

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2019-016

DATE:

From: 6 APRIL 2019 To: 13 APRIL 2019

VESSEL:

CCGS VECTOR

PROJECT(S):

STRAIT OF GEORGIA WATER
PROPERTIES SURVEY

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: WP # 32 Laptop

Data acquisition program: Seasave

CTD deck unit make: SRBE model: 11+ serial number: 0619

Primary CTD

Make: SRBE model: 9+ serial number: 506

Primary temperature serial number: 2023

Primary conductivity serial number: 1763

Secondary temperature serial number: 3073

Secondary conductivity serial number: 3394

Transmissometer: Wetlabs Model: C-Star s/n: 953DR

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model Seapoint Cable gain: 3x s/n: 3685 P, S or NO pump?

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

Oxygen sensor: SRBE Model: 43 s/n: 3234 P, S or NO pump?

PAR sensor: Bio-spherical Model: QB P200/45 s/n: _____ Surface PAR? (Y/N)

Other sensors: pk _____ s/n: 0691 P, S or NO pump?

Other sensors: Surface PAR _____ s/n: 20518 P, S or NO pump?

Other sensors: Altimeter _____ s/n: 43281 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: _____
Manufacturer: _____
Volume of bottles (litres): _____

Winches:

1. Make: _____ Model: _____ Serial #: _____ Used for: _____
2. Make: _____ Model: _____ Serial #: _____ Used for: _____
3. Make: _____ Model: _____ Serial #: _____ Used for: _____

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

Salinometer:

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

Oxygen Kit(s):

Make: _____ Model: _____ Kit Number: _____
Make: _____ Model: _____ Kit Number: _____

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

Thermosalinograph System (SBE21):

Program: Seasave Version: _____ SN: 2488
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):

ADCP Setup:

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

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

CTD Test Cast Information

Test Cast along side? Yes No

Comments _____

Test Cast in Saanich Inlet or other location? Yes No

Comments _____

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

Pumps working?

Yes (0011) No (0010)

Secondary Temp – Primary Temp:

(Average from the mixed region) _____

Secondary Salinity – Primary Salinity: _____

(Average from the mixed region)

Additional Comments:

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Month			Year		Vessel			Cruise ID							
APRIL			2019		VECTOR			2019-016							
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	S1	6	02:02	BE	ROS	US	48° 39.086	123° 29.854	174		1 - 9	9	R	☐ ☐	test cast
			02:05	BO			39.102	29.850		104	-			☐ ☐	with chains
			02:15	EN			39.130	28.880			-			☐ ☐	TSG Pump
2	IND 0	7	15:21	BE	ROS	US	49° 18.290	122° 56.362	37		-			☐ ☐	issues →
			15:24	BO			18.289	56.363		34	10 - 15	6	SR	☐ ☐	
			15:33	EN			18.288	56.362			-			☐ ☐	
3	IND 1	7	16:12	BE	ROS		49° 19.855	122° 54.214	74		/	/	SR	☐ ☐	
			16:14	BO			19.855	54.215		70	-			☐ ☐	
			16:16	EN			19.855	54.215			-			☐ ☐	
4	IND 2	7	16:35	BE	ROS	UC	49° 20.998	122° 54.145	163		16 - 26	11	SR	☐ ☐	
			16:40	BO			20.999	54.134		159	-			☐ ☐	
			16:54	EN			21.010	54.119			-			☐ ☐	
5	IND 4	7	17:36	BE	NET		49° 23.280	122° 52.512	222		/	/	HR	☐ ☐	
			17:44	BO			23.280	52.499		212	-			☐ ☐	
			17:47	EN			23.279	52.501			-			☐ ☐	
6	IND 4	7	18:07	BE	ROS	US	49° 23.288	122° 52.504	222		27 - 40	14	SR	☐ ☐	
			18:13	BO			23.287	52.504		218	-			☐ ☐	
			18:31	EN			23.288	52.502			-			☐ ☐	
			:				.	.			-			☐ ☐	

Event Type:

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

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
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Produced by the Water Properties Group, IOS

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altimeter reading interfered with by chains

The TSG + Saltwater hose pump was repeatedly turned off for service. It was fixed by $\approx 1:30$ am Apr 7 Local time. SR

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Month <u>APRIL</u>				Year <u>2019</u>		Vessel <u>VECTOR</u>				Cruise ID <u>2019-016</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
7	IND8	7	19:19	BE	ROS	US	49° 26.471	122° 52.591	39	34	41-46	6	R	☒	TSG Pump
			19:21	BO			° 26.470	° 52.594			-			☐	turned off
			19:28	EN			° 26.468	° 52.597			-			☐	again. ~1900
8	IND6	7	19:57	BE	ROS		49° 26.387	122° 51.583	100		-		R	☒	
			20:00	BO			° 26.387	° 51.584		96	-			☐	
			20:02	EN			° 26.387	° 51.584			-			☐	
9	IND7	7	20:22	BE	ROS	US	49° 27.414	122° 52.671	75		47-54	8	R	☒	TSG Pump
			20:25	BO			° 27.414	° 52.678		69	-			☐	Back on @ 2130
			20:33	EN			° 27.421	° 52.680			-			☐	
10	IND5	7	21:11	BE	ROS		49° 24.692	122° 52.328	206		-			☐	
			21:16	BO			° 24.689	° 52.339		200	-			☐	
			21:20	EN			° 24.686	° 52.348			-			☐	
11	IND3	7	21:46	BE	ROS		49° 22.186	122° 52.871	195		-			☐	
			21:50	BO			° 22.195	° 52.870		190	-			☐	
			21:54	EN			° 22.198	° 52.856			-			☐	
12	VAN6	7	22:44	BE	NET		49° 17.888	122° 58.842	62		-		NN	☐	up @ 1 m/s
			22:46	BO			° 17.886	° 58.841		52	-			☐	down @ 1/2 m/s
			22:47	EN			° 17.884	° 58.840			-			☐	
			:				°	°			-			☐	

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This page is for any notes or observations

- Proceed from IND3 to VAL6
- Skip VAL7 station - very low tide & need to save time to make slack water @ second Narrows

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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
							Latitude	Longitude							
13	VAN6	7	22:58	BE	ROS	US	49° 17.872	122° 58.841	64		55-62	8	R	☒	
			23:00	BO			° .873	° .841		59	-			☐	
			23:08	EN			° .876	° .843			-			☐	
14	VAN5	7	23:47	BE	ROS	US	49° 17.725	123° 03.246	36		85-92	6	R	☒	There are no →
			23:49	BO			° .724	° .250			-			☐	
			23:54	EN			° .720	° .264			-			☐	
15	VAN4	8	00:52	BE	ROS	US	49° 17.917	123° 05.782	60					☒	change printer label drum
			00:54	BO			° .928	° .774			-			☐	
			01:01	EN			° .960	° .774			-			☐	
16	VAN3	8	01:48	BE	ROS		49° 18.922	123° 09.899	42					☒	change printer ink drum
			01:49	BO			° 18.930	° 09.899		37	-			☐	
			01:50	EN			° 18.930	° 09.906			-			☐	
17	VAN0	8	02:18	BE	ROS		49° 17.834	123° 13.736	53					☐	large AS @ surface
			02:20	BO			° 17.832	° 13.741		46	-			☐	
			02:21	EN			° 17.830	° 13.748			-			☐	
18	VAN2	8	02:53	BE	ROS		49° 19.496	123° 13.792	68					☐	
			02:54	BO			° 19.499	° 13.798		63	-			☐	
			02:57	EN			° 19.505	° 13.802			-			☐	
			:				° .	° .			-			☐	

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no
samples with numbers between 63 and 84 - label software error when replacement roll
of labels inserted to Brady

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19	VANI	8	03:14	BE	NET		49° 18.850	123° 15.905	116		-		NV	☐ ☐	2014-2019
			03:16	BO			° 18.854	° 15.901		106	-			☐ ☐	
			03:19	EN			° 18.853	° 15.904			-			☐ ☐	
20	VANI	8	03:30	BE	ROS	US	49° 18.866	123° 15.894	116		93-102	10	R	☒ ☐	
			03:33	BO			° 18.852	° 15.881			-			☐ ☐	
			03:42	EN			° 18.844	° 15.896			-			☐ ☐	
21	22	8	08:38	BE	NET		49° 39.944	124° 15.760	348		-		HR	☐ ☐	
			08:51	BO			° 39.951	° 15.763		338	-			☐ ☐	
			08:56	EN			° 39.947	° 15.760			-			☐ ☐	
22	22	8	09:04	BE	NET		49° 39.937	124° 15.761	347		-		HM	☐ ☐	
			09:16	BO			° 39.935	° 15.754		337	-			☐ ☐	
			09:22	EN			° 39.930	° 15.767			-			☐ ☐	
23	22	8	09:37	BE	ROS	US	49° 39.930	124° 15.757	351		103-105	3	SR	☒ ☐	
			09:45	BO			° 39.928	° 15.757		346	-			☐ ☐	
			09:54	EN			° 39.928	° 15.755			-			☐ ☐	
24	20	8	11:33	BE	ROS		49° 47.208	124° 32.303	313		-			☐ ☐	Surface bottle
			11:40	BO			° 47.204	° 32.305		309	-			☐ ☐	tripped for HPLC
			11:47	EN			° 47.202	° 32.302			-			☐ ☐	Sample #106
			:				°	°			-			☐ ☐	

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note NMEA times not the same

Oziexplorer time $\neq$ RS Supreme time $\neq$ CTD time
 $\neq$ echo sounder time

- tablets dropped connection - 30 minutes later connection good - no explanation

- starting at rosette 16 $\neq$ for all full rosette casts sample chlorophyll
at surface, 5, 10, 20 m
with one duplicate / stn

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							Latitude	Longitude							
25	19	8	14:01	BE	ROS		50° 1.214	124° 52.930	281		-		SR	☒	
			14:07	BO			° 1.213	° 52.915		276	-			☐	
			14:13	EN			° 1.213	° 52.916			-			☐	
26	18	8	14:58	BE	ROS		49° 59.189	124° 58.906	151		-		SR	☒	
			15:02	BO			° 59.192	° 58.904		146	-			☐	
			15:05	EN			° 59.192	° 58.904			-			☐	
27	17	8	15:42	BE	ROS		49° 58.804	125° 4.302	268		-		SR	☒	
			15:48	BO			° 58.804	° 4.301		263	-			☐	
			15:53	EN			° 58.806	° 4.296			-			☐	
28	QU39	8	16:22	BE	ROS		50° 1.844	125° 5.928	276		-		SR	☒	
			16:28	BO			° 1.844	° 5.930		271	-			☐	
			16:33	EN			° 1.843	° 5.934			-			☐	
29	16	8	17:23	BE	ROS	US	49° 57.719	125° 8.832	158		107-117	11	SR	☒	
			17:28	BO			° 57.736	° 8.879		153	-			☐	
			17:41	EN			° 57.733	° 8.899			-			☐	
30	15	8	18:42	BE	ROS		49° 51.596	125° 01.607	127		-		SR	☒	
			18:45	BO			° 51.599	° 01.608		122	-			☐	
			18:47	EN			° 51.596	° 01.606			-			☐	
			:				°	°			-			☐	

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Notes:

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31	14	8	19:08	BE	NET		49° 52.992	124° 59.595	313		-		NN	☐	12:08 - 12:23
			19:18	BO			° 52.992	° 59.602		303	-			☐	
			19:23	EN			° 52.989	° 59.606			-			☐	
32	14	8	20:33	BE	NET		49° 53.004	124° 59.622	313		-		NN	☐	13:33 - 13:48
			20:43	BO			° 53.010	° 59.623		303	-			☐	Size fractionation
			20:48	EN			° 53.997	° 59.613			-			☐	
33	14	8	21:07	BE	ROS	US	49° 53.008	124° 59.606	312		118-132		R	☒	
			21:14	BO			° 53.003	° 59.617		309	-	15		☐	
			21:32	EN			° 52.999	° 59.638			-			☐	
34	14	8	22:08	BE	ROS	/	49° 55.297	124° 55.267	229		-	/	R	☒	
			22:13	BO			° 55.296	° 55.247		226	-			☐	
			22:17	EN			° 55.302	° 55.243			-			☐	
35	10	9	00:34	BE	ROS	/	49° 40.699	124° 47.255	97		-	/	R	☒	
			00:37	BO			° 40.702	° 47.249		94	-			☐	
			00:38	EN			° 40.694	° 47.245			-			☐	
36	11	9	01:07	BE	ROS	/	49° 42.377	124° 43.441	300		-	/	R	☒	
			01:13	BO			° 42.378	° 43.408		297	-			☐	
			01:18	EN			° 42.374	° 43.408			-			☐	
			:				°	°			-			☐	

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Notes:

This page is for any notes or observations

Ship's emergency response drill ~ 1 hour

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							Latitude	Longitude							
37	11	9	01:23	BE	NET		49°42.376	124°43.427	300		-		NW	☐ ☐	18:23 → 18:38
			01:33	BO			°42.383	°43.440		290	-			☐ ☐	
			01:38	EN			°42.380	°43.446			-			☐ ☐	
38	12	9	02:06	BE	NET		49°43.634	124°40.883	355		-		NW	☐ ☐	19:06 → 19:23
			02:17	BO			°43.617	°40.842		345	-			☐ ☐	
			02:23	EN			°43.595	°40.819			-			☐ ☐	
39	12	9	02:35	BE	ROS	US	49°43.616	124°40.799	355		133-148	16	R	☒ ☐	
			02:42	BO			°43.613	°40.838		352	-			☐ ☐	
			03:01	EN			°43.590	°40.836			-			☐ ☐	
40	8	9	03:54	BE	ROS	✓	49°39.293	124°33.016	338		-	✓	R	☒ ☐	
			04:01	BO			°39.293	°33.018		335	-			☐ ☐	
			04:07	EN			°39.294	°33.010			-			☐ ☐	
41	9	9	04:50	BE	ROS	US	49°35.540	124°38.291	170		149-160	12	R	☒ ☐	
			04:54	BO			°35.540	°38.282		166	-			☐ ☐	
			05:07	EN			°35.525	°38.291			-			☐ ☐	
42	7	9	06:21	BE	ROS	✓	49°34.432	124°24.206	352		-		R	☒ ☐	
			06:27	BO			°34.404	°24.280		348	-			☐ ☐	
			06:33	EN			°34.375	°24.287			-			☐ ☐	
			:				°	°			-			☐ ☐	

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

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Notes:

for tablets to work the old laptop must be connected

to Water Properties - Vector password old

the tablets ^{WIFI} connected to Water Properties - Vector



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Month <u>APRIL</u>				Year <u>2019</u>		Vessel <u>VECTOR</u>		Cruise ID <u>2019-016</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
43	6	9	07:18	BE	ROS	US	49°30.595	124°27.786	194		161-173		SR	☒	
			07:23	BO			°30.595	°27.788		189	-			☐	
			07:40	EN			°30.594	°27.791			-			☐	
44	CPF2	9	08:15	BE	NET		49°27.996	124°29.996	325		/		HR	☐	
			08:26	BO			°27.998	°29.995		315	-			☐	
			08:31	EN			°27.995	°29.997			-			☐	
45	5	9	08:45	BE	ROS	/	49°28.006	124°30.013	329		/		SR	☒	
			08:52	BO			°27.995	°30.016		324	-			☐	
			08:57	EN			°28.004	°30.007			-			☐	
46	4	9	09:48	BE	ROS	/	49°24.497	124°22.106	345		/		SR	☒	
			09:55	BO			°24.496	°22.115		338	-			☐	
			10:00	EN			°24.494	°22.108			-			☐	
47	3	9	10:28	BE	ROS	US	49°26.593	124°20.203	325		174-189	16	SR	☒	
			10:35	BO			°26.593	°20.208		320	-			☐	
			10:55	EN			°26.593	°20.208			-			☐	
48	1	9	12:03	BE	ROS	/	49°20.302	124°12.112	248		/		SR	☒	
			12:07	BO			°20.302	°12.115		243	-			☐	
			12:11	EN			°20.303	°12.118			-			☐	
			:				°	°			-			☐	

Event Type:
 BOT = Bottle cast (no CTD)
 CTD = Standalone CTD
 ROS = CTD in Rosette

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

Bottle Firing Method:
 US = Up / Stop (default)
 UN = Up / No stop
 DN = Down / No stop

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

DE = Deployment Time
 MR = Messenger Release Time
 RE = Recover Mooring Time
 CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products
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Month <u>APRIL</u>			Year <u>2019</u>		Vessel <u>Vector</u>		Cruise ID <u>2019-016</u>								
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
49	CPF1	9	12:59	BE	NET		49° 21.996	124° 5.029	244		-		HR	☐	
			13:07	BO			° 21.997	° 5.012		234	-			☐	
			13:10	EN			° 21.993	° 5.010			-			☐	
50	CPF1	9	13:33	BE	ROS	US	49° 21.989	124° 5.033	245		190-192	3	HM	☐	
			13:38	BO			49° 21.994	124° 5.022		242	-			☐	
			13:44	EN			49° 21.996	124° 5.024			-			☐	
51	2	9	14:19	BE	ROS	US	49° 24.085	124° 9.342			193-207	15	SR	☒	
			14:23	BO			° 24.097	° 9.341			-			☐	
			14:44	EN			° 24.088	° 9.346			-			☐	
52	25	9	15:20	BE	ROS		49° 27.701	124° 7.512	296				SR	☒	
			15:26	BO			° 27.703	° 7.506		291	-			☐	
			15:31	EN			° 27.706	° 7.508			-			☐	
53	24	9	16:03	BE	NET		49° 30.308	124° 6.003			-			☐	
			16:17	BO			° 30.311	° 6.003			-			☐	
			16:24	EN			° 30.309	° 6.002			-			☐	
54	24	9	16:35	BE	ROS	US	49° 30.311	124° 6.006	429		208-210	3	SR	☒	
			16:44	BO			° 30.312	° 6.007		424	-			☐	
			16:53	EN			° 30.304	° 6.013			-			☐	
			:				°	°			-			☐	

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Bottle Firing Method:
 US = Up / Stop (default)
 UN = Up / No stop
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Time Code:
 BE = Beginning Time of Cast
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DE = Deployment Time
 MR = Messenger Release Time
 RE = Recover Mooring Time

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Notes:

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Month <u>April</u>			Year <u>2019</u>			Vessel <u>Vector</u>			Cruise ID <u>2019-016</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	27	9	18:39	BE	NET		49° 24.106	123° 45.305	135				HR	☐	
			18:43	BO			° 24.103	° 45.306		125	-			☐	
			18:45	EN			° 24.105	° 45.309			-			☐	
56	27	9	18:59	BE	ROS	✓	49° 24.082	123° 45.292	135		-	✓	R	☒	
			19:02	BO			° 24.085	° 45.296		131	-			☐	
			19:04	EN			° 24.095	° 45.300			-			☐	
57	275	9	19:27	BE	ROS	✓	49° 21.815	123° 46.495	101		-	✓	R	☒	
			19:29	BO			° 21.818	° 46.495		97	-			☐	
			19:31	EN			° 21.821	° 46.488			-			☐	
58	27	9	19:58	BE	ROS	US	49° 19.130	123° 47.942	343		211-226	16		☒	
			20:05	BO			° 19.139	° 47.938		341	-			☐	
			20:23	EN			° 19.135	° 47.939			-			☐	
59	265	9	20:55	BE	ROS	✓	49° 16.802	123° 49.438	407		-	✓	R	☒	
			21:02	BO			° 16.788	° 49.440		405	-			☐	
			21:09	EN			° 16.783	° 49.442			-			☐	
60	26	9	21:36	BE	ROS	✓	49° 14.294	123° 50.833	246		-	✓	R	☒	
			21:41	BO			° 14.302	° 50.855		243	-			☐	
			21:45	EN			° 14.299	° 50.875			-			☐	
			:				°	°			-			☐	

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Month <i>APRIL</i>				Year <i>2019</i>			Vessel <i>VECTOR</i>			Cruise ID <i>2019-016</i>					
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	GEO1	9	22:17	BE	NET	✓	49° 15.042	123° 44.945	400		-	✓	NN	☐ ☐	15:17 → 15:38
			22:31	BO			° 15.040	° 45.010		390	-			☐ ☐	
			22:38	EN			° 15.046	° 45.023			-			☐ ☐	
62	GEO1	9	22:45	BE	NET	✓	49° 15.053	123° 45.035	400		-	✓	NN	☐ ☐	15:45 → 16:05
			22:58	BO			° 15.050	° 45.026		390	-			☐ ☐	
			23:05	EN			° 15.039	° 45.015			-			☐ ☐	
63	GEO1	9	23:16	BE	ROS	US	49° 15.017	123° 45.008	400		227-229	3	R	☒ ☐	
			23:23	BO			° 15.046	° 45.007		398	-			☐ ☐	
			23:32	EN			° 15.054	° 45.008			-			☐ ☐	
64	40	10	00:36	BE	NET	✓	49° 08.634	123° 36.845	135		-	✓	NN	☐ ☐	17:36 → 17:43
			00:40	BO			° 08.634	° 36.838		125	-			☐ ☐	
			00:43	EN			° 08.648	° 36.838			-			☐ ☐	
65	40	10	00:55	BE	ROS	✓	49° 08.651	123° 36.912	135		-	✓	R	☒ ☐	altimeter still
			00:58	BO			° 08.654	° 36.919		139	-			☐ ☐	show 10 m
			01:00	EN			° 08.654	° 36.912			-			☐ ☐	
66	39	10	01:26	BE	ROS	US	49° 09.848	123° 32.977	366		230-246	17	R	☒ ☐	374 on sonde
			01:33	BO			° 09.853	° 32.975		371	-			☐ ☐	
			01:52	EN			° 09.839	° 33.014			-			☐ ☐	
			:				°	°			-			☐ ☐	

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Month <u>APRIL</u>				Year <u>2019</u>			Vessel <u>VECTOR</u>			Cruise ID <u>2019-016</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	38	10	02:29	BE	ROS	—	49° 12.000	123° 26.303	306		-	—	PC	☒	
			02:35	BO			° 12.034	° 26.152		302	-			☐	
			02:40	EN			° 12.125	° 26.063			-			☐	
68	38	10	02:52	BE	NET		49° 11.989	123° 26.157	300		-		NN	☐	
			03:02	BO			° 12.009	° 26.187		290	-			☐	
			03:07	EN			° 12.013	° 26.193			-			☐	
69	37	10	03:47	BE	ROS	—	49° 13.624	123° 20.588	211		-	—	PC	☒	
			03:51	BO			° 13.620	° 20.600		208	-			☐	
			03:55	EN			° 13.622	° 20.610			-			☐	
70	108	10	05:29	BE	ROS	—	49° 04.382	123° 19.056	90		-	—	PC	☒	
			05:31	BO			° 04.394	° 19.069		85	-			☐	
			05:32	EN			° 04.400	° 19.070			-			☐	
71	41	10	05:54	BE	ROS	—	49° 03.239	123° 22.147	235		-	—	PC	☒	
			05:58	BO			° 03.242	° 22.154		230	-			☐	
			06:02	EN			° 03.224	° 22.170			-			☐	
72	42	10	06:28	BE	NET		49° 01.771	123° 26.178	320		-		NN	☐	
			06:39	BO			° 01.806	° 26.108		310	-			☐	
			06:44	EN			° 01.819	° 26.093			-			☐	
			:				°	°			-			☐	

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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	42	10	07:01	BE	ROS	US	49° 1.781	123° 26.106			247-263	17	SR	☐ ☐	USB backup
			07:07	BO			° 1.775	° 26.111			-		SR	☒ ☐	
			07:28	EN			° 1.768	° 26.106			-			☐ ☐	
74	43	10	08:24	BE	ROS	/	49° 0.203	123° 30.101	203		-		SR	☒ ☐	
			08:28	BO			° 0.202	° 30.103		198	-			☐ ☐	
			08:31	BE			49° 0.202	° 30.104			-			☐ ☐	
75	46	10	10:09	BE	NET		48° 51.403	123° 10.804	176		/	/	HR	☐ ☐	
			10:15	BO			° 51.401	° 10.802		166	-			☐ ☐	
			10:18	EN			° 51.403	° 10.801			-			☐ ☐	
76	46	10	10:30	BE	ROS	US	48° 51.409	123° 10.806	180		264-275		SR	☒ ☐	
			10:34	BO			° 51.409	° 10.800		175	-			☐ ☐	
			10:50	EN			° 51.406	° 10.788			-			☐ ☐	
77	45	10	11:29	BE	ROS	/	48° 53.911	123° 08.398	130		/	/	SR	☒ ☐	
			11:32	BO			° 53.915	° 08.387		125	-			☐ ☐	
			11:34	EN			° 53.910	° 08.393			-			☐ ☐	
78	44	10	12:06	BE	ROS	/	48° 56.806	123° 5.990			/	/	SR	☒ ☐	
			12:09	BO			° 56.806	° 5.999			-			☐ ☐	
			12:10	EN			° 56.804	° 6.000			-			☐ ☐	
			:				°	°			-			☐ ☐	

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skip station 50

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Month <u>APRIL</u>			Year <u>2019</u>			Vessel <u>Vector</u>			Cruise ID <u>2019-016</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
79	49	10	12:49	BE	ROS	/	48° 55.016	122° 59.584	134		/	/	SR	☒	
			12:52	BO			° 55.020	° 59.586		129	-			☐	
			12:53	EN			° 55.020	° 59.590			-			☐	
80	48	10	13:31	BE	ROS	/	48° 51.679	123° 03.263	230		/	/	HR	☒	
			13:36	BO			48° 51.672	123° 03.218		226	-			☐	
			13:39	EN			48° 51.671	123° 03.208			-			☐	
81	47	10	14:10	BE	ROS	/	48° 49.312	123° 06.166	187		/	/	HR	☒	
			14:14	BO			48° 49.302	123° 06.182		182	-			☐	
			14:16	BN			48° 49.300	123° 06.184			-			☐	
82	56	10	15:10	BE	ROS	US	48° 46.388	123° 01.597	215		276-289	14	HR	☒	
			15:15	BO			48° 46.392	123° 01.600		210	-			☐	
			15:32	BN			48° 46.387	123° 01.600			-			☐	
83	57	10	16:13	BE	ROS	/	48° 43.930	123° 8.168	168		/	/	SR	☒	
			16:17	BO			° 43.928	° 8.170		163	-			☐	
			16:19	EN			° 43.931	° 8.170			-			☐	
83	58	10	16:54	BE	ROS	/	48° 42.996	123° 14.321	339		/	/	SR	☒	
			17:01	BO			° 42.996	° 14.292		334	-			☐	
			17:06	EN			° 43.010	° 14.260			-			☐	
			:				°	°			-			☐	

Event Type:

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Month <u>April</u>			Year <u>2019</u>		Vessel <u>Vector</u>		Cruise ID <u>2019-016</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
84	59	10	17:54	BE	NET		48°37.782	123°14.602	229				HR	☐	
			18:01	BO			°37.769	°14.598		219	-			☐	
			18:05	EN			°37.736	°14.587			-			☐	
85	59	10	18:15	BE	ROS	US	48°37.811	123°14.598	230		290-304	15	8R	☒	
			18:20	BO			°37.810	°14.604		225	-			☐	
			18:39	EN			°37.808	°14.603			-			☐	
86	60	10	19:12	BE	ROS	/	48°33.830	123°12.794	294		-		R	☒	labels fail
			19:20	BO			°33.790	°12.780		290	-			☐	at bottom of
			19:26	EN			°33.779	°12.763			-			☐	cast
87	61	10	20:04	BE	ROS	/	48°29.123	123°09.181	285		-		R	☒	
			20:10	BO			°29.105	°09.186		288	-			☐	
			20:15	EN			°29.093	°09.193			-			☐	
88	101	11	06:02	BE	ROS	/	48°25.534	124°45.181	248		-		R	☒	almost chain
			06:07	BO			°25.582	°45.139		248	-			☐	conditions
			06:13	EN			°25.706	°45.140			-			☐	
89	102	11	06:59	BE	ROS	US	48°30.012	124°44.009	255		305-318	14		☐	
			07:06	BO			°30.013	°44.010		250	-			☐	
			07:24	EN			°30.012	°44.011			-			☐	
			:				°	°			-			☐	

Event Type:

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Bottle Firing Method:

US = Up / Stop (default)
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Notes:

Time Code:

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Month <u>April</u>				Year <u>2019</u>			Vessel <u>Vector</u>				Cruise ID <u>2019-016</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
90	103	11	08:04	BE	ROS	/	48°32.996	124°43.004	123		-			☐ ☐	Flushed the
			08:07	BO			°32.996	°43.002		118	-			☐ ☐	CTD lines, suspect
			08:09	ENL			°33.000	°43.007			-			☐ ☐	a blockage
91	76	11	09:12	BE	ROS	/	48°31.424	124°29.926	89		/	/	SR	☒ ☐	
			09:15	BO			°31.421	°29.924		84	-			☐ ☐	
			09:17	EN			°31.423	°29.933			-			☐ ☐	
92	76	11	09:20	BE	ROS	/	48°31.421	124°29.926	89		/	/	SR	☒ ☐	Redo of event
			09:22	BO			°31.420	°29.916		84	-			☐ ☐	91 after block-
			09:24	EN			°31.422	°29.935			-			☐ ☐	age freed up.
93	75	11	10:01	BE	ROS	US	48°28.200	124°32.816	221		319 - 332	14	HR	☒ ☐	
			10:06	BO			48°28.211	124°32.821		226	-			☐ ☐	
			10:25	EN			48°28.207	124°32.840			-			☐ ☐	
94	74	11	11:00	BE	ROS	/	48°25.105	124°35.596	190		/	/	SR	☒ ☐	
			11:03				°25.096	°35.596		185	-			☐ ☐	
			11:06				°25.093	°35.591			-			☐ ☐	
95	73	11	13:33	BE	ROS	/	48°14.990	124°6.703	164		/	/	HM	☒ ☒	
			13:36	BO			°14.994	°6.704		159	-			☐ ☐	
			13:38	EN			°14.994	°6.706			-			☐ ☐	
			:				°	°			-			☐ ☐	

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Notes:

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Month <u>April</u>				Year <u>2019</u>		Vessel <u>Vector</u>				Cruise ID <u>2019-016</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
96	72	11	14:13	BE	NET		48° 18.615	124° 04.004	187		/	/	HR	☐	
			14:19	BO			° 18.604	° 04.038		177	-			☐	
			14:22	EN			° 18.609	° 04.037			-			☐	
97	72	11	14:35	BE	ROS	US	48° 18.608	124° 04.002	190		333 - 345	13	SR	☒	
			14:39	BO			° 18.610	° 04.016		186	-			☐	
			14:54	EN			° 18.641	° 04.003			-			☐	
98	71	11	15:40	BE	ROS	/	48° 22.208	123° 59.480	111		/	/	SR	☒	
			15:43	BO			° 22.206	° 59.401		106	-			☐	
			15:44	EN			° 22.201	° 59.405			-			☐	
99	70	11	17:12	BE	ROS	/	48° 19.231	123° 43.267	150		/	/	SR	☒	
			17:16	BO			° 19.225	° 43.240		145	-			☐	
			17:18	EN			° 19.219	° 43.207			-			☐	
100	69	11	17:51	BE	ROS	US	48° 15.628	123° 43.211			346-357	12	SR	☒	
			17:55	BO			° 15.622	° 43.194		175	-			☐	
			18:14	EN			° 15.612	° 43.166			-			☐	
101	70	11	18:47	BE	ROS	-	48° 12.208	123° 43.015	140		-	/	SR	☒	
			18:50	BO			° 12.199	° 43.022		136	-			☐	
			18:52	EN			° 12.203	° 43.009			-			☐	
			:				°	°			-			☐	

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Month <u>APRIL</u>			Year <u>2019</u>			Vessel <u>VECTOR</u>			Cruise ID <u>2019-016</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
102	105	11	21:01	BE	ROS	/	48° 11.008	123° 19.058	85		-	/	PC	☒	
			21:03	BO			° 11.008	° 19.061		82	-			☐	
			21:04	EN			° 11.008	° 19.063			-			☐	
103	ADCP	11	21:32	BE	ROS	US	48° 13.975	123° 18.058	120		358-367	10	PC	☒	
			21:35	BO			° 13.966	° 18.059		116	-			☐	
			21:46	EN			° 13.964	° 18.078			-			☐	
104	104	11	22:39	BE	ROS	/	48° 20.009	123° 18.102	83		-	/	PC	☒	
			22:41	BO			° 20.011	° 18.104		79	-			☐	
			22:43	EN			° 20.015	° 18.110			-			☐	
105	67	11	23:08	BE	ROS	/	48° 22.781	123° 18.070	106		-	/	PC	☒	
			23:10	BO			° 22.793	° 18.044		103	-			☐	
			23:12	EN			° 22.807	° 18.018			-			☐	
106	66	11	23:48	BE	ROS	/	48° 19.362	123° 14.120	100		-	/	PC	☒	
			23:50	BO			° 19.356	° 14.122		96	-			☐	
			23:52	EN			° 19.356	° 14.128			-			☐	
107	65	12	00:36	BE	ROS	US	48° 15.918	123° 09.790	125		368-377	10	PC	☒	
			00:39	BO			° 15.922	° 09.788		121	-			☐	
			00:50	EN			° 15.911	° 09.752			-			☐	
			:				°	°			-			☐	

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This page is for any notes or observations

and collect water @ 10 m depth

bottle 8 did not trip[†] - notice at surface - Take rosette back down to 10 m depth
and trip bottle 11

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Month			Year		Vessel		Cruise ID								
APRIL			2019		VECTOR		2019-016								
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
108	64	12	01:23	BE	ROS	✓	48° 12.805	123° 05.664	105		-		PC	☒	
			01:25	BO			° 12.803	° 05.660		95	-			☐	
			01:27	EN			° 12.788	° 05.645			-			☐	
109	63	12	02:01	BE	NET		48° 14.514	122° 58.572	157		-		NN	☐	19:06 bottoming line
			02:06	BO			° 14.513	° 58.558		147	-			☐	151 bottom
			02:08	EN			° 14.514	° 58.550			-			☐	
110	63	12	02:19	BE	ROS	US	48° 14.520	122° 58.535	157		378-380	3	PC	☒	
			02:22	BO			° 14.516	° 58.531		152	-			☐	
			02:28	EN			° 14.522	° 58.524			-			☐	
111	62	12	03:39	BE	ROS	US	48° 22.830	123° 02.564	148		381-391	11	PC	☒	
			03:42	BO			° 22.837	° 02.569		144	-			☐	
			03:54	EN			° 22.846	° 02.587			-			☐	
112	54	12	05:20	BE	ROS	✓	48° 26.634	122° 44.340	80		-		PC	☒	
			05:22	BO			° 26.645	° 44.328		76	-			☐	
			05:24	EN			° 26.642	° 44.328			-			☐	
113	53	12	06:08	BE	ROS	✓	48° 33.259	122° 45.007	62		-		PC	☒	
			06:10	BO			° 33.259	° 44.976		58	-			☐	
			06:11	EN			° 33.265	° 44.980			-			☐	
			:				°	°			-			☐	

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Month			Year		Vessel		Cruise ID								
APRIL			2019		VECTOR		2019-016								
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
114	52	12	06:51	BE	ROS	/	48° 38.958	122° 43.249			-	1	FE	☒	
			06:53	BO			° 38.951	° 43.237		83	-			☐	
			06:54	EN			° 38.942	° 43.220			-			☐	
115	51	12	08:12	BE	ROS	/	48° 46.691	122° 51.598	164		/	/	SR	☒	
			08:15	BO			° 46.693	° 51.600		159	-			☐	
			08:18	EN			° 46.696	° 51.600			-			☐	
116	GI-01	12	10:53	BE	NET	/	48° 45.865	123° 20.522	6		/	/	HR	☐	
			10:55	BO			° 45.866	° 20.526			-			☐	
			10:56	EN			° 45.866	° 20.525			-			☐	
117	GI-01	12	11:08	BE	ROS	/	48° 45.868	123° 20.516	69		/	/	SR	☒	Fired bot 8
			11:09	BO			° 45.865	° 20.521		64	-			☐	to test it after
			11:11	EN			° 45.864	° 20.524			-			☐	a failure. SR
118	SC-04	12	11:47	BE	NET	/	48° 43.508	123° 24.998	98		/	/	HR	☐	
			11:49	BO			° 43.509	° 24.997		88	-			☐	
			11:50	EN			° 43.510	° 24.996			-			☐	
119	SC-04	12	12:00	BE	ROS	US	48° 43.495	123° 25.016	96		392-394	3	SR	☒	Fired 8 as well
			12:02	BO			° 43.496	° 25.018		91	-			☐	for testing
			12:06	EN			° 43.494	° 25.021			-			☐	purposes. SR
			:				°	°			-			☐	

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Bottle Firing Method:
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Month <u>APRIL</u>				Year <u>2019</u>		Vessel <u>VECTOR</u>				Cruise ID <u>2019-1675</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
01	BS 0.1	14	14:45	BO	GRAB	—	49° 39.099	124° 55.086	32	—	—	—	H.M.	☐ ☐	SHUTTLE-MAC GRAB
02	BS 0.2	14	15:07	BO	GRAB	—	49° 34.113	124° 54.656	32	—	—	—	H.M.	☐ ☐	
03	BS 1.1	14	15:30	BO	GRAB	—	49° 39.316	124° 54.599	23	—	—	—	H.M.	☐ ☐	
04	BS 1.2	14	15:53	BO	"	—	49° 39.319	124° 54.915	25	—	—	—	H.M.	☐ ☐	
05	BS 0.5	14	16:25	BO	"	—	49° 39.166	124° 53.759	49	—	—	—	H.M.	☐ ☐	
06	PS 0.3	14	16:44	BO	"	—	49° 39.162	124° 53.823	45	—	—	—	H.M.	☐ ☐	
07	BS 0.4	14	16:59	BO	"	—	49° 39.099	124° 57.765	44	—	—	—	H.M.	☐ ☐	
08	BS 0.6	14	17:23	BO	"	—	49° 38.972	124° 53.324	50	—	—	—	H.M.	☐ ☐	
09	BS 1	14	17:43	BO	"	—	49° 39.914	124° 52.954	23	—	—	—	H.M.	☐ ☐	
10	BS 2	14	18:13	BO	"	—	49° 39.432	124° 53.705	36	—	—	—	H.M.	☐ ☐	
11	BS 3	14	18:30	BO	GRAB	—	49° 37.914	124° 54.312	30	—	—	—	H.M.	☐ ☐	
12	BS 1.3	14	19:29	BO	"	—	49° 37.993	124° 52.266	44	—	—	—	H.M.	☐ ☐	
13	BS 1.4	14	19:53	BO	"	—	49° 37.401	124° 51.718	40	—	—	—	H.M.	☐ ☐	
14	BS 5.5	14	20:27	BO	"	—	49° 36.735	124° 52.041	40	—	—	—	H.M.	☐ ☐	
15	BS 2.1	14	20:38	BO	"	—	49° 36.522	124° 52.097	37	—	—	—	"	☐ ☐	
16	BS 5.3	14	20:53	BO	"	—	49° 36.425	124° 51.967	40	—	—	—	"	☐ ☐	
17	BS 2.3	14	21:07	BO	"	—	49° 36.414	124° 51.973	39	—	—	—	"	☐ ☐	
18	BS 2.4	14	21:39	BO	"	—	49° 36.287	124° 51.900	22	—	—	—	"	☐ ☐	
19	BS 5.2A	14	21:51	BO	"	—	49° 36.234	124° 51.839	28	—	—	—	"	☐ ☐	

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STATIONS: 2, (5), 8, (11), 14, (17), 20, (22), 23
34 41 45 41 45 46 34 37 54

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Month <u>APRIL</u>			Year <u>2019</u>			Vessel <u>VECTOR</u>			Cruise ID <u>2019-16TS</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
20	BS 2.5	14	22:10	BO	GRAB	/	49° 36.162	124° 51.796	31	/	/	/	H.M.	☐ ☐	
21	BS 2.6	14	22:26	BO	"	/	49° 36.113	124° 51.761	31	/	/	/	"	☐ ☐	
22	BS 5.1	14	22:39	BO	"	/	49° 36.079	124° 51.718	33	/	/	/	H.M.	☐ ☐	
23	BS 2.7	14	22:56	BO	"	/	49° 36.010	124° 51.630	35	/	/	/	"	☐ ☐	
24	BS 2.8	14	23:00	BO	"	/	49° 35.970	124° 51.614	42	/	/	/	"	☐ ☐	
25	BS 5	14	23:15	BO	"	/	49° 35.867	124° 51.578	42	/	/	/	"	☐ ☐	
26	BS 4.4	14	23:32	BO	"	/	49° 35.662	124° 51.246	40	/	/	/	"	☐ ☐	
27	BS 4.3	14	23:52	BO	"	/	49° 35.671	124° 50.872	24	/	/	/	"	☐ ☐	
28	BS 4	15	00:50	BO	"	/	49° 36.219	124° 56.382	22	/	/	/	"	☐ ☐	
29	BS 4.1	15	01:11	BO	"	/	49° 36.083	124° 50.766	27	/	/	/	"	☐ ☐	
30	BS 4.2	15	01:22	BO	"	/	49° 36.066	124° 50.742	25	/	/	/	"	☐ ☐	
31	BS 4.5	15	01:48	BO	"	/	49° 36.020	124° 51.016	33	/	/	/	"	☐ ☐	
			:				°	°			-			☐ ☐	
01	BS 2	15	14:38	BO	ROS	/	49° 38.42	124° 53.68	36		/	/	H.M.	☒ ☐	
			14:34	BO			49° 38.42	124° 53.68		32	-		"	☐ ☐	
			14:41	EN			49° 38.43	124° 53.67			-			☐ ☐	
02	BS 5	15	15:10	BO	ROS	V.S.	49° 35.84	124° 51.56	43	40	1-6	6	H.M.	☒ ☐	
			15:12	BO			49° 35.84	124° 51.57			-			☐ ☐	
			15:22	EN			49° 35.84	124° 51.57			-			☐ ☐	

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Month <u>APRIL</u>			Year <u>2019-16</u>			Vessel <u>VECTOR</u>			Cruise ID <u>2019-16 TS</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
03	BS 8	15	15:45	BG	ROS	/	49° 34. 13	124° 51. 57	47		/	/	H.M	☒	
			15:46	BO			49° 34. 13	124° 51. 57		42	-			☐	
			15:48	EN			49° 34. 13	124° 51. 57			-			☐	
04	BS 11	15	16:20	BG	ROS	U.S.	49° 32. 39	124° 50. 10	36		7 - 12	6	H.M	☒	
			16:22	BO			49° 32. 39	124° 50. 39		34	-			☐	
			16:28	EN			49° 32. 10	124° 50. 10			-			☐	
05	BS 14	15	16:57	BG	ROS	/	49° 31. 00	124° 48. 71	40		/	/	H.M	☒	
			16:59	BO			49° 31. 07	124° 48. 73		44	-			☐	
			17:01	EN			49° 31. 09	124° 48. 72			-			☐	
06	BS 17	15	17:27	BG	ROS	U.S.	49° 29. 03	124° 46. 17	55		13 - 18	6	H.M.	☒	
			17:29	BO			49° 29. 04	124° 46. 17		49	-			☐	
			17:34	EN			49° 29. 04	124° 46. 19			-			☐	
07	BS 20	15	17:52	BG	ROS	/	49° 28. 35	124° 44. 89	38		/	/	H.M	☒	
			17:54	BO			49° 28. 35	124° 44. 88		37	-			☐	
			17:56	EN			49° 28. 35	124° 44. 88			-			☐	
08	BS 22	15	18:23	BG	ROS	U.S.	49° 28. 28	124° 41. 73	41		19 - 24	6	H.M	☒	
			18:24	BO			49° 28. 28	124° 41. 73		39	-			☐	
			18:29	EN			49° 28. 28	124° 41. 74			-			☐	
			:				°	°			-			☐	

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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WaterProperties.ca
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