DAILY SCIENCE LOG BOOK

MISSION NUMBER 2016-05

DATE: From: April 21/2016 to:

VESSEL: Vector

PROJECT(S):

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

WaterProperties.ca

Captain: Zbigniew Chmara First Officer: Shane Lavelace
Second Officer: Dale Omuh Third Officer: _____
Fishing Master: _____

Mission Participants / Agencies: _____

Scientific Personnel: Chief Scientist: Peter Chandler

Name	Watch	Cabin	Name	Watch	Cabin
P Chandler	1	1	S. Rose	2	
S Romaine	1	2	K. Szczygelava	2	2
T Fraser	1	4	N. Nexcek	2	4

Second leg of Mission: Chief Scientist: _____

Name	Watch	Cabin	Name	Watch	Cabin

Data logging computer: Vector Laptop
Data acquisition program: Seasave
CTD deck unit make: SBE model: 11+ serial number: 508

Primary CTD
Make: SBE model: 9+ serial number: 550
Primary temperature serial number: 4484
Primary conductivity serial number: 1766
Secondary temperature serial number: 4054
Secondary conductivity serial number: 3531
Transmissometer: Wetlabs Model: C-STAR s/n: 1396DR
Fluorometer: Model Seapoint Cable gain: 3X s/n: 3865 **P, S or NO pump?** (S)
Oxygen sensor: SBE Model: 43 s/n: 1119 **P, S or NO pump?** (P)
PAR sensor: Biospherical Model: QSP200L45 s/n: 4565
Other sensors: pH SBE 18 s/n: 0692 **P, S or NO pump?** (NO)
Other sensors: Altimeter (Benthos) s/n: 1253 **P, S or NO pump?**
Other sensors: _____ s/n: _____ **P, S or NO pump?**
Other sensors: _____ s/n: _____ **P, S or NO pump?**

Secondary CTD
Make: _____ model: _____ serial number: _____
Primary temperature serial number: _____
Primary conductivity serial number: _____
Secondary temperature serial number: _____
Secondary conductivity serial number: _____
Transmissometer: _____ Model: _____ s/n: _____
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: _____
Other sensors: _____ s/n: _____ **P, S or NO pump?**
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CTD calibration bottle location (height above CTD in metres): _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2016 **Ship** Vector **Cruise ID** 2016-05

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
21	SI	2344	BE	ROS	US	1	48 39.13	123 30.61	180		1-9	9	RC	✓	
14		2349	BO				39.13	30.60		100					
		2358	EN				39.13	30.55							
22	58	0144	BE	ROS		2	48 42.99	123 14.30	335				RC	✓	
16		0153	BO				42.99	14.29		330					
		0200	EN				42.98	14.26							
22	59	0233	BE	ROS	US	3	48 37.78	123 14.58	230		10-23		RC	✓	
20		0239	BO				37.80	14.57		229					
		0253	EN				37.80	14.60							
22	59	0428	BE	NET		4	48 37.78	123 14.56	231		no sample - problems				1/2 ms⁻¹ down
		0435	BO				37.76	14.53			w/ saturator pump		- event abandoned		1 ms⁻¹ up
		04	EN												
22	59	0457	BE	NET		5	48 37.74	123 14.58	228				TF, RC, SL		using fire hose to wash down net
12		0505	BO				37.75	14.58		219					
		0509	EN				37.76	14.57							

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SET = Fish Set
USW = Sea Water Loop
MOR = Mooring
NET = Plankton Net Haul
DRF = Drifter
____ = _____

Bottle Firing Method:
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Notes: _____

Transmissometer & Fluorometer are to be cleaned before each cast

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- network requires re-setting

depart 15:30 - light breeze

problem with work winch - hydraulic hoses connected in reverse - ships crew fix

- TSG manifold failed - piping appears to be clogged with mussels, pump pressure relief valve TW - rig bypass when TSG is fitted
- pressure build up in salt water hose - various fixes not working → use firehose
- → bypass works → use 5m garden hose for nets

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Ocean Sciences Division, Institute of Ocean Sciences

Month April **Year** 2016 **Ship** Vector **Cruise ID** 201605

	Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
	22	60	0536	BE	ROS		6	48 33.87	123 12.77	290				R	✓	
12			0543	BO				33.82	12.77		288					
			0548	EN				33.88	12.79							
	22	61	0619	BE	ROS		7	48 29.17	123 9.20	270				R	✓	drift to deeper
12			0626	BO				29.18	9.19		274					Later during cast
			0631	EN				29.18	9.19							pH cover left on
	22	101	1343	BE	ROS		8	48° 25.42	124° 45.15	235				SR	✓	
9			1348	BO				25.41	45.16		233 db					
			1352	EN				25.41	45.20							
	22	102	1443	BE	ROS	US	9	48° 30.04	124° 44.18	255		24-37		SR	✓	Con File change
21			1449	BO				30.08	44.28		250 db					→
			1504	EN				30.20	44.50							
	22	103	1543	BE			10	48° 32.97	124° 43.06	122				SR	✓	
5			1545	BO				32.97	43.11		119 db					
			1548	EN				32.97	43.16							
	22	76	1651	BE			11	48° 31.42	124° 29.99	87				SR	✓	
3			1653	BO				31.44	30.00		82 db					
			1654	EN				31.45	30.02							

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The Seapoint fluorometer ~~spint~~ was 3685 when it should have been 3865

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22	75	1721	BE	ROS	US	12	48°28.33	124 32.97	222		38-51	14	SR	✓	
		1724	BO				28.33	33.07							
		1741	EN				28.37	33.32							
22	74	1819	BE	ROS		13	48°25.08	124° 35.66	187				SR	X no	
		1822	BO				25.05	35.60		180 db					
		1826	EN				25.04	35.56							
22	73	2022	BE	ROS		14	48 15.00	124 6.71	164				PC	✓	
		2026	BO				14.99	6.70		159					
		2029	EN				14.99	6.70							
22	72	2056	BE	ROS	US	15	48 18.60	124 4.00	190				PC	✓	
		2100	BO				18.60	3.99		190	52-64	13			
		2113	EN				18.60	4.00							
22	72	2153	BE	NET		16	48 18.55	124 4.02	190				SRomano		
		2158	BO				18.54	4.02							
		2200	EN				18.55	4.02							

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This page is for any notes or observations

- stop to pick up floating objects near [illegible] during a [illegible]
return recovered near [illegible] during to Red Bay coastguard

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22	71	22:34	BE	ROS		17	48 22.20	123 59.38	111				RC	✓	
		22:37	BO				22.20	59.39		106					
		22:39	End				22.20	59.39							
22	70	23:39	BE	ROS		18	48 19.18	123 43.19	155				RC	✓	
		23:43	BO				19.18	42.21		150					
		23:45	End				19.19	43.21							
23	69	00:26	BE	ROS	US	19	48 15.60	123 43.18	180		65-76	12	RC	✓	
		00:31	BO				15.60	43.19		175					
		00:42	End				15.61	43.20							
23	68	01:05	BE	ROS		20	48 12.22	123 42.99	142				RC	✓	
		01:10	BO				12.21	42.98		136					
		01:12	End				12.21	42.98							
23	105	02:43	BE	ROS		21	48 11.00	123 19.02	87				RC	✓	air temp 11°C
		02:45	BO				11.02	19.02		83					
		02:46	End				11.00	19.03							

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	23	ADCP	0308	BE	ROS	US	22	48 13.99	123 18.02	123		77 - 86	10	PC	✓	
12			0311	BO				13.99	18.01		117					
			0320	End				14.01	18.03							
	23	104	0359	BE	ROS		23	48 19.98	123 18.02	87				PC	✓	
3			0401	BO				19.99	18.01		83					
			0402	End				19.99	18.01							
	23	67	0426	BE	ROS		24	48 22.79	123 18.14	110				PC	✓	
5			0429	BO				22.77	18.16		104					
			0431	End				22.77	18.19							
	23	66	0502	BE	ROS		25	48 19.33	123 14.11	104				PC	✓	
4			0504	BO				19.34	14.11		98					
			0506	End				19.35	14.11							
	23	65	0536	BE	ROS	US	26	48 15.91	123 9.77	128				PC	✓	
10			0538	BO				15.91	9.78		122					
			0546	End				15.92	9.78							

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23	64	0614	BE	ROS		27	48 12.80	123 5.83	112				PC		
5		0617	BO				12.81	5.81		105					
		0619	EN				12.81	5.81							
23	63	0659	BE	ROS	US	28	48° 14.57	122° 58.59	157		108-111	4	SR	✓	Grey water dumped
10		0702	BO				14.56	58.61		152db					at 20m of depth
		0709	EN				14.64	58.63							
23	63	0718	BE	NET		29	48 14.63	122° 58.60	156				N		
8		0722	BO				14.66	58.64		146					
		0726	EN				14.66	58.64							
23	62	0829	BE	ROS	US	30	48° 22.85	123° 2.58	150		97-107	11	SR	✓	
14		0832	BO				22.87	2.55							
		0843	EN				22.87	2.55							
23	54	1003	BE	ROS		31	48° 26.67	122° 44.36	81				SR	✓	
3		1005	BO				26.69	44.36		76db					
		1006	EN				26.70	44.36							

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23	53	1045	BE	ROS		32	48° 33.17	122° 44.95	61				SR	✓	
		1046	BO				33.17	44.95		56 db					
		1048	EN				33.18	44.95							
23	52	1126	BE	ROS		33	48° 38.92	122° 43.25	88				SR	✓	
		1128	BO				38.94	43.28		84 db					
		1129	EN				38.94	43.28							
23	51	1231	BE	ROS		34	48° 46.69	122 51.64	165				SR	✓	
		1234	BO				46.69	51.66		161 db					
		1237	EN				46.68	51.68							
23	56	1334	BE	ROS	US	35	48° 46.39	123° 1.59	216		112-125		SR	✓	
		1337	BO				46.39	1.61		212 db					
		1344	EN				46.39	1.61							
23	57	1426	BE	ROS		36	48° 43.99	123° 8.16	165				SR	✓	
		1429	BO				43.95	8.14		162 db					
		1432	EN				43.90	8.09							

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	23	47	1552	BE	ROS		37	48° 49.32	123° 6.13	189				SR	✓	
7			1555	BO				49.32	6.11		183 db					
			1559	EN				49.33	6.09							
	23	48	1624	BE	ROS		38	48° 51.63	123° 3.15	215				SR	✓	
8			1628	BO				51.63	3.15		204 db					
			1632	EN				51.63	3.14							
	23	49	1705	BE	ROS		39	48° 54.99	122° 59.58	133				SR	✓	
5			1708	BO				55.00	59.60		127					
			1710	EN				55:00	59.61							
	23	50	1738	BE	ROS		40	48° 57.74	122° 56.06	28				SR	✓	
1			1739	BO				57.74	56.03		23					
			1739	EN				57.74	56.01							
	23	44	1830	BE	ROS		41	48° 56.81	123° 6.00	122				SR	✓	
3			1832	BO				56.81	6.01		116					
			1833	EN				56.80	6.01							

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23	45	18:58	BE	ROS		42	48 53.91	123 8.38	129				RC	✓	
		19:00	BO				53.91	8.39		123					
		19:02	EN				53.91	8.40							
23	46	19:27	BE	ROS	US	43	48 51.42	123 10.81	178		126-137	12	R	✓	miss not
		19:30	BO				51.41	10.81		173					do an return log
		19:41	EN				51.40	10.81							
23	106	20:40	BE	ROS		44	49 0.99	123 13.24	76				R	✓	
		20:41	BO				0.99	13.23		72					
		20:43	EN				0.99	13.22							
23	107	21:09	BE	ROS		45	48 58.38	123 17.99	182				RS	✓	
		21:13	BO				58.39	17.97		176					
		21:16	EN				58.40	17.94							
23	43	22:07	BE	ROS		46	49 0.21	123 30.15	196				RC	✓	
		22:11	BO				0.25	30.12		193					
		22:14	EN				0.26	30.11							

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23	42	22:37	BE	ROS	US	47	49 1.84	123 26.21	321		138-153	16	R	✓	
		22:43	BO				1.86	26.19		313					
		23:00	EN				1.84	26.13							
23	42	23 48	BE	NET		48	49 1.81	123 26.20	322				Steve		
		23:53	BO				49 01.795	123 26.20		312					
		00 04	EN				01.79	26.21							
24	41	00:42	BE	ROS		49	49 3.32	123 22.31	246				R	✓	
		00:47	BO				3.34	22.31		240					
		00:51	EN				3.34	22.30							
24	108	01 09	BE	ROS		50	49 4.42	123 19.11	92				R	✓	
		01 11	BO				4.42	19.10		86					
		01 13	EN				4.42	19.10							
24	37	02:05	BE	ROS		51	49 13.59	123 20.65	216				R	✓	
		02:10	BO				13.60	20.65		209					
		02:14	EN				13.60	20.66							

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Month APRIL **Year** 2016 **Ship** VECTOR **Cruise ID** 2016-05

	Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
	24	38	0244	BE	ROS		52	49 12.00	123 26.41	312				RC	✓	
12			0250	BO				12.00	26.40		304					
			0256	End				12.00	26.42							
	24	38	0301	BE	NET		53	49 12.01	123 26.40	312				S. Romanuk		light rain
13			0310	BO				12.00	26.37		302					
			0314	End				12.00	26.38							
	24	39	03 49	BE	ROS	US	54	49 9.79	123 32.98	380		154-170	17			
28			03 57	BO				9.77	32.76		372					
			0417	End				9.88	32.60							
	24	40	04:45	BE	NET		55	49 08.61	123 36.81	146						
7			04 49	BO				08.61	36.80		136					
			04 52	End				08.61	36.79							
	24	40	05 02	BE	ROS		56	49 8.57	123 36.81	156						
7			05 06	BO				8.58	36.79		152					
			05 09	End				8.58	36.79							

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Notes: _____

Transmissometer & Fluorometer are to be cleaned before each cast

Produced by the Water Properties Group, IOS

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
24	GEO1	06:00	BE	ROS		57	49 14.99	123 44.94	406						fluorometer spiky
		0608	BO				14.99	44.91		398					dcf shows 6.8 m
		0616	EN				15.01	44.88							
24	GEO1	06 19	BE	NET		58	49 15.00	123 44.87	406						
		06 31	BO				15.00	44.90		396					
		06 37	EN				15.00	44.90							
24	26	0707	BE	ROS		59	49° 14.30	123° 50.74	258				SR	✓	
		0712	BO				14.30	50.74		253					
		0717	EN				14.30	50.74							
24	265	0739	BE	ROS		60	49° 16.72	123° 49.42	414				SR	✓	
		0747	BO				16.71	49.43		408					
		0754	EN				16.70	49.44							
24	27	0814	BE	ROS	US	61	49° 19.08	123° 48.04	350		171-186	16	SR	✓	
		0821	BO				19.07	48.06							
		0839	EN				19.07	48.08							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max ~~Depth~~ Pressure	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
24	275	0924	BE	Ros		62	49° 21.79	123° 46.61	114				SR	✓	File changes →
5		0927	BO				21.79	46.60		110					
		0929	EN				21.79	46.61							
24	28	0951	BE	ROS		63	49° 24.09	123° 45.31	138				SR	✓	
5		0953	BO				24.09	45.30		130					
		0956	EN				24.10	45.30							
24	28	1001	BE	Net		64	49° 24.118	123° 45.282	139				N²		
6		1005	BO				24.049	45.352		130					
		1007	EN				24.008	45.351							
24	24	1141	BE	NET		65	49° 30.367	124° 5.978	430				N²		
21		1155	BO				30.389	6.014		420					
		1202	EN				30.397	6.038							
24	24	1212	BE	ROS		66	49° 30.40	124° 6.05	432				SR		
13		1218	BO				30.41	6.03		422					
		1225	EN				30.41	6.04							

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Event 62 originally had station 28 in it, I changed the hdr + hex files to have 275 in the station name fields

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Pressure Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
24	25	1251	BE	ROS		67	49° 27.72	124° 7.53	295				SR	✓	
11		1256	BO				27.69	7.52		299					
		1302	EN				27.69	7.48							
2															
24	2	1336	BE	ROS	US	68	49° 24.08	124° 9.32	284		187-201	15	SR	✓	
		1341	BO				24.10	9.29							
?		1347	EN				24.11	9.28							
24	CPF1	1434	BE	ROS	US	69	49° 22.00	124° 5.11	250		202-205	4	SR	✓	
12		1439	BO				22.00	5.11							
		1446	EN				22.01	5.11							
24	CPF1	1454	BE	NET		70	49. 22.023	124° 5.085	250				N2		
		1459	BO				22.033	5.086		240					
			EN												
24	1	1541	BE	ROS		71	49° 20.32	124° 12.09	251				SR	✓	
9		1546	BO				20.34	12.09		243					
		1550	EN				20.36	12.11							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
24	4	1639	BE	ROS		72	49° 24.49	124° 22.08	346				SR	✓	
		1645	BO				24.49	22.10		337					
		1652	EN				24.49	22.11							
24	3	1711	BE	ROS	US	73	49° 26.58	124° 20.27	327		206-221	16	SR	✓	
		1718	BO				26.59	20.30		320					
		1736	EN				26.61	20.36							
24	BS11	1916	BE	ROS	US	74	49 29.00	124 45.99	61		222-229	8	RC	✓	
		1918	BO				29.00	45.99		56					
		1924	EN				29.00	46.00							
24	BS11	1953	BE	NET		75	49 29.00	124 46.00	60				SR		
		1955	BO				29.00	45.99		50					
		1957	EN				29.00	45.99							
24	CDF2	2103	BE	NET		76	49 28.02	124 29.94	326				SR		
		2114	BO					29.93		316					
		2120	EN				27.97	29.89							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
24	CPF2	2128	BE	ROS		77	49 28.02	124 30.04	327				R	✓	
		2135	BO				28.00	30.04		321					
		2141	EN				28.00	30.03							
24	6	2203	BE	ROS	US	78	49 30.59	124 27.80	192		230-242	13	R	✓	
		2207	BO				30.59	27.81		185					
		2219	EN				30.60	27.83							
24	7	2247	BE	ROS		79	49 34.41	124 24.19	353				R	✓	
		2254	BO				34.41	24.20		346					
		2300	EN				34.41	24.20							
24	8	2347	BE	ROS		80	49 39.29	124 32.99	340				R	✓	
		2354	BO				39.29	32.98		330					
		2400	EN				39.29	32.99							
25	9	0036	BE	ROS	US	81	49 35.50	124 38.27	172		243-254	12			
		0039	BO				35.51	38.27		165					
		0049	EN				35.50	38.28							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
25	10	0137	BE	ROS		82	49 40.71	124 47.37	93				R	✓	
		0139	BO				40.72	47.37		90					
		0141	EN				40.72	47.37							
25	11	0204	BE	ROS		83	49 42.38	124 43.46	304				SR		
		0210	BO				42.37	43.46		296					
		0215	EN				42.39	43.47							
25	11	0220	BE	NET		84	49 42.42	124 43.36	305				R	✓	
		0230	BO				42.41	43.36		294					
		0235	EN				42.42	43.36							
25	12	0258	BE	ROS	US	85	49 42.60	124 40.76	360		255-270	16	R	✓	#2 generator
		0305	BO				42.60	40.79		352					exhaust in rosette
		0322	EN				43.60	40.79							
25	13	0455	BE	ROS		86	49 55.31	124 55.22	236				R	✓	air temp 9°C
		0500	BO				55.30	55.24		228					
		0504	EN				55.31	55.26							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
25	14	0534	BE	NET		87	49 52.96	124 59.76	318				SPomeroy		
		0544	BO				52.93	59.76		309					
		0549	EN				52.96	59.77							
25	14	0556	BE	ROS	US	88	49 52.94	124 59.70	318		271-285	15	R	✓	
		0602	BO				52.96	59.68		310					
		0617	EN				52.93	59.75							
25	15	0644	BE	ROS		89	49 51.60	125 1.61	128				R	✓	
		0646	BO				51.59	1.66		122					
		0648	EN				51.59	1.58							
25	17	0739	BE	ROS		90	49° 58.77	125° 4.27	266				SR	✓	
		0744	BO				58.77	4.24		259					
		0749	EN				58.78	4.24							
25	16	0815	BE	ROS		91	49° 57.73	125° 8.83	156		286-296		SR	✓	
		0818	BO				57.74	8.81		150					
		0829	EN				57.76	8.77							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
25	21	0905	BE	ROS		92	50° 1.99	125° 13.54	85				SR	✓	
		0907	BO				1.98	13.54		80					
		0908	EN				1.97	13.59							
25	QU-39	1010	BE	ROS		93	50° 1.84	125° 5.56	274				SR	✓	
		1016	BO				1.85	5.55		266					
		1020	EN				1.85	5.54							
25	18	1054	BE	ROS		94	49° 59.15	124° 58.93	150				SR	✓	
		1056	BO				59.16	58.92		144					
		1059	EN				59.16	58.92							
25	19	1132	BE	ROS		95	50° 1.20	124° 52.90	279				SR	✓	
		1138	BO				1.23	52.89		270					
		1142	EN				1.24	52.88							
25	20	1336	BE	ROS		96	49° 47.19	123° 32.25	316				SR	✓	
		1342	BO				47.18	32.30		311					
		1348	EN				47.19	32.31							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
25	22	1458	BE	ROS	US	97	49° 40.20	124° 16.31	356		297-300	4	SR	✓	
		1505	BO				40.23	16.29		350					
		1514	EN				40.23	16.27							
25	22	1519	BE	NET		98	49 40.219	124 16.256	356						
		1531	BO				40.222	16.254		346			NL		
		1537	EN				40.224	16.253							
25	28	1803	BE	ROS	US	99	49° 24.08	123° 45.25	140		301-304		SR	✓	
		1806	BO				24.09	45.25		132					
		1811	EN				24.08	45.27							
25	275	1831	BE	ROS		100	49° 21.78	123° 46.55	107				SR	✓	
		1833	BO				21.79	46.55		100					
		1834	EN				21.80	46.54							
25	27	19:00	BE	ROS		101	49 19.11	123 48.01	352				RE	✓	[illegible]
		19:07	BO				19.11	47.99		338					25 → 27
		19:13	EN				19.10	47.99							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
25	265	19:34	BE	ROS		102	49 16.72	123 49.48	412				R	✓	
		19:43	BO				16.70	49.51		406					
		19:51	EN				16.70	49.50							
25	26	20 12	BE	ROS		103	49 14.28	123 50.79	251				R	✓	
		20 16	BO				14.29	50.80		240					
		20 20	EN				14.28	50.82							
25	46	23:36	BE	ROS		104	48 51.42	123 10.79	180				R	✓	
		23:40	BO				51.43	10.77		170					
		23:43	EN				51.43	10.78							
25	46	23:48	BE	NET		105	48 51.41	123 10.77	178				Steve		
		23:54	BO				51.43	10.74		168					
		23:56	EN				51.44	10.74							
26	G101	01:33	BE	NET		106	48 45.87	123 20.54	67				Steve		
		01:34	BO				45.88	20.54		57					
		01:35	EN				45.87	20.54							

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48 858 48 851 123 20.579 123 20.593
031 031

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
26	G101	01:41	BE	ROS		107	48 45.87	123 20.55	67				R	✓	
		01:43	BO				45.86	20.57		62.1					
		01:44	EN				45.86	20.58							
26	SC04	02:10	BE	ROS	US	108	48 43.50	123 25.01	95		305-308	4	R	✓	4 bottles
		02:11	BO				43.49	25.00		91					20, 10, 5, sfc
		02:15	EN				43.50	25.00							nut - chla - hple
															bottle 1 did not trip
26	SC04	02:20	BE	NET		109	48 43.50	123 24.92	95						
		02:22	BO				43.50	24.92		86					
		02:23	EN				43.50	24.92							

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

Notes: _____

Transmissometer & Fluorometer are to be cleaned before each cast

Produced by the Water Properties Group, IOS

WaterProperties.ca
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no water from bottles - fired but did not trip