	CTD		48° 43.978	123° 08.072	160		-		LP	☒	
			01:42	BO			48° 43.969	123° 08.082		157	-			☐	
			01:46	EN			° 43.975	° 08.096			-			☐	
36	46	11	14:05	BE	NET		48° 51.418	123° 10.786	174		-		KY	☐	
			14:10	BO			° 51.412	° 10.806		170	-			☐	
			14:13	EN			° 51.412	° 10.810			-			☐	
			:				°	°			-			☐	

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- ANCHOR IN PLUMPER SOUND

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Page 7 of

Month <u>OCTOBER</u>			Year <u>2020-031</u>		Vessel <u>VECTOR</u>		Cruise ID <u>2020-031</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
37	46	11	14:24	BE	ROS	US	48° 51.401	123° 10.812	175		118-129	12	LP	☒	
			14:28	BO			° 51.395	° 10.816		172	-			☐	
			14:45	EN			° 51.391	° 10.837			-			☐	
38	45	11	15:20	BE	CTD		48° 53.929	123° 8.440	125		-		LP	☒	
			15:23	BO			° 53.920	° 8.437		122	-			☐	
			15:27	EN			° 53.920	° 8.425			-			☐	
39	44	11	15:57	BE	CTD		48° 56.784	123° 6.076	117		-		LP	☒	
			16:00	BO			° 56.774	° 6.068		114	-			☐	
			16:02	EN			° 56.773	° 6.068			-			☐	
40	50	11	17:03	BE	CTD		48° 57.691	122° 56.096	25		-			☒	
			17:04	BO			° 57.694	° 56.090		23	-			☐	
			17:06	EN			° 57.691	° 56.084			-			☐	
41	49	11	17:38	BE	ROS	US	48° 55.004	122° 59.622	130		145-145	1	LP	☒	Sample # out of order.
			17:42	BO			° 55.009	° 59.616		127	-			☐	
			17:46	EN			° 55.021	° 59.615			-			☐	
42	48	11	18:20	BE	CTD		48° 51.790	123° 3.788	222		-			☒	
			18:25	BO			° 51.770	° 3.220		216	-			☐	
			18:29	EN			° 51.761	° 3.214			-			☐	
			:				°	°			-			☐	

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

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TOOK AN OPPORTUNISTIC PHYTO SAMPLE DUE TO LARGE FL OBSERVED @ SRF.

DAILY SCIENCE LOG

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Page 8 of

Month			Year			Vessel			Cruise ID						
OCTOBER			2020			VECTOR			2020-031						
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
43	47	11	19:05	BE	CTD		48°49.313	123°6.206	134		-		CP	☒	
			19:09	BO			°49.332	°6.211		181	-			☐	
			19:13	EN			°49.339	°6.211			-			☐	
44	56	11	20:06	BE	ROS	US	48°46.370	123°1.614	215		130-144	15	CP	☒	
			20:10	BO			°46.385	°1.607		209	-			☐	
			20:26	EN			°46.459	°1.541			-			☐	
45	51	11	21:25	BE	CTD		48°46.703	122°51.610	162		-		CP	☒	
			21:29	BO			°46.703	°51.604		161	-			☐	
			21:32	EN			°46.702	°51.590			-			☐	
46	52	11	21:58	BE	CTD		48°38.903	122°43.320	85	86	-		CP	☒	
			21:01	BO			°38.912	°43.333		86	-			☐	
			21:03	EN			°38.899	°43.322			-			☐	
47	53	11	23:50	BE	CTD		48°33.205	122°44.992	60		-		CP	☒	
			23:52	BO			°33.217	°44.990		59	-			☐	
			23:53	EN			°33.216	°44.973			-			☐	
48	54	12	00:45	BE	CTD		48°26.606	122°44.324	78		-			☒	
			00:47	BO			°26.624	°44.329		75	-			☐	
			00:53	EN			°26.774	°44.302			-			☐	
			:				°	°			-			☐	

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

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CTD Stayed in water while trying to hold position. That is the reason for the long time @ surface. #
→ TRANSIT O/N FROM ROSARIO BACK UP HARD TO SOUTH END OF SAG.

DAILY SCIENCE LOG

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Page 9 of

Month <u>OCTOBER</u>				Year <u>2020</u>		Vessel <u>VECTOR</u>				Cruise ID <u>2020-031</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
49	109	12	14:10	BE	CTD		48° 56.503	123° 21.829	192		-		LP	☒ ☐	
			14:14	BO	202		° 56.514	° 21.820		189	-			☐ ☐	
			14:18	EN			° 56.518	° 21.816			-			☐ ☐	
50	108	12	15:28	BE	ROS		49° 4.349	123° 19.126	89		-		LP	☒ ☐	
			15:30	BO			° 4.344	° 19.146		89	-			☐ ☐	
			15:33	EN	ROS		° 4.344	° 19.174			-			☐ ☐	
51	41	12	15:56	BE	CTD		49° 3.276	123° 22.283	237	238	-		LP	☒ ☐	
			16:02	BO			° 3.276	° 22.360		238	-			☐ ☐	
			16:07	EN			° 3.284	° 22.477			-			☐ ☐	
52	42	12	16:38	BE	NET		49° 01.839	123° 26.223	316		-		KY	☐ ☐	
			16:49	BO			° 01.852	° 26.204		311	-			☐ ☐	
			16:54	EN			° 01.867	° 26.175			-			☐ ☐	
53	42	12	17:06	BE	ROS	US	49° 1.795	123° 26.166	316		146-162	17	LP	☒ ☐	
			17:12	BO			49° 1.808	123° 26.184	31	314	-			☐ ☐	
			17:31	EN	ROS		° 1.800	° 26.212			-			☐ ☐	
54	43	12	18:13	BE	CTD		49° 0.239	123° 30.166	197		-		LP	☒ ☐	
			18:17	BO			° 0.236	° 30.163		190	-			☐ ☐	
			18:21	EN			° 0.227	° 30.143			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

Event Type:

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

LOOP = Sea Water Loop
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 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
 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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Page 10 of

Month <u>Oct</u>			Year <u>2020</u>			Vessel <u>Vector</u>			Cruise ID <u>2020-31</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
55	40	12	19:23	BE	NET		49° 08.564	123° 36.756	156		-		KY	☐	
			19:28	BO			° 08.539	° 36.674		151	-			☐	
			19:31	EN	ROS		° 08.550	° 36.610			-			☐	
56	40	12	19:41	BE	CTD		49° 08.694	123° 36.676	159		-		LP	☒	
			19:45	BO			° 08.670	° 36.662		157	-			☐	
			19:47	EN			° 08.634	° 36.654			-			☐	
57	39	12	20:16	BE	ROS	JS	49° 9.835	123° 32.881	366		163 - 179	17	LP	☒	
			20:23	BO			° 9.821	° 32.886		370	-			☐	
			20:45	EN			° 9.812	° 32.987			-			☐	
58	38	12	21:23	BE	NET		49° 11.980	123° 26.350	306		-		KY	☐	
			21:34	BO			° 11.970	° 26.374		301	-			☐	
			21:39	EN	ROS		° 11.971	° 26.377			-			☐	
59	38	12	21:47	BE	CTD		49° 11.970	123° 26.370	306		-		LP	☒	
			21:53	BO			° 11.969	° 26.381		303	-			☐	
			21:59	EN	ROS		° 11.970	° 26.398			-			☐	
60	37	12	22:44	BE	CTD		49° 13.594	123° 20.695	213		-		LP	☒	
			22:48	BO			° 13.586	° 20.681		209	-			☐	
			22:52	EN			° 13.538	° 20.706			-			☐	
			:				°	°			-			☐	

Event Type:

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 SET = Fish Set

LOOP = Sea Water Loop
 MOR = Mooring
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Bottle Firing Method:

US = Up / Stop (default)
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Time Code:

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Notes:

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Page 11 of

Month <u>Oct</u>				Year <u>2020</u>		Vessel <u>Vector</u>			Cruise ID <u>2020-31</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
61	VAN2	13	00:10	BE	CTD		49°19.517	123°13.720	63		-		LP	☒ ☐	
			:11	BO			°19.517	°13.726		61	-			☐ ☐	
			:13	EN			°19.513	°13.732			-			☐ ☐	
62	VAN0	13	00:46	BE	CTD		49°17.818	123°13.801	48		-		LP	☒ ☐	
			00:47	BO			°17.818	°13.806		44	-			☐ ☐	
			00:49	EN			°17.814	°13.804			-			☐ ☐	
63	VAN3	13	01:20	BE	CTD		49°18.919	123°9.942	38		-		LP	☐ ☐	
			01:21	BO			°18.920	°9.949		36	-			☐ ☐	
			01:23	EN			°18.923	°9.953			-			☐ ☐	
64	VAN1	13	01:56	BE	NET		49°18.846	123°15.848	111		-		KY	☐ ☐	
			02:00	BO			°18.834	°15.845		106	-			☐ ☐	
			02:02	EN			°18.831	°15.843			-			☐ ☐	
65	VAN1	13	02:07	BE	NET		49°18.815	123°15.853	111		-		KY	☐ ☐	2 ND NET FOR
			02:11	BO			°18.813	°15.840		106	-			☐ ☐	CTD PRESERVE
			02:13	EN			°18.820	°15.840			-			☐ ☐	
66	VAN1	13	02:20	BE	ROS	JS	49°18.848	123°15.852	111		180-190	11	LP	☒ ☐	
			02:22	BO			°18.853	°15.863		109	-			☐ ☐	
			02:33	EN			°18.858	°15.906			-			☐ ☐	
			:				°	°			-			☐ ☐	

Event Type:

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 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
 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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Ocean Sciences Division, Institute of Ocean Sciences

Page 12 of

Month <u>Oct</u>			Year <u>2020</u>			Vessel <u>Vector</u>			Cruise ID <u>2020-31</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
67	VAN4	13	15:04	BE	ROS	US	49°17.837	123°5.839	57		191-199	9	LP	☒	
			15:06	BO			°17.886	°5.831		55	-			☐	
			15:15	EN			°17.880	°5.800			-			☐	
68	VAN5	13	15:40	BE	ROS	US	49°17.718	123°03.349	32		200-206	7	LP	☒	
			15:43	BO			°17.718	°03.348		30.9	-			☐	
			15:48	EN			°17.718	°03.311			-			☐	
69	VAN6	13	16:38	BE	NET		49°17.898	122°58.857	63		-		KY	☐	
			16:39	BO			°17.893	°58.860		58	-			☐	
			16:40	EN			°17.892	°58.860			-			☐	
70	VAN6	13	16:49	BE	ROS	US	49°17.905	122°58.866	63		207-215	9	LP	☒	
			16:51	BO			°17.910	°58.867		59	-			☐	
			17:00	EN			°17.906	°58.866			-			☐	
71	VAN7	13	17:37	BE	ROS	US	49°17.405	122°54.312	12		216-220	5	LP	☒	
			17:39	BO			°17.405	°54.313		11	-			☐	
			17:42	EN	ROS		°17.408	°54.314			-			☐	
72	IND1	13	18:24	BE	CTD		49°19.849	122°54.212	68		-		LP	☒	
			18:27	BO			°19.850	°54.203		66	-			☐	
			18:29	EN			°19.854	°54.200			-			☐	
			:				°	°			-			☐	

Event Type:

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Bottle Firing Method:

US = Up / Stop (default)
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Notes:

Time Code:

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

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 13 of

Month <u>Oct.</u>			Year <u>2020</u>		Vessel <u>Vector</u>			Cruise ID <u>2020-31</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
73	IND2	13	19:09	BE	ROS	US	49° 21.010	122° 54.114	153		221-232	12	LP	☒ ☐	
			19:13	BO			° 21.005	° 54.120		156	-			☐ ☐	
			19:25	EN			° 20.999	° 54.113			-			☐ ☐	
74	IND5	13	20:11	BE	CTD		49° 24.674	122° 52.331	206		-		LP	☒ ☐	
			20:15	BO			° 24.666	° 52.330		201	-			☐ ☐	
			20:19	EN			° 24.662	° 52.328			-			☐ ☐	
75	IND8	13	20:49	BE	ROS	US	49° 26.492	122° 52.592	36		233-239	7	LP	☒ ☐	
			20:50	BO			° 26.488	° 52.594			-			☐ ☐	
			20:56	EN			° 26.480	° 52.606			-			☐ ☐	
76	IND6	13	21:23	BE	CTD		49° 26.406	122° 51.587	99		-		LP	☒ ☐	
			21:25	BO			° 26.408	° 51.584		96	-			☐ ☐	
			21:27	EN			° 26.411	° 51.586			-			☐ ☐	
77	IND7	13	21:47	BE	ROS	US	49° 27.413	122° 52.657	73		240-248	9	LP	☒ ☐	
			21:49	BO			° 27.410	° 52.655		71	-			☐ ☐	
			21:57	EN			° 27.407	° 52.666			-			☐ ☐	
78	IND4	13	22:43	BE	NET		49° 23.272	122° 52.514	221		-		KY	☐ ☐	
			22:50	BO			° 23.276	° 52.486		216	-			☐ ☐	
			22:53	EN			° 23.270	° 52.485			-			☐ ☐	
			:				°	°			-			☐ ☐	

Event Type:

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Notes:

Time Code:

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Page 14 of

Month <u>Oct</u>			Year <u>2020</u>			Vessel <u>Vector</u>			Cruise ID <u>2020-31</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
79	IND4	13	23:01	BE	NET		49° 23.280	122° 52.499	221		-		KY	☐	
			23:08	BO			° 23.265	° 52.491		216	-			☐	
			23:11	EN			° 23.256	° 52.482			-			☐	
80	IND4	13	23:21	BE	ROS	US	49° 23.237	122° 52.458	221		249-263	15	LP	☒	
			23:25	BO			° 23.251	° 52.457		218	-			☐	
			23:42	EN			° 23.230	° 52.469			-			☒	
81	IND3	14	00:42	BE	CTD		49° 22.207	122° 52.822	196				LP	☒	
			00:46	BO			° 22.201	° 52.838		193	-			☐	
			00:49	EN			° 22.184	° 52.843			-			☐	
82	IND0	14	01:38	BE	ROS	US	49° 18.289	122° 56.359	32		264-269	6	LP	☒	
			01:39	BO			° 18.289	° 56.360		31	-			☐	
			01:44	EN			° 18.288	° 56.354			-			☐	
83	GE01	14	14:00	BE	NET		49° 15.009	123° 44.890	401				KY	☐	
			14:13	BO			° 15.003	° 44.895		395	-			☐	
			14:20	EN			° 15.000	° 44.888			-			☐	
84	GE01	14	14:28		ROS	US	49° 15.002	123° 44.893	400		270-273	4	LP	☒	
			14:35				° 15.000	° 44.909		397	-			☐	
			14:46				° 14.996	° 44.894			-			☐	
			:				°	°			-			☐	

Event Type:

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Page 15 of

Month Oct				Year 2020			Vessel Vector				Cruise ID 2020-31				
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
85	26	14	15:20	BE	CTD		49°14.287	123°50.792	242		-		Lp	☒ ☐	
			15:25	BO	ROS		°14.300	°50.786		241	-			☐ ☐	
			15:30	EN			°14.303	°50.796			-			☐ ☐	
86	27	16	20:29	BE	ROS	US	49°19.070	123°47.979	344		274-290	17	Lp	☒ ☐	#15 line broke when rearming bottle. Replaced. LP
			20:35	BO			°19.086	°47.988		342	-			☐ ☐	
			20:56	EN			°19.109	°47.993			-			☐ ☐	
87	CPF1	16	22:13	BE	NET		49°21.991	124°05.080	244		-		KY	☐ ☐	
			22:21	BO			°21.967	°05.083		238	-			☐ ☐	
			22:25	EN			°21.973	°05.076			-			☐ ☐	
88	CPF1	16	22:33	BE	ROS	US	49°22.003	124°05.112	244		291-294	4	Lp	☒ ☐	Testing #15 no samples in LP
			22:38	BO			°22.025	°05.093		241	-			☐ ☐	taken from bottle.
			22:47	EN			°22.061	°05.060			-			☐ ☐	15 worked LP.
89	2	16	23:20	BE	ROS		49°24.119	124°09.307	277		-		Lp	☒ ☐	
			23:26	BO			°24.125	°09.304		275	-			☐ ☐	
			23:45	EN			°24.110	°09.302			-			☐ ☐	
90	3	17	00:38	BE	ROS	US	49°26.603	124°20.198	323		311-326	16		☒ ☐	Ph cap was
			00:44	BO			°26.611	°20.206		320	-			☐ ☐	still on LP.
			01:04	EN			°26.605	°20.197			-			☐ ☐	
			:				°	°			-			☐ ☐	

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14 OCT 2020

OPERATION SUSPENDED @ ~ 1600 UTC DUE TO ON BOARD ILLNESS, TIE UP @ PBS
IN NANAIMO, AWAIT TEST RESULTS FOR COVID-19. (TWO DECKHANDS, COLD SYMPTOMS)
- TSG STOPPED, SALT WATER PUMP OFF @ PBS

16 OCT 2020 1500: TWO NEGATIVE COVID RESULTS, CONTINUING OPERATIONS. DOWN ONE CREW MEMBER, RETURNING HOME WITH A COLD. VESSEL WILL BE SOMEWHAT RESTRICTED TO DAY OPERATIONS FOR BITU SCIENCE OPS & TRANSIT.

RESUME @ 1900 UTC 16 OCT 2020

- RESUME TSG @ 1930 UTC 16 OCT 2020 FILE: 2020-031-0002

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 16 of

Month <u>Oct</u>			Year <u>2020</u>			Vessel <u>Vector</u>			Cruise ID <u>2020-31</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
91	CPF2	17	01:48	BE	NET		49°28.004	124°30.058	328		-		KY	☐	
			01:58	BO			°28.005	°29.978		32	-			☐	
			02:04	EN			°28.006	°29.982			-			☐	
92	CPF2	17	02:11	BE	ROS		49°28.015	124°30.008	328		-		LP	☒	
			02:17	BO			°28.003	°30.000		323	-			☐	
			02:23	EN			°28.002	°29.981			-			☐	
93	6	17	14:08	BE	ROS	US	49°30.584	124°27.943	192		327-339	13	CP	☒	
			14:12	BO			°30.610	°27.949		189	-			☐	
			14:27	EN			°30.595	°28.049			-			☐	
94	9	17	15:22	BE	ROS	US	49°35.434	124°38.219	169		340-351	12	LP	☒	Hit bottom,
			15:28	BO			°35.443	°38.261		167	-			☐	Flushed sensors.
			15:43	EN			°35.496	°38.300			-			☐	@ 171 brought
95	10	17	16:38	BE	ROS		49°40.699	124°47.242	93		-		LP	☒	to 167.
			16:40	BO			°40.706	°47.238		93	-			☐	
			16:42	EN			°40.708	°47.232			-			☐	
96	11	17	17:10	BE	ROS		49°42.392	124°43.468	300		-		LP	☒	
			17:16	BO			°42.414	°43.456		297	-			☐	
			17:21	EN			°42.425	°44.448			-			☐	
			:				°	°			-			☐	

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ANCHOR TRIBUNE BAY

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 17 of

Month <u>Oct</u>			Year <u>2020</u>			Vessel <u>Vector</u>			Cruise ID <u>2020-31</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
97	12	17	17:40	BE	NET		49° 43.546	124° 40.766	353		-		KY	☐ ☐	
			17:51	BO			° 43.587	° 40.796		349	-			☐ ☐	
			17:56	EN			° 43.593	° 40.804			-			☐ ☐	
98	12	17	18:04	BE	ROS	US	49° 43.602	124° 40.804	353		352-368	17	LP	☒ ☐	
			18:11	BO			° 43.602	° 40.796		350	-			☐ ☐	
			18:29	EN			° 43.604	° 40.817			-			☐ ☐	
99	13	17	20:09	BE	ROS		49° 55.312	124° 55.212	234		-		LP	☒ ☐	
			20:13	BO			° 55.310	° 55.184		230	-			☐ ☐	
			20:18	EN			° 55.309	° 55.181			-			☐ ☐	
100	14	17	20:47	BE	NET		49° 52.993	124° 59.604	312		-		KY	☐ ☐	
			20:57	BO			° 53.012	° 59.588		308	-			☐ ☐	
			21:03	EN			° 53.007	° 59.581			-			☐ ☐	
101	14	17	21:11	BE	ROS	US	49° 53.004	124° 59.580	312		369-383	15	LP	☒ ☐	
			21:18	BO			° 53.009	° 59.585		309	-			☐ ☐	
			21:37	EN			° 53.009	° 59.596			-			☐ ☐	
102	15	17	22:06	BE	ROS		49° 51.626	125° 1.643	124		-		LP	☒ ☐	
			22:09	BO			° 51.617	° 1.634		121	-			☐ ☐	
			22:11	EN			° 51.610	° 1.620			-			☐ ☐	
			:				°	°			-			☐ ☐	
Event Type: <u>LOOP - See Water Log</u> Bottle Filled: <u>22:11</u>															

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 DRF = Drifter
 =

Bottle Firing Method:

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

Notes:

Time Code:

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 18 of

Month <u>Oct.</u>				Year <u>2020</u>			Vessel <u>Vector</u>				Cruise ID <u>2020-31</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							
103	<u>17</u>	<u>17</u>	<u>23:33</u>	<u>BE</u>	<u>ROS</u>		<u>49° 58.816</u>	<u>125° 4 .316</u>	<u>264</u>		-		<u>LP</u>	☒ ☐	<u>16 canceled due to tides + currents. LP.</u>
			<u>23:38</u>	<u>BO</u>			<u>° 58.795</u>	<u>° 4 .301</u>			-			☐ ☐	
			<u>23:43</u>	<u>EN</u>			<u>° 58.794</u>	<u>° 4 .283</u>			-			☐ ☐	
104	<u>QU39</u>	<u>18</u>	<u>00:34</u>	<u>BE</u>	<u>NET</u>		<u>50° 01 .834</u>	<u>125° 05 .525</u>	<u>271</u>		-		<u>KY</u>	☐ ☐	
			<u>00:43</u>	<u>BO</u>			<u>° 01 .842</u>	<u>° 05 .531</u>	<u>273</u>	<u>269</u>	-			☐ ☐	
			<u>00:47</u>	<u>EN</u>			<u>° 01 .843</u>	<u>° 05 .535</u>			-			☐ ☐	
105	<u>QU39</u>	<u>18</u>	<u>00:55</u>	<u>BE</u>	<u>ROS</u>	<u>US</u>	<u>50° 01 .850</u>	<u>125° 05 .528</u>	<u>273</u>		<u>384-387</u>	<u>4</u>	<u>LP</u>	☒ ☐	
			<u>01:00</u>	<u>BO</u>			<u>° 01 .852</u>	<u>° 05 .531</u>		<u>269</u>	-			☐ ☐	
			<u>01:09</u>	<u>EN</u>			<u>° 01 .846</u>	<u>° 05 .528</u>			-			☐ ☐	
106	<u>18</u>	<u>18</u>	<u>01:49</u>	<u>BE</u>	<u>ROS</u>		<u>49° 59.213</u>	<u>124° 58 .900</u>	<u>147</u>		-		<u>LP</u>	☒ ☐	
			<u>01:54</u>	<u>BO</u>			<u>° 59.190</u>	<u>° 58 .920</u>		<u>141</u>	-			☐ ☐	
			<u>01:57</u>	<u>EN</u>			<u>° 59.183</u>	<u>° 58 .925</u>			-			☐ ☐	
107	<u>19</u>	<u>18</u>	<u>02:37</u>	<u>BE</u>	<u>ROS</u>		<u>50° 1 .176</u>	<u>124° 52 .940</u>	<u>271</u>		-		<u>LP</u>	☒ ☐	
			<u>02:42</u>	<u>BO</u>			<u>° 1 .199</u>	<u>° 52.912</u>		<u>272</u>	-			☐ ☐	
			<u>02:48</u>	<u>EN</u>			<u>° 1 .205</u>	<u>° 52.889</u>			-			☐ ☐	
108	<u>20</u>	<u>18</u>	<u>14:41</u>	<u>BE</u>	<u>ROS</u>		<u>49° 47.234</u>	<u>124° 32 .318</u>	<u>304</u>		-		<u>LP</u>	☒ ☐	
			<u>14:47</u>	<u>BO</u>			<u>° 47.218</u>	<u>° 32 .312</u>		<u>310</u>	-			☐ ☐	
			<u>14:52</u>	<u>EN</u>			<u>° 47.215</u>	<u>° 32 .314</u>			-			☐ ☐	
			<u>:</u>				<u>°</u>	<u>°</u>			-			☐ ☐	

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— ANCHOR NORTH SIDE OF SANDY ISLAND.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 19 of

Month <u>Oct</u>			Year <u>2020</u>			Vessel <u>Vector</u>			Cruise ID <u>2020-31</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
109	22	18	16:13	BE	NET		49°40.193	124°16.264	353		-		KY	☐	
			16:25	BO			°40.193	°16.263		348	-			☐	
			16:31	EN			°40.199	°16.269			-			☐	
110	22	18	16:42	BE	ROS	US	49°40.193	124°16.274	353		389-391	4	LP	☒	→
			16:49	BO			°40.189	°16.279		350	-			☐	
			16:59	EN			°40.180	°16.274			-			☐	
111	24	18	18:13	BE	NET		49°30.391	124°06.072	426		-		KY	☐	
			18:25	BO			49°30.327	°06.021		420	-			☐	
			18:32	EN			°30.297	°05.994			-			☐	
112	24	18	18:41	BE	ROS	US	49°30.329	124°6.012	426		392-395	4	MB	☒	LAST CAST
			18:49	BO			49°30.311	124°5.993		420	-			☐	
			18:55	EN			49°30.302	124°5.988			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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Bottle 17 the little plastic ball is missing half its body.

