DAILY SCIENCE LOG BOOK

CRUISE NUMBER 2017-63

DATE: From: April 8th 2017 To: April 13th 2017

VESSEL: Vector

PROJECT(S): Salish Sea

Water Properties Group
Fisheries and Oceans Canada
Institute of Ocean Sciences
Ocean Sciences Division

Captain: Ben Axmann First Officer: Mark Meester

Second Officer: Peter Mitchell Third Officer: _____

Fishing Master: Jamie Henderson Chief Engineer: John Gibbs

BOSN

Mission Participants / Agencies:

[redacted]

[redacted]

Berths Required: 6

Glenn Cooper

(No Mobile Number)

Leg: 1

Affliation:
Watch: **24-12**
Cabin: **3** (Starboard)
Dietary: **(None)**
Notes:

Stephen Romaine

Mobile: 250.882.6964

Leg: 1

Affliation:
Watch: **12-24**
Cabin: **1** (Chief Scientist)
Dietary: **Vegetarian (no Dairy)**
Notes: **chief scientist**

Kenny Scozzafava

(No Mobile Number)

Leg: 1

Affliation:
Watch: **12-24**
Cabin: **2** (Port)
Dietary: **Vegetarian (ovo-lacto)**
Notes: **oxygen**

Scott Rose

(No Mobile Number)

Leg: 1

Affliation:
Watch: **24-12**
Cabin: **2** (Port)
Dietary: **(None)**
Notes: **senior tech**

Alan Mohr

(No Mobile Number)

Leg: 1

Affliation:
Watch: **12-24**
Cabin: **3** (Starboard)
Dietary: **(None)**
Notes: **ROC, last few days of cruise**

Nina Nemcek

(No Mobile Number)

Leg: 1

Affliation:
Watch: **24-12**
Cabin: **4** (Lady Scientist)
Dietary: **(None)**
Notes: **chlorophyll, nutrients, zooplankton**

Chelsea Stanley

(No Mobile Number)

Leg: 1

Affliation:
Watch: **12-24**
Cabin: **4** (Lady Scientist)
Dietary: **(None)**
Notes: **chlorophyll, nutrients, zooplankton**

(Personnel may upload a photo, give mobile numbers, and specify dietary requirements from their WaterProperties.ca dashboard)

Anticipated Employee Hours (full cruise): 72 | Anticipated Overtime Hours: 66.75 (~8.9 days) | Incidentals Estimate: $121.10

Support Required

Ship's Equipment: GPS positioning; depth sounder; small boat work

Technical: [None Required]

Deck Machinery: deck crane for loading and unloading;
stern A-frame for rosette operations winch and spare winch for rosette/ctd operation;
stern A-frame for vertical SCOR net tows;
2 CTD winches, 1 work winch

[redacted]

[redacted]

**** 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: Vector Laptop

Data acquisition program: Seasave

CTD deck unit make: SBE model: 11+ serial number: 0508

Primary CTD

Make: _____ model: _____ serial number: _____

Primary temperature serial number: 4054

Primary conductivity serial number: 1766

Secondary temperature serial number: 4484

Secondary conductivity serial number: 3531

Transmissometer: Wetlabs Model: C-STAR s/n: 1185DR

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: SBE Model: 43 s/n: 1119 P, S or NO pump?

PAR sensor: Biospherical Model: QSP200L45 s/n: 4565 Surface PAR? Y / N

Other sensors: pH 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: _____ 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)

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 1 of _____

Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
01	SI	09	03:16	BE	ROS	US	48° 39.09	123° 29.98	182	105	~~1-10~~	~~10~~	~~SR~~	☑ ☐	Test cast
			03:19	BO			° 39.11	° 29.98			-			☐ ☐	
			03:20	EN			° 39.11	° 29.96			-			☐ ☐	
02	SI		03:46	BE	ROS	US	48° 39.11	123° 30.00	182		1-10	10		☑ ☐	up cast only
			03:46	BO			° 39.12	° 30.02		105	-			☐ ☐	bottles were not
			03:57	EN			° 39.11	° 30.03			-			☐ ☐	activated
03	58	09	05:52	DE	DRF		48° 42.961	123° 14.249	3226		-		SR/KS	☐ ☐	635, 632, 636
04	101	09	14:40	BE	ROS		48° 25.40	124° 45.16	230		-		SR	☑ ☐	High current
			14:45	BO			° 25.35	° 45.09		217	-			☐ ☐	
			14:49	EN			° 25.32	° 45.19			-			☐ ☐	
05	102	09	14:56	BE	ROS	US	48° 29.52	124° 45.32	256		11-25	15	SR	☑ ☐	NMEA Time was
			15:01	BO			° 29.67	° 45.87			-			☐ ☐	off again
			15:21	EN			° 29.97	° 44.05			-			☐ ☐	
06	103	09	16:01	BE	ROS		48° 30.31	124° 43.98	124		-		SR	☑ ☐	NMEA IS FAST
			16:04	BO			° 31.20	° 43.76		119	-			☐ ☐	
			16:06	EN			° 32.04	° 43.61			-			☐ ☐	
07	76	09	17:04	BE	ROS		48° 32.24	124° 36.61	92		-		SR	☑ ☐	
			17:06	BO			° 31.98	° 34.75		87	-			☐ ☐	
			17:08	EN			° 31.77	° 33.27			-			☐ ☐	

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

Notes: _____

Produced by the Water Properties Group, IOS

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April | **Year** 2017 | **Vessel** Vector | **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
08	75	09	17:41	BE	ROS	US	48° 31.36	124° 29.89	224		26-40	15	SR/SR	☑☐	NTR ☺
			17:45	BO			° 29.33	° 32.16			-			☐☐	
			18:23	EN			° 28.260	° 32.699			-			☐☐	
~~09~~ 10	~~74~~ 73	~~07~~ 09	~~19:05~~ 22:07	~~BE~~ BE	ROS		48° 27.424	124° 33.742	188		-		SR	☑☐	NTR
			19:14	BO			48° 26.086	124° 35.494		182	-			☐☐	
			19:17	EN			48° 25.129	124° 35.616			-			☐☐	
10	73	09	22:07	BE	ROS		48° 15.020	124° 6.737	161		-		SR	☑☐	NTR
			22:11	BO			48° 15.019	124° 6.751			-			☐☐	
			22:14	EN			48° 15.026	124° 6.750			-			☐☐	
11	72	09	~~22:47~~ 22:52	BE	NET		48° 18.594	124° 3.981	188		-		CS	☐☐	
			22:52	BO			48° 18.619	124° 3.975		~~189~~ 188	-			☐☐	
			22:55	EN			48° 18.633	124° 3.972			-			☐☐	
12	72	09	23:06	BE	ROS		48° 18.631	124° 4.024	187		41 - 54		SR	☑☐	NTR →
			23:11	BO			48° 18.631	124° 4.022		186	-			☐☐	
			23:27	EN			48° 18.624	124° 4.014			-			☐☐	
13	71	10	00:40	BE	ROS		48° 22.189	123° 59.458	110		-		SR	☑☐	
			00:43	BO			48° 22.196	123° 59.454		105	-			☐☐	
			00:45	EN			48° 22.176	123° 59.445			-			☐☐	
			:				° .	° .			-			☐☐	

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After station 74 fixed NMEA input. Now for future casts will set NMEA from deck unit feed instead. Using NRCan Vector NMEA feed that is located above fifth station.

→ Labels marked as "2016-67"

DAILY SCIENCE LOG

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Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

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14	70	10	02:04	BE	ROS		48° 19.210	123° 43.265	150		-		SR	☒☐	
			02:09	BO			48° 19.200	123° 43.306			-			☐☐	
			02:11	EN			48° 19.201	123° 43.338			-			☐☐	
15	69	10	02:43	BE	ROS		48° 15.601	123° 43.290	178		55-67	13	SR	☒☐	NTR
			02:47	BO			48° 15.600	123° 43.300		174	-			☐☐	
			03:03	EN			48° 15.600	123° 43.298			-			☐☐	
16	68	10	03:36	BE	ROS		48° 12.226	123° 43.042	140		-			☐☐	
			03:39	BO			48° 12.226	123° 43.036		136	-		SR	☒☐	NTR
			03:42	EN			48° 12.232	123° 43.031			-			☐☐	
17	105	10	05:30	BE	ROS		48° 11.024	123° 19.031	86		-		SR	☒☐	NTR
			05:32	BO			48° 11.020	123° 19.078		82	-			☐☐	
			05:34	EN			48° 11.026	123° 19.079			-			☐☐	
18	ADCP	10	06:04	BE	ROS		48° 14.030	123° 18.042	121		68-78	11	SR	☒☐	
			06:09	BO			48° 14.029	123° 18.034		115	-			☐☐	
			06:22	EN			48° 14.036	123° 17.999			-			☐☐	
19	104	10	07:23	BE	ROS		48° 20.05	123° 17.95	84		—		SR	☑☐	
			07:25	BO			° 20.08	° 17.92		79	-			☐☐	
			07:27	EN			° 20.10	° 17.89			-			☐☐	
			:				° .	° .			-			☐☐	

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DAILY SCIENCE LOG

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Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

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20	67	10	07:52	BE	ROS		48° 22.85	123° 17.93	402		-		SR	☑ ☐	*
			07:54	BO			° 22.83	° 17.89		97	-			☐ ☐	
			07:57	EN			° 22.81	° 17.85			-			☐ ☐	
21	66	10	11:06	BE	ROS		48° 19.29	123° 14.08	103		-		SR	☑ ☐	
			11:08	BO			° 19.28	° 14.07		99	-			☐ ☐	
			11:10	EN			° 19.27	° 14.06			-			☐ ☐	
22	65	10	11:43	BE	ROS	US	48° 15.92	123° 9.75	127		79 - 89	11	SR	☑ ☐	
			11:46	BO			° 15.91	° 9.75		123	-			☐ ☐	
			11:59	EN			° 15.87	° 9.76			-			☐ ☐	
23	64	10	12:49	BE	ROS		48° 12.83	123° 5.74	108		-		SR	☑ ☐	
			12:52	BO			° 12.84	° 5.74		103	-			☐ ☐	
			12:54	EN			° 12.84	° 5.74			-			☐ ☐	
24	63	10	13:29	BE	NET		48° 14.570	122° 58.493	154		-		N2	☐ ☐	
			13:33	BO			° 14.549	° 58.502		145	-			☐ ☐	
			13:36	EN			° 14.542	° 58.533			-			☐ ☐	
25	63	10	13:49	BE	ROS		48° 14.54	122° 58.58	155		90 - 92	3	SR	☐ ☐	
			13:52	BO			° 14.52	° 58.60		153	-			☐ ☐	
			13:59	EN			° 14.49	° 58.60			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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Ocean Sciences Division, Institute of Ocean Sciences

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26	62	10	15:10	BE	ROS	US	48° 22.79	123° 2.59	149		93-104	12	SR	☑☐	
			15:15	BO			°22.79	° 2.60			-			☐☐	
			15:27	EN			°22.78	° 2.62			-			☐☐	
27	54	10	17:21	BE	ROS		48° 26.62	122° 44.23	78		/	/	SR	☑☐	
			17:23	BO			°26.62	° 44.23		75	-			☐☐	
			17:25	EN			°26.61	° 44.23			-			☐☐	
28	53	10	18:32	BE	ROS		48° 33.20	122° 44.95	59		-		SR	☑☐	
			18:34	BO			°33.21	° 44.94		55	-			☐☐	
			18:35	EN			°33.209	° 44.933			-			☐☐	
29	52	10	19:27	BE	ROS		48° 39.879	122° 43.313	85		-		SR	☐☐	NTR ☺
			19:29	BO			°38.931	° 43.316		81	-			☐☐	
			19:31	EN			°38.894	° 43.315			-			☐☐	
30	51	10	20:46	BE	ROS		48° 46.696	122° 51.556	162		-		SR	☐☐	
			20:49	BO			48° 46.673	122° 51.559		157	-			☐☐	
			20:53	EN			48° 46.646	122° 51.572			-			☐☐	
B1	~~56~~	~~10~~	22:07	BE	ROS		48° 46.469	123° 1.530	209		106-120	15	SR	☐☐	
			:	BO			° .	° .			-			☐☐	
			:	EN			° .	° .			-			☐☐	
32	56	10	:		DRF		° .	° .			-			☐☐	641, 639

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Notes: _____

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Event 31 – on way down Alarm sounded deck unit out. Blown fuse 2A.

– troubleshooting → either slip rings or termination

Scott terminated again, just electrical, not mechanical portion

Retested on deck, working.

Water found inside electrical connection as cause.

↓

Station 57 then back to 56.

DAILY SCIENCE LOG

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Month Apr 11 **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
32	57	11	01:15	BE	ROS	US	48° 43.993	123° 8.012	157		-		SR	☒☐	New termination.
			01:19	BO			48° 43.985	123° 8.003		152	-			☐☐	
			01:22	EN			48° 43.977	123° 7.999			-			☐☐	
33	57	11	01:24	DE	DRF		48° 43.972	123° 7.999	159		-		SR	☐☐	637
34	56	11	02:03	BE	ROS		48° 46.419	123° 1.596	22		106-120	15	SR	☒☐	
			02:08	BO			48° 46.421	123° 1.592		205	-			☐☐	
			02:26	EN			48° 46.422	123° 1.603			-			☐☐	
35	56	11	02:27	DE	DRF		48° 46.422	123° 1.603			-		SR	☐☐	641, 639
36	47	11	03:16	BE	ROS		48° 49.301	123° 6.176	187		-		SR	☒☐	
			03:20	BO			48° 49.301	123° 6.180		182	-			☐☐	
			03:24	EN			48° 49.301	123° 6.176			-			☐☐	
37	47	11	03:24	DE	DRF		48° 49.301	123° 6.176			-			☐☐	640
38	48	11	04:04	BE	ROS		48° 51.643	123° 3.202	220		-		SR	☒☐	
			04:09	BO			48° 51.654	123° 3.150		218	-			☐☐	
			04:13	EN			48° 51.665	123° 3.184			-			☐☐	
39	48	11	04:05	BO	DRF		48° 51.646	123° 3.197	220		-		SR	☐☐	638 1125
40	49	11	04:48	BE	ROS		48° 55.022	123° 59.602	132		-			☐☐	
			04:50	BO			48° 55.019	122° 59.592			-			☐☐	
			04:53	EN			48° 55.019	122° 59.592			-			☐☐	

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Notes: _____

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WaterProperties.ca
Version: 6 December 2016

232,310

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

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41	50	11	05:26	BE	ROS		48° 57.703	122° 56.106	28		-		SR	☒	
			05:27	BO			48° 57.698	122° 56.102		24	-				
			05:28	EN			48° 57.700	122° 56.098			-				
42	44	11	06:23	BE	ROS		48° 56.777	123° 5.959	121		-		SR	☒	
			06:25	BO			48° 56.778	123° 5.958		116	-				
			06:28	EN			48° 56.779	123° 5.956			-				
43	45	11	06:56	BE	ROS		48° 53.897	123° 8.395	128		-		SR	☒	
			07:00	BO			48° 53.896	123° 8.428		123	-				
			07:03	EN			48° 53.897	123° 8.443			-				
44	45	11	06:54	DE	DRF		48° 53.897	123° 08.393	128		-		SR		603,604
45	46	11	07:36	BE	NET		48° 51.412	123° 10.778	178		-		N^2		
			07:42	BO			° 51.404	° 10.784		168	-				
			07:45	EN			° 51.400	° 10.782			-				
46	46	11	07:58	BE	ROS	US	48° 51.41	123° 10.78	178		121 - 133	13	SR	☒	
			08:02	BO			° 51.40	° 10.79		173	-				
			08:16	EN			° 51.41	° 10.82			-				
47	Active Pass	11	08:54	DE	DRF		48° 53.232	123° 17.310	160		-				602,624
			:				° .	° .			-				
			:				° .	° .			-				

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
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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 6 December 2016

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2017 **Vessel** **Cruise ID**

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
48	107	11	09:34	BE	ROS		48° 58.37	123° 18.05	182		-		SR	☑ ☐	
			09:37	BO			° 58.37	° 18.06		179	-			☐ ☐	
			09:41	EN			° 58.37	° 18.05			-			☐ ☐	
49	107	11	09:43	DE	DRF		° 58.379	° 18.037	182		-			☐ ☐	#611
50	106	11	10:15	BE	ROS		49° 1.00	123° 13.23	78		-		SR	☑ ☐	
			10:17	BO			° 1.00	° 13.22		75	-			☐ ☐	
			10:18	EN			° 1.01	° 13.22			-			☐ ☐	
51	106	11	10:21	DE	DRF		49° 01.003	123° 13.227	79		-	GC	Drifters	☐ ☐	606, 625
52	108	11	10:56	BE	ROS		49° 4.41	123° 19.11	91		-		SR	☑ ☐	
			10:58	BO			° 4.41	° 19.11		89	-			☐ ☐	
			11:00	EN			° 4.40	° 19.11			-			☐ ☐	
53	108	11	11:02	DE	DRF		49° 4.400	123° 19.118	91		-			☐ ☐	Drifters 122, 607
54	41	11	11:25	BE	ROS		49° 3.31	123° 22.31	244		-		SR	☑ ☐	
			11:29	BO			° 3.31	° 22.30		241	-			☐ ☐	
			11:34	EN			° 3.31	° 22.28			-			☐ ☐	
55	41	11	11:41	BE	NET		49° 3.302	123° 22.277	241		-		N^2	☐ ☐	
			11:49	BO			° 3.301	° 22.271		231	-			☐ ☐	
			11:54	EN			° 3.300	° 22.256			-			☐ ☐	
56	41	11	11:59	DE	DRF		49° 3.330	123° 22.220	241		-		GC	☐ ☐	UBC #124

Event Type:
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SET = Fish Set
LOOP = Sea Water Loop
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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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-063

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
57	42	11	12:29	BE	ROS	US	49° 1.81	123° 26.21	321		134-150	17	SR	☐☐	
			12:35	BO			° 1.80	° 26.21		316	-			☐☐	
			12:56	EN			° 1.77	° 26.24			-			☐☐	
58	42	11	12:58	DE	DRF		49° 1.752	123° 26.319	321		-			☐☐	Drifter 608, 610
59	43	11	13:44	BE	ROS		49° 00.20	123° 30.11	199		-		SR	☑☐	
			13:48	BO			° 00.20	° 30.10		194	-			☐☐	
			13:51	EN			° 00.19	° 30.10			-			☐☐	
60	40	11	14:54	BE	ROS		49° 8.64	123° 36.82	140		-		SR	☑☐	
			14:57	BO			° 8.66	° 36.81		138	-			☐☐	
			15:00	EN			° 8.66	° 36.80			-			☐☐	
61	40	11	15:05	BE	NET		49° 8.645	123° 36.798	138		-			☐☐	
			15:10	BO			° 8.632	° 36.815		128	-			☐☐	
			15:13	EN			° 8.623	° 36.821			-			☐☐	
62	39	11	15:41	BE	ROS		49° 9.83	123° 32.97			~~151-172~~	~~22~~	SR	☑☐	Downcast only
			15:48	BO			49° 9.86	123° 32.99			-			☐☐	
63	39	11	15:51	BO			° 9.85	° 33.00			151-172	22	SR	☐☐	upcast + bottles
			16:15	EN			° 9.85	° 33.00			-			☐☐	for 39 only
														☐☐	
64		11	16:18	DE			49° 9.853	123° 32.973			-			☐☐	Drifty 605 deployed

Event Type:
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DRF = Drifter
____ = _____

Bottle Firing Method:
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DN = Down / No stop

Time Code:
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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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 6 December 2016

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
65	38	11	17:02	BE	ROS		49° 12.01	123° 26.37	307		-		SR	☑ ☐	
			17:08	BO			° 12.00	° 26.38		303	-			☐ ☐	
			17:13	EN			° 12.00	° 26.38			-			☐ ☐	
66	38	11	17:18	BE	NET		49° 11.988	123° 26.378	307		-		GC	☐ ☐	
			17:28	BO			° 11.975	° 26.378		297	-			☐ ☐	
			17:33	EN			° 11.972	° 26.379			-			☐ ☐	
67	38	11	17:39	DE	DRF		49° 12.005	123° 26.360	307		-			☐ ☐	Drifter 626
68	37	11	18:15	BE	ROS		49° 13.60	123° 20.70	213		-		SR	☑ ☐	
			18:19	BO			° 13.59	° 20.69		208	-			☐ ☐	
			18:23	EN			° 13.59	° 20.69			-			☐ ☐	
69	37	11	18:25	DE	DRF		49° 13.599	123° 20.710	213		-			☐ ☐	Drifter 609
70	GEO 2	11	20:03	BE	ROS		49° 14.995	123° 44.364	400		173-175	3	SR	☑ ☐	NTRU
			20:17	BO			49° 14.995	123° 44.332		396	-			☐ ☐	
			20:28	EN			49° 14.990	123° 44.348			-			☐ ☐	
71	GEO 2	11	20:05	DE	DRF		49° 14.995	123° 44.354	410		-			☐ ☐	UBC 121
72	GEO 1	11	20:28	BE	NET		49° 15.001	123° 44.342	400		-			☐ ☐	SCOR.
			20:45	BO			49° 14.995	123° 44.350		390	-			☐ ☐	
			20:52	EN			49° 14.995	123° 44.362			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

Event Type:
BOT = Bottle cast (no CTD)
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SET = Fish Set
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DRF = Drifter
___ = _____

Bottle Firing Method:
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UN = Up / No stop
DN = Down / No stop

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RE = Recover Mooring Time

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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April | **Year** 2017 | **Vessel** Vector | **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
73	26	11	21:27	BE	ROS		49° 14.296	123° 50.795	250		-	—	SH	☑ ☐	
			21:32	BO			49° 14.284	123° 50.785			-			☐ ☐	
			21:37	EN			49° 14.300	123° 50.765			-			☐ ☐	
74	26½	11	21:58	BE	ROS		49° 16.653	123° 49.447	417		-	—	SH	☑ ☐	
			22:07	BO			49° 16.715	123° 49.447		413	-			☐ ☐	
			22:14	EN			49° 16.715	123° 49.483			-			☐ ☐	
75	26½	11	22:01	DE	DRF		49° 16.694	123° 49.450	418		-		SH	☐ ☐	622
76	27	11	22:36	BE	ROS		49° 19.118	123° 47.947	345		176-192	17	SH	☑ ☐	
			22:44	BO			49° 19.133	123° 47.930		339	-			☐ ☐	
			23:06	EN			49° 19.157	123° 48.007			-			☐ ☐	
77	27½	11	23:57	BE	ROS		49° 21.796	123° 46.602	112		-		SH	☑ ☐	
			00:00	BO			49° 21.796	123° 46.596		107	-			☐ ☐	
			00:02	EN			49° 21.796	123° 46.595			-			☐ ☐	
78	28	12	00:39	BE	ROS		49° 24.092	123° 45.286	137		-		SH	☑ ☐	
			00:41	BO			49° 24.104	123° 45.209		132	-			☐ ☐	
			00:44	EN			49° 24.103	123° 45.293			-			☐ ☐	
79	28	12	00:44	DE	DRF		49° 24.109	123° 45.293			-			☐ ☐	623 638 ⇒
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

Event Type:
BOT = Bottle cast (no CTD)
CTD = Standalone CTD
ROS = CTD in Rosette
SET = Fish Set
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NET = Plankton Net Haul
DRF = Drifter
____ = _____

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

Time Code:
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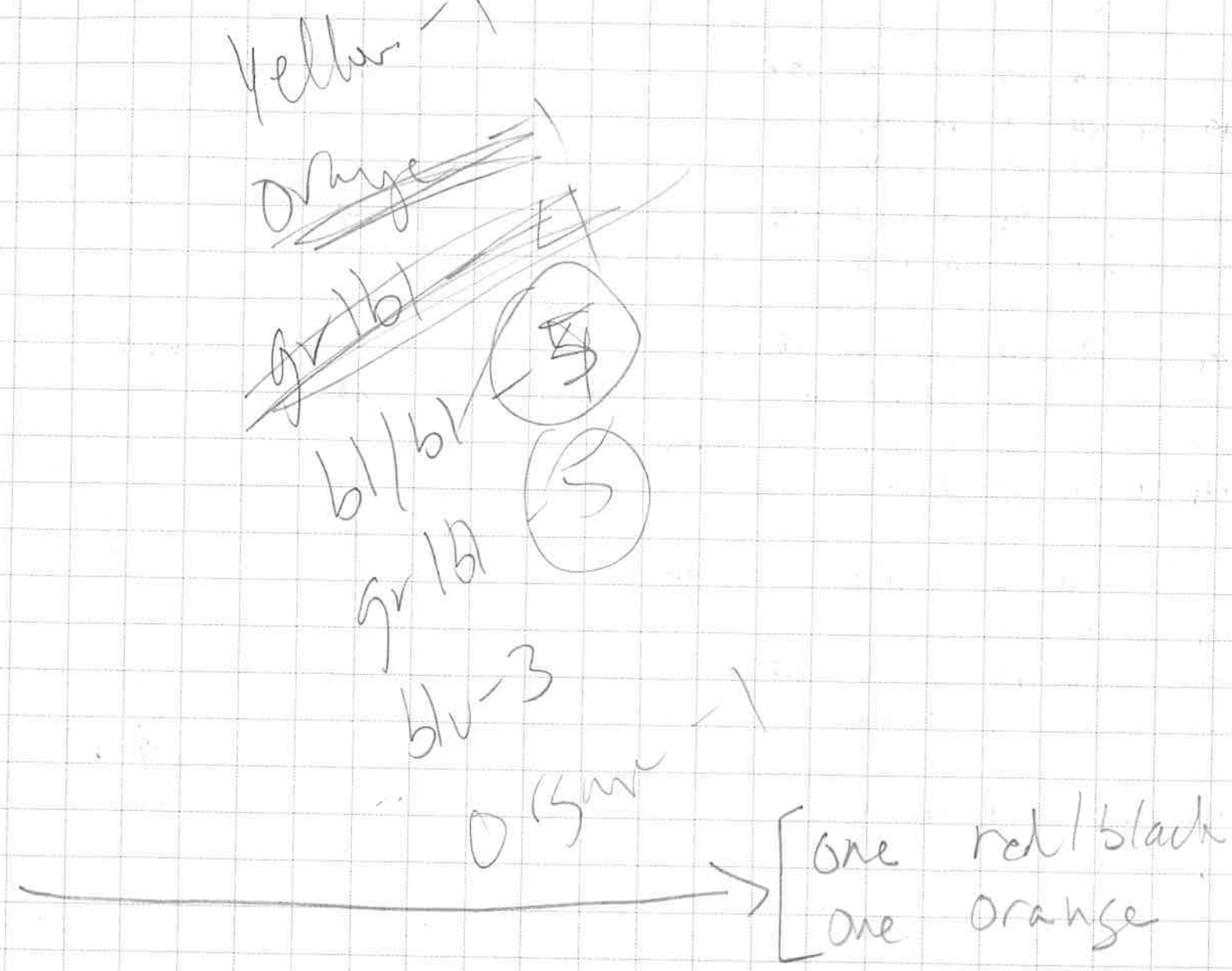
EN = End Time of Cast
DE = Deployment Time
MR = Messenger Release Time
RE = Recover Mooring Time

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

Notes: _____


Yellow - 1
Orange - 1
gr/bl - 1
bl/bl - 5
gr/bl - 5
blu - 3
0.5mm - 1
One red/black
One orange

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
80	23	12	00:53	BE	NET		49° 24.134	123° 45.335	136		-		CS	☐☐	Scan →
			00:57	BO			49° 24.154	123° 45.382		125	-			☐☐	
			00:59	EN			49° 24.157	123° 45.409			-			☐☐	
81	24	12	02:40	BE	NET		49° 30.288	124° 5.992	428		-		CS	☐☐	
			02:51	BO			49° 30.296	124° 6.023		415	-			☐☐	
			:	EN			° .	° .			-			☐☐	
82	24	12	02:53	DE	DRF		49° 30.298	124° 06.023	427		-			☐☐	614
83	24	12	03:08	BE	ROS		49° 30.294	124° 6.016	427		193-195	3	SR	☒☐	OPs up to 15, back to 20
			03:17	BO			49° 30.290	124° 6.029		424	-			☐☐	
			03:29	EN			49° 30.301	124° 6.014			-			☐☐	
84	25	12	03:54	BE	ROS		49° 27.731	124° 7.460	290		-		SR	☒☐	
			04:00	BO			49° 27.746	124° 7.463		289	-			☐☐	
			04:06	EN			49° 27.740	124° 7.477			-			☐☐	
85	2	12	04:38	BE	ROS		49° 24.115	124° 9.310	273		196-211	16	SR	☒☐	
			04:44	BO			49° 24.116	124° 9.310		274	-			☐☐	
			05:04	EN			49° 24.115	124° 9.317			-			☐☐	
86	2	12	04:34	DE	DRF		49° 24.123	124° 09.311			-			☐☐	615
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

Event Type:
BOT = Bottle cast (no CTD)
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ROS = CTD in Rosette
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Bottle Firing Method:
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Time Code:
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MR = Messenger Release Time
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CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 6 December 2016

Chelsea hit on foot with weights on deployment. Poor winch control on this one which as usual.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63 Page 13 of _____

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
87	CPF1	12	05:34	BE	ROS		49° 22.003	124° 5.119	245		212-214	3	SL	☐☐	
			05:40	BO			49° 22.001	124° 5.119		240	-			☐☐	
			05:47	EN			49° 22.000	124° 5.116			-			☐☐	
88	CPF1	12	05:53	BE	NET		49° 22.010	124° 05.106	245		-			☐☐	
			05:59	BO			49° 22.000	124° 5.116		235	-			☐☐	SCOR
			06:04	EN			49° 22.006	124° 05.105			-			☐☐	
89	1	12	06:53	BE	ROS		49° 20.304	124° 12.092	246		-			☐☐	
			06:59	BO			49° 20.303	124° 12.090		242	-		SR	☑☐	
			07:03	EN			49° 20.306	124° 12.077			-			☐☐	
90	4	12	07:59	BE	ROS		49° 24.52	124° 22.09	343		-			☐☐	
			08:06	BO			°24.53	°22.09		341	-		SR	☑☐	
			08:12	EN			°24.52	°22.10			-			☐☐	
91	4	12	08:15	DE	DRF		49°24.518	124°22.098	343		-			☐☐	
92	3	12	08:36	BE	ROS		49°26.61	124°20.28	343		-			☐☐	6/6 - drifter
			08:42	BO			°26.60	°20.28			-		SR	☑☐	
			09:02	EN			°26.58	°20.31			-			☐☐	
93	BS17	12	10:58	BE	NET		49° 29.995	124° 46.019	62		-			☐☐	
			10:59	BO			° 29.995	° 46.023		52	-		N^2	☐☐	
			11:00	EN			° 29.994	° 46.030			-			☐☐	

Event Type:
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NET = Plankton Net Haul
DRF = Drifter
____ = _____

Bottle Firing Method:
US = Up / Stop (default)
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Time Code:
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CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April | **Year** 2017 | **Vessel** Vector | **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
94	BS17	12	11:10	BE	ROS	US	49° 28.98	124° 46.03	62		232-240	9	SR	☑ ☐	
			11:12	BO			° 28.98	° 46.03		56.4	-			☐ ☐	
			11:20	EN			° 28.97	° 46.04			-			☐ ☐	
95	CPF2	12	12:35	BE	ROS		49° 28.08	124° 30.24	327		-		SR	☑ ☐	
			12:41	BO			° 28.08	° 30.24		323	-			☐ ☐	
			12:46	EN			° 28.06	° 30.25			-			☐ ☐	
96	CPF2	12	12:54	BE	NET		49° 28.119	124° 30.250	325		-		N2	☐ ☐	
			13:04	BO			° 28.117	° 30.255		315	-			☐ ☐	
			13:10	EN			° 28.120	° 30.234			-			☐ ☐	
97	6	12	13:47	BE	ROS		49° 30.61	124° 27.80	194		241-254	14	SR	☑ ☐	~~Drifters 612~~ 613
			13:51	BO			° 30.62	° 27.80		189	-			☐ ☐	
			14:06	EN			° 30.63	° 27.77			-			☐ ☐	
98	6	12	14:07	DE	DRF		49° 30.650	124° 27.732	194		-		GC	☐ ☐	Drifters 612+613
99	7	12	14:49	BE			49° 34.40	124° 24.19	352		-		SR	☑ ☐	
~~98~~			14:56	BO			° 34.40	° 24.19		349	-			☐ ☐	
			15:02	EN			° 34.41	° 24.19			-			☐ ☐	
100	8	12	15:50	BE	ROS		49° 39.31	124° 33.03	339		-		SR	☑ ☐	
			15:57	BO			° 39.30	° 33.05		337	-			☐ ☐	
			16:03	EN			° 39.30	° 33.05			-			☐ ☐	

Event Type:
BOT = Bottle cast (no CTD)
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Bottle Firing Method:
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UN = Up / No stop
DN = Down / No stop

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 6 December 2016

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April | **Year** 2017 | **Vessel** Vector | **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
101	9	12	16:37	BE	ROS		49° 35.52	124° 38.27	170		255 -267	13	SR	☑ ☐	
			16:42	BO			° 35.52	° 38.28		165	-			☐ ☐	
			16:55	EN			° 35.52	° 38.30			-			☐ ☐	
102	9	12	16:57	DE	DRF		49° 35.549	° 38.345	170		-		GC	☐ ☐	Drifter # 630
103	10	12	17:46	BE	ROS		49° 40.70	124° 47.31	93		-		SR	☑ ☐	
			17:48	BO			° 40.70	° 47.32		89	-			☐ ☐	
			17:49	EN			° 40.71	° 47.33			-			☐ ☐	
104	11	12	18:15	BE	ROS		49° 42.40	124° 43.41	300		-		SR	☑ ☐	
			18:19	BO			° 42.40	° 43.41		297	-			☐ ☐	
			18:26	EN			° 42.40	° 43.39			-			☐ ☐	
105	N11/11	12	18:30	BE	NET		49° 42.403	124° 43.403	300		-		N2	☐ ☐	
			18:41	BO			° 42.406	° 43.404		290	-			☐ ☐	
			18:46	EN			° 42.416	° 43.419			-			☐ ☐	
106	11	12	18:49	DE	DRF		49° 42.425	124° 43.426			-		SR	☐ ☐	UBC drifter 123
107	12	12	19:07	BE	ROS		49° 43.532	124° 40.803	353		268 -284	17	SR	☐ ☐	bottle 7
			19:35	BO			49° 43.580	124° 40.807		349	-			☐ ☐	empty
			19:39	EN			49° 43.582	124° 40.807			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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** DO2 Recommendation **
(Nina & Kenny Scheme)

DO2 samples should be reshaken as the last order of business when sampling is complete and then watered.

Leaving them on deck 30+ mnutes after often means they never get a 2nd shake + water.

This way they are always watered before leaving the deck.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
108	13	12	21:07	BE	ROS		49° 55.796	124° 55.199	243		-		SR	☒☐	
			21:14	BO			49° 55.294	124° 55.201		234	-			☐☐	Muddy Bottom -
			21:18	EN			49° 55.292	124° 55.204			-			☐☐	h.f ?? YES
109	13	12	21:09	DE	DRF		49° 55.296	124° 55.201	242		-			☐☐	629
110	14	12	21:47	BE	ROS		49° 53.028	124° 59.646	313		285-300	16	SR	☒☐	→
			21:54	BO			49° 53.014	124° 59.653		311	-			☐☐	
			22:13	EN			49° 53.021	124° 59.647			-			☐☐	→
111	14	12	22:33	BE	NET		49° 53.020	124° 59.653	314		-			☐☐	Scon
			22:42	BO			49° 53.028	124° 59.652		309	-			☐☐	
			22:47	EN			49° 53.023	124° 59.651			-			☐☐	
112	15	12	23:06	BE	ROS		49° 51.618	125° 1.616	127		301-	1	SR	☒☐	
			23:10	BO			49° 51.619	125° 1.613		123	-			☐☐	
			23:12	EN			49° 51.619	125° 1.615			-			☐☐	
113	16	13	00:07	BE	ROS		49° 59.178	124° 58.935	149		-		SR	☒☒	
			00:10	BO			49° 59.177	124° 58.940		146	-			☐☐	
			00:13	EN			49° 59.178	124° 58.949			-			☐☐	
114	17	13	00:53	BE	ROS		49° 58.799	125° 4.255	263		-		SR	☒☐	
			00:58	BO			49° 58.798	125° 4.253		258	-			☐☐	
			01:03	EN			49° 58.798	125° 4.246			-			☐☐	

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Bottle 15 is chipped, skipped for cast

17 didn't trip, file 110a just for recollecting water at surface

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Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
115	17	13	00:54	DE	DRF		49° 58.799	125° 4.253	263		-		SR	☐☐	629
116	16	13	01:30	BE	ROS		49° 57.760	125° 8.834	154		302-313	12	SR	☒☐	The whirl pool
			01:34	BO			49° 57.758	125° 8.837		151	-			☐☐	station"
			01:47	EN			49° 57.745	125° 8.845			-			☐☐	left pumps on!
117	21	13	02:27	BE	ROS		50° 1.932	125° 13.636	72		-		SR	☒☐	
			02:29	BO			50° 1.966	125° 13.649			-			☐☐	
			02:31	EN			50° 1.958	125° 13.658			-			☐☐	
118	QU39	13	03:40	BE	ROS		50° 1.829	125° 5.470	275		-		SR	☒☐	
			03:46	BO			50° 1.825	125° 5.472		271	-			☐☐	
			03:51	EN			50° 1.826	125° 5.472			-			☐☐	
119	19	13	04:53	BE	ROS		50° 1.194	124° 52.935	280		-		SR	☒☐	
			04:59	BO			50° 1.193	124° 52.934		278	-			☐☐	
			05:04	EN			50° 1.189	124° 52.974			-			☐☐	
120	20	13	07:04	BE	ROS		49° 47.20	124° 32.29	309		-		SR	☑☐	
			07:10	BO			° 47.21	° 32.26		306	-			☐☐	
			07:16	EN			° 47.22	° 32.25			-			☐☐	
121	20	13	07:18	DE	DRF		49° 47.217	124° 32.249	309		-		GC	☐☐	Drifter #631
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2017 **Vessel** Vector **Cruise ID** 2017-63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
122	22	13	08:34	BE	NET		49° 40.206	124° 16.330	355		-		N2	☐☐	
			08:47	BO			° 40.195	° 16.299			-			☐☐	
			08:52	EN			° 40.192	° 16.296			-			☐☐	
123	22	13	09:01	BE	ROS		49 ° 40.20	124 ° 16.30	352		314 - 316	3	SR	☑☐	
			09:08	BO			° 40.20	° 16.29		347	-			☐☐	
			09:17	EN			°40.21	° 16.27			-			☐☐	
124	22	13	09:19	DE	DRF		49°40.211	124°16.260	352		-		GC	☐☐	Drifter # 627
125	GIØ1	13	15:34	BE	ROS		48°45.86	123° 20.53	67		-		SR	☑☐	
			15:36	BO			° 45.86	° 20.53		64	-			☐☐	
			15:37	EN			° 45.85	° 20.53			-			☐☐	
126	GIØ1	13	15:41	BE	NET		48° 45.855	123° 20.513	67		-		N2	☐☐	
			15:43	BO			° 45.858	° 20.503		57	-			☐☐	
			15:44	EN			° 45.857	° 20.501			-			☐☐	
127	SCØ4	13	16:15	BE	NET		48° 43.566	123° 24.993	98		-			☐☐	
			16:19	BO			° 43.564	° 24.983		88	-			☐☐	
			16:21	EN			° 43.547	° 24.996			-			☐☐	
128	SCØ4	13	16:30	BE	ROS		48° 43.53	123° 25.01	97		-		SR	☑☐	
			16:32	BO			° 43.53	° 25.01		93	-			☐☐	
			16:36	EN			° 43.52	° 25.00			-			☐☐	

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Month April | **Year** 2017 | **Vessel** Vector | **Cruise ID** 2017-63

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129	58	13	17:24	BE	ROS		48 °43.00	123° 14.33	337		-		SR	☑ ☐	
			17:31	BO			°43.00	°14.33		334	-			☐ ☐	
			17:38	EN			°42.99	°14.35			-			☐ ☐	
130	58	13	17:41	DE	DRF		48° 42.910	123° 14.505	336		-		GC, N², SR	☐ ☐	Drifter ~~#s~~ 592,
131	59	13	18:14	BE	NET		48° 37.778	123 ° 14 .542	232		[illegible]		N²	☐ ☐	593, 596
			18:22	BO			°37.600	°14 .517		222	-			☐ ☐	
			18:26	EN			°37.490	°14 .519			-			☐ ☐	
132	59	13	18:37	BE	ROS		48° 37.778	123 ° 14 .546	232		-		SR/SR	☑ ☐	
			18:43	BO			°37.772	°14.482			-			☐ ☐	
			19:02	EN			°37.724	°14 .470			-			☐ ☐	
133	60	13	19:31	BE	ROS		48 °33.902	123° 12.793	289		-		SR	☐ ☐	
			19:37	BO			48 °33.850	123 ° 12 .768			-			☐ ☐	
			19:44	EN			48 °33.877	123 ° 12 .743			-			☐ ☐	
134	61	13	20:16	BE	ROS		48 °29.245	123 ° 9 .174	231		-		SR	☐ ☐	
			20:22	BO			48° 29.237	123 ° 9 .166		229	-			☐ ☐	
			20:26	EN			° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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