

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2016-07

DATE:

From: June 15/2016

to:

VESSEL:

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

Captain: _____

Second Officer: _____

Fishing Master: _____

First Officer: _____

Third Officer: _____

Mission Participants / Agencies:

[illegible][illegible]

Data logging computer: Vector laptop
Data acquisition program: Secure

CTD deck unit make: SBE model: 11+ serial number: 508

Primary CTD

Make: SBE model: 9+ serial number: 550

Primary temperature serial number: ~~44484~~

Primary conductivity serial number: ~~311766~~

Secondary temperature serial number: 4054

Secondary conductivity serial number: ~~133~~ 3531

Transmissometer: Wetlabs Model: C-Star s/n: 1396DR

Fluorometer: Model Seapoint Cable gain: 3X s/n: 3865 P S or NO pump?

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

PAR sensor: Biospherical Model: QS202L4S s/n: 4565

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

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

Other sensors: Altimeter s/n: 1252 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?**

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):

Rosette Setup:

Number of bottles: 24
Manufacturer: 105
Volume of bottles (litres): 10 L

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: 7.23.2 S/N: 3363
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 <u>June</u>				Year <u>2016</u>			Ship <u>Vector</u>				Cruise ID <u>2016-07</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
15	SI	23:43	BE	ROS	US	1	48° 39.10	123° 30.58	183		1-9	9	PC	✓	test cast to
		23:46	BO				39.09	30.56		100					100 m
		23:55	EN				39.08	30.53							
16	58	01:23	BE	ROS		2	48° 43.01	123° 14.37	340						
		01:31	BO				42.99	14.35		333				✓	
		01:37	EN				43.00	14.37							
16	59	02:16	BE	NET		3	48° 37.81	123° 14.16	231				SR		mega laps
		02:25	BO				37.79	14.55		221					
		02:29	EN				37.78	14.52							
16	59	02:42	BE	ROS	US	4	48° 37.76	123° 14.54	233		10-25	16	PC	✓	
		02:48	BO				37.77	14.58		227					
		03:03	EN				37.80	14.61							
16	60	03:43	BE	ROS		5	48° 33.88	123° 12.78	291						
		03:49	BO				33.87	12.77		290			PC	✓	
		03:54	EN				33.89	12.77							

Cast Type:

BOT = Bottle cast, no CTD
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ROS = Rosette plus CTD
SET = Fish Set

USW = Sea Water Loop

MOR = Mooring
NET = Plankton Net Haul
DRF = Drifter

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Transmissometer & Fluorometer are to be cleaned before each cast

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Notes:

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Month				Year			Ship				Cruise ID				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
16	61	0432	BE	ROS		6	48° 29.19	123° 9.25	284					✓	
		0437	BO				29.19	9.24		283					
		0442	EN				29.22	9.24							
16	101	1342	BE	ROS		7	48° 25.37	124° 45.02	233				SR	✓	Comments →
		1347	BO				25.37	45.01		227					
		1353	EN				25.39	44.99							
16	102	1435	BE	ROS	US	8	48° 30.05	124° 44.09	256		26-40	15	SR	✓	
		1441	BO				30.14	44.21		248					
		1459	EN				30.42	44.64							
16	103	1552	BE	ROS		9	48° 33.01	124° 43.04	123				SR	✓	
		1554	BO				33.05	43.12		117					
			EN				33.07	43.16							
16	76	1703	BE	ROS		10	48° 31.41	124° 30.01	90				SR	✓	
		1705	BO				31.42	30.02		86					
		1707	EN				31.43	30.02							

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The file ran long as they pulled the rosette out of the water while I was on deck to go over recovery with Jeff as he is new at this and there was some ship motion.

5
4
3
2
1
0
11
10

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Month				Year			Ship				Cruise ID				Comments
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	
							Latitude	Longitude							
16	75	1739	BE	ROS	US	11	48° 28.24	124° 32.90	225		41-55	15	SR	✓	
		1744	BO				28.24	32.93		220					
		1801	EN				28.27	32.95							
16	74	1843	BE	ROS		12	48° 25.12	124° 35.62	190				SR	✓	
		1847	BO				25.14	35.61		186					
		1850	EN				25.17	35.60							
16	74	1851	DE	DRF		13	48 25.23	124 35.56	190				RE	5 sponge bob	
16	73	2107	BE			14	48 15.00	124 6.63	159					✓	
		2110	BO				14.98	6.65		157					
		2113	EN				14.97	6.67							
16	72	2145	BE	NET		15	48 18.58	124 4.01	186					0.5 m's down	
		2152	BO				18.61	3.73		176				1.0 m's up	
		2155	EN				18.61	3.98							

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Notes:

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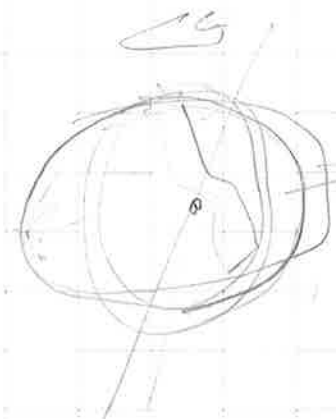
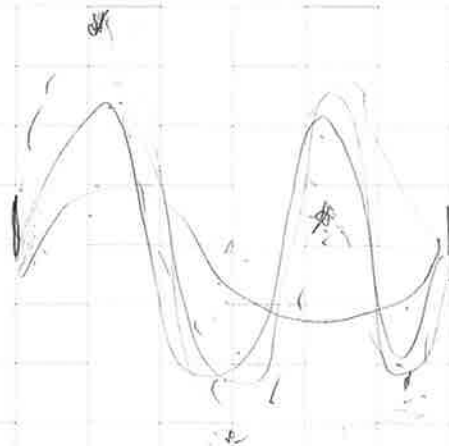
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This page is for any notes or observations



data

Experiment 13

Trace 443-447

red batch

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Month <u>JUNE</u>				Year <u>2016</u>			Ship <u>VECTOR</u>				Cruise ID <u>2016-07</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
16	72	2203	BE	ROS	US	16	48 18.58	124 4.03	186		56-69	14	R	✓	
		2207	BO				18.58	4.02		183					
		2220	EN				18.58	4.01							
16	71	2257	BE	ROS		17	48 22.14	123 59.39	107				R	✓	
		2259	BO				22.16	59.40		106					
		2301	EN				22.15	59.41							
17	70	0036	BE	ROS		18	48 19.17	123 43.22	150				R	✓	
		0039	BO				19.18	43.24		149					
		0042	EN				19.20	43.27							
17	69	0114	BE	ROS	US	19	48 15.59	123 43.25	176		70-82	13	R	✓	reduced oxygen sampling to →
		0116	BO				15.56	43.27		175					
		0129	EN				15.51	43.47							
17	68	0201	BE	ROS		20	48 12.23	123 43.22	137						
		0204	BO				12.25	43.28		134					
		0206	EN				12.28	43.35							

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Notes:

allow oxy analyzer to catch up after oxy hit down for several hours with undiagnosed (but now resolved) issue.

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Month <u>JUNE</u>				Year <u>2016</u>			Ship <u>VECTOR</u>				Cruise ID <u>2016 07</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
17	105	0403	BE	ROS		21	48 10.93	123 19.02	81				PC	✓	
		0404	BO				10.93	19.04		80					
		0406	EN				10.91	19.05							
17	105	0410	DE	DRF		22	48 10.91	123 19.05					PC		sponge bob x 5
17	ABCP	0437	BE	ROS	US	23	48 13.99	123 17.93	118		83-93	11		✓	
		0439	BO				13.96	17.96		117					
		0447	EN				13.90	18.02							
17	104	0535	BE	ROS		24	48 20.00	123 17.93	83				PC	✓	
		0536	BO				20.00	17.93		81					
		0538	EN				20.00	17.93							
17	67	0603	BE	ROS		25	48 22.85	123 18.01	100						
		0605	BO				22.85	18.00		98					
		0607	EN				22.85	18.00							
17	67	0610	DE	DRF		26	48 22.85	123 18.01							sponge bob x 5

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yellow group deployed Experiment .12 trace 438 - 442

green group deployed Experiment .11 trace 433-437

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Month <u>JUNE</u>				Year <u>2016</u>			Ship <u>VECTOR</u>				Cruise ID <u>2016-07</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
17	66	0642	BE	ROS		27	48 19.34	123 14.00	99				RC	✓	
		0644	BO				19.33	13.98		97					
		0646	EN				19.33	13.96							
17	65	0720	BE	ROS	US	28	48° 15.89	123° 9.86	128		94-104	11	SR	✓	
		0723	BO				15.86	9.87		123					
		0734	EN				15.82	9.78							
17	64	0818	BE	ROS		29	48° 12.88	123° 5.97	113				SR	✓	
		0820	BO				12.88	6.02							
		0822	EN				12.88	6.04							
17	63	0932	BE	NET		30	48 14.6096	122 58.5371			—		SR, JH		Mega Lops
		0936	BO				48 14.602	122 58.537		142					
		0938	EN				48 14.604	122 58.535							
17	63	0943	BE	ROS	US	31	48° 14.63	122° 58.61	155		105-109	5		✓	
		0946					14.64	58.65		153					
		0952					14 66	58.69							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
17	62	1102	BE	ROS	US	32	48° 22.71	123° 2.62			110-121	12	SR	✓	
		1105	BO				22.64	2.61		148					
		1117	EN				22.31	2.62							
17	54	1252	BE	ROS		33	48° 26.54	122° 43.85	77				SR	✓	
		1254	BO				26.51	43.84		73					
		1255	EN				26.50	43.84							
17	53	1353	BE	ROS		34	48° 33.128	122° 45.00	63				SR	✓	
		1354	BO				33.08	45.00							
		1355	EN				33.04	45.00							
17	52	1453	BE	ROS		35	48° 38.85	122° 43.33	86				SR	✓	
		1455	BO				38.82	43.33		80					
		1456	EN				38.77	43.34							
17	51	1617	BE			36	48° 46.74	122° 51.57	163				SR	✓	
		1621	BO				46.67	51.53		156					
		1623	EN				46.62	51.51							

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							Latitude	Longitude							
17	56	1720	BE	ROS	us	37	48° 46.42	123° 1.55	212		122-136	15	SR	✓	
		1724	BO				46.44	1.55							
		1739	EN				46.55	1.49							
17	57	1840	BE	ROS		38	48° 44.02	123° 8.19	161				SR	✓	
		1843	BO				44.03	8.22		157					
		1845	EN				44.03	8.25							
17	47	1954	BE	ROS		39	48 49.30	123 6.11	182				R	✓	
		1958	BO				49.30	6.11		180					
		2001	EN				49.29	6.13							
17	48	2026	BE	ROS		40	48 51.62	123 3.14	213				R	✓	
		2030	BO				51.63	3.15		210					
		2034	EN				51.65	3.17							
17	49	2106	BE	ROS		41	48 54.95	122 59.60	130				R	✓	
		2109	BO				54.88	59.62							
		2111	EN				54.86	59.62							

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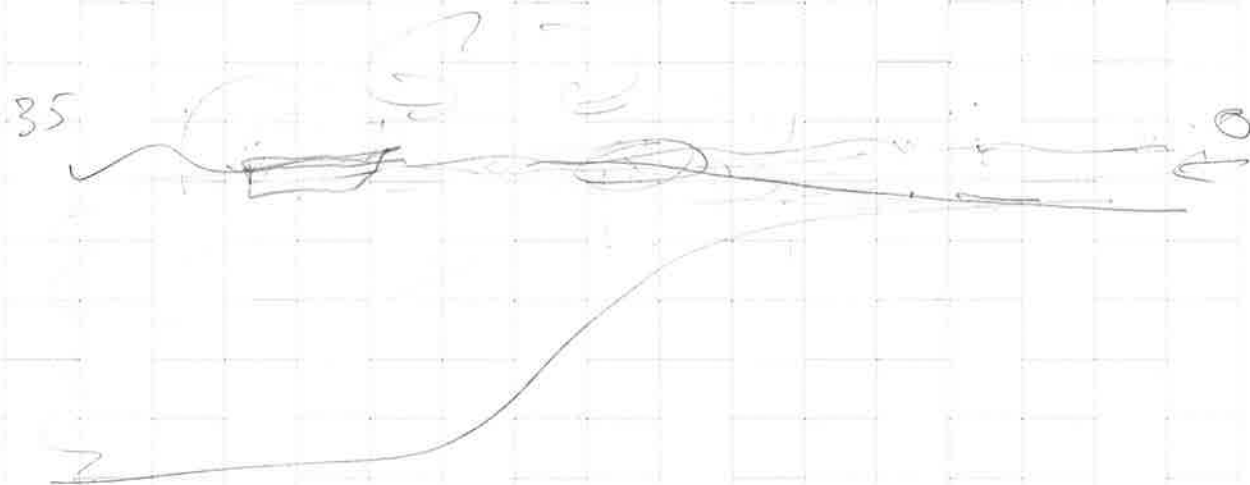
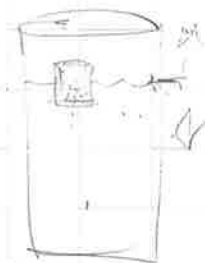
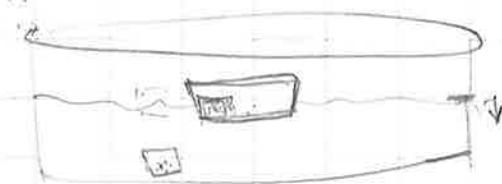
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							Latitude	Longitude							
17	50	2141	BE	ROS		42	48 57.71	122 56.01	26				PC	✓	
		2141	BO				57.72	56.03		23					
		2142	EN				57.72	56.03							
17	44	2227	BE	ROS		43	48 56.77	123 5.95	118				PC	✓	
		2229	BO				56.77	5.98		116					
		2231	EN				56.80	6.00							
17	45	2259	BE	ROS		44	48 53.86	123 8.41	127				PC	✓	
		2301	BO				53.85	8.38		125					
		2304	EN				53.83	8.36							
17	46	2325	BE	NET		45	48 51.35	123 10.78	179				SR		
		2331	BO				51.33	10.79		169					
		2334	EN				51.33	10.80							
17	46	2345	BE	ROS	US	46	48 51.35	123 10.82	180		137-149	13	PC	✓	
		2348	BO				51.35	10.83		181					
		2359	EN				51.37	10.84							

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							Latitude	Longitude							
18	46	0001	DE	DRF		47	48 51.37	123 10.84	180				PC		
18	106	0112	BE	ROS		48	49 0.98	123 13.14	76				PC	✓	5 m off bottom
		0114	BO				0.97	13.15		76					depth from bottom
		0115	EN				0.97	13.15							
18	107	0146	BE	ROS		49	48 58.34	123 17.32	178				PC	✓	
		0149	BO				58.28	18.01		176					
		0152	EN				58.27	18.03							
18	43	0249	BE	ROS		50	49 0.16	123 30.13	191				PC	✓	
		0252	BO				0.18	30.17		187					
		0255	EN				0.20	30.19							
18	42	0323	BE	ROS	US	51	49 1.79	123 26.28	319		150-166	17	PC	✓	
		0328	BO				1.83	26.34		316					
		0347	EN				1.81	26.34							

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This page is for any notes or observations

blue group Experiment 10 trace 428-437

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Month JUNE				Year 2016			Ship VECTOR				Cruise ID 2016-07				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
18	41	0433	BE	ROS		52	49 3.25	123 22.29	240				PC	✓	
		0437	BO				3.23	22.29		238					
		0442	EN				3.25	22.30							
18	41	0445	BE	NET		53	49 3.24	123 22.32	241		—		SR		
		0453	BO				3.24	22.33		231					
		0458	EN				3.24	22.33							
18	108	0519	BE	ROS		54	49 4.36	123 19.12	93				PC	✓	
		0521	BO				4.36	19.13		92					
		0523	EN				4.36	19.14							
18	37	0645	BE	ROS		55	49 13.65	123 20.60	210				PC	✓	
		0649	BO				13.65	20.56		209					
		0653	EN				13.66	20.55							
18	38	0732	BE	NET		56	49 12.021	123 26.357	305				SR		
		0740	BO				49 12.023	123 26.362		270	—				
		0744	EN				49 12.017	123 26.381							

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							Latitude	Longitude							
18	38	0752	BE	ROS		57	49° 12.04	123° 26.42	308				SR	✓	
		0758	BO				12.05	26.45		304					
		0803	EN				12.05	26.46							
18	39	0842	BE	ROS	US	58	49° 9.79	123° 32.98	383		167-188		SR	✓	
		0849	BO				9.77	32.97		374					
		0910	EN				9.74	32.91							
18	40	0922	BE	NET		59	49 08.604	123 36.758	152				SR		
		0927	BO				49 08.607	123 36.766		142					
		0929	EN				49 08.612	123 36.767							
18	40	1043	BE	ROS		60	49° 8.62	123° 36.77	152				SR	✓	
		1046	BO				8.62	36.77		147					
		1048	EN				8.62	36.77							
18	GE01	1151	BE	NET		61	49° 14.987	123° 44.920	410				SR		
		1204	BO				14.987	44.920		400					
		1210	EN				49 14.989	44.918							

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							Latitude	Longitude							
14	26	1240	BE	ROS		62	49° 14.28	123° 50.77	254				SR	✓	
		1245	BO				14.28	50.77		249					
		1248	EN				14.29	50.78							
14	26	1259	BE	DRF		63	49° 14.289	123° 50.822					Drifters		452, 488, 451, 490, 489.
14	265	1335	BE	ROS		64	49° 16.69	123° 49.44	412				SR	✓	
		1343	BO				16.68	49.42		407					
		1349	EN				16.67	49.45							
14	27	1414	BE	ROS	US	65	49° 19.10	123° 47.98	347		189-205		SR	✓	
		1422	BO				19.10	47.98		342					
		1441	EN				19.09	47.99							
14	215	1526	BE	ROS		66	49° 21.75	123° 46.59	108				SR	✓	
		1528	BO				21.74	46.58		105					
		1530	EN				21.74	46.58							
14	28	1600	BE	NET		67	49° 24.153	123° 45.305	133				SR+JH		
		1603	BO				49 24.156	45.321		120					
		1605	EN				49 24.152	45.332							

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							Latitude	Longitude							
18	24	1614	BE	ROS		68	49° 24.15	123° 45.37	134				SR	✓	
		1615	BO				24.15	45.37		130					
		1617	EN				24.15	45.37							
18	24	1754	BE	ROS		69	49° 30.28	124° 5.96	425				SR	✓	
		1801	BO				30.27	5.98		420					
		1808	EN				30.26	6.01							
18	24	1816	BE	NET		70	49 30.247	124 06.038	420				SR + JH		
		1828	BO				49 30.234	124 06.069		410					
		1834	EN				49 30.229	06.089							
18	25	1859	BE	ROS		71	49 27.72	124 7.41	290				PC	✓	5 m off bottom according to altimeter
		1904	BO				27.71	7.43		290					
		1909	EN				27.70	7.44							
18	2	1937	BO	ROS	US	72	49 24.11	124 9.25	274		206-221	16	PC	✓	
		1941	BE				24.11	9.28		272					
		1957	EN				24.06	9.33							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
18	CPF1	2027	BE	ROS	US	73	49 22.04	124 5.09	242		222-274	3	PC	✓	collect water @ sfc
		2032	BO				22.03	5.08		239					10-20 ghl for
		2038	EN				22.01	5.05							net
18	CPF1	2043	BE	NET		74	49 21.99	124 5.05	241				SR		
		2050	BO				21.98	5.06		231					
		2054	EN				21.98	5.07							
18	1	2131	BE	ROS		75	49 20.33	124 12.06	245				PC	✓	fluorescence max
		2135	BO				20.32	12.10		244					@ 20 m
		2139	EN				20.32	12.13							
18	4	2231	BE	ROS		76	49 24.55	124 22.17	345				PC	✓	
		2237	BO				24.55	22.14		340					
		2243	EN				24.56	22.13							
18	3	2302	BE	ROS	US	77	49 26.59	124 20.41	328		225-241	17	PC	✓	
		2308	BO				26.57	20.43		324					
		2325	EN				26.55	20.44							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
19	BS11	0105	BE	ROS	US	78	49 28.96	124 45.96	61		241-249	9	R	✓	
		0107	BO				28.96	45.97		58					
		0114	EN				28.99	45.94							
19	BS11	0143	BE	NET		79	49 29.00	124 45.98	61				SR		
		0145	BO				29.00	45.99		51					
		0146	EN				29.01	45.99							
19	CPE2	0255	BE	NET		80	49 28.02	124 30.04	325				R	✓	
		0306	BO				28.01	30.00		315					
		0310	EN				28.01	29.99							
19	CPE2	0317	BE	ROS		81	49 28.01	124 30.00	325				R	✓	
		0323	BO				28.02	29.98		322					
		0328	EN				28.00	29.99							
19	6	0351	BE	ROS	US	82	49 30.61	124 27.85	191		250-263	14			pressure 0.7 on deck
		0354	BO				30.60	27.85		189					
		0407	EN				30.58	27.81							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
19	7	0439	BE	ROS		83	49 34.42	124 24.22	350				RE	✓	
		0446	BO				34.43	24.20		348					
		0452	EN				34.42	24.19							
19	8	0539	BE	ROS		84	49 39.32	124 32.98	335				RE	✓	
		0545	BO				39.32	33.00		334					
		0551	EN				39.31	33.01							
19	9	0630	BE	ROS	US	85	49 35.50	124 38.32	166		264-276	13	RE	✓	
		0633	BO				35.50	38.31		165					
		0647	EN				35.47	38.32							
19	10	0744	BE	ROS		86	49 40.71	124 47.21	100				SR	✓	
		0746	BO				40.72	47.27		97					
		0747	EN				40.72	47.28							
19	11	26	BE	NET		87	49 42.368	124 43.383	300				SR, JH		
		36	BO				49 42.353	124 43.389		290					
		40	EN				49 42.350	124 43.390							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
19	12	0859	BE	ROS	US	88	49° 43.58	124° 40.84	358		277-293	17	SR	✓	
		0907	BO				43.58	40.84		352					
		0927	EN				43.58	40.84							
19	11	1035	BE	ROS		89	49° 42.38	124° 43.41	304				SR	✓	
		1040	BO				42.38	43.41		299					
		1045	EN				42.39	43.40							
19	13	1219	BE	ROS		90	49° 55.30	124° 55.18	240				SR	✓	
		1223	BO				55.32	55.19		234					
		1226	EN				55.33	55.19							
19	14	1300	BE	NET		91	49 53.011	124 59.583	313				SR, JH		≈ 50 ml of water
		13 09	BO				53.001	59.578		303					was lost when
		13 13	EN				52.990	59.602							opening the cod ends
19	14	1359	BE	ROS	US	92	49° 53.00	124° 59.62	316		294-307	16			
		1406	BO				53.00	59.60		312					
		1424	EN				52.99	59.64							

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							Latitude	Longitude							
19	15	1510	BE	ROS		93	49° 51.62	125° 1.56	132				SR	✓	
		1513	BO				51.62	1.55		129					
		1514	EN				51.62	1.55							
						94									
19	21	1632	BE	ROS		94	50° 2.07	125° 13.60	83				SR	✓	
		1634	BO				2.06	13.61		79					
		1636	EN				2.06	13.60							
19	16	1725	BE	ROS	us	95	49° 57.72	125° 8.86	156		308-319	12	SR	✓	
		1728	BO				57.72	8.85		151					
		1742	EN				57.72	8.85							
19	17	1819	BE	ROS		96	49° 58.80	125° 4.31	264				SR	✓	
		1824	BO				58.80	4.31		259					
		1828	EN				58.80	4.31							
19	0039	1856	BE	ROS		97	50 1.83	125 5.51	267				SR	✓	
		1900	BO				1.84	5.51		266					
		1904	EN				1.83	5.52							

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							Latitude	Longitude							
19	18	19 39	BE	ROS		98	49 59.23	124 58.89	138				PC	✓	
		19 41	BO				59.23	58.88		136					
		19 44	EN				59.22	58.87							
19	19	20 16	BE	ROS		99	50 1.19	124 52.91	270				PC	✓	
		20 21	BO				1.21	52.90		265					
		20 25	EN				1.24	52.88							
19	OKE	21 37	BE	ROS		100	50 1.74	124 43.95	133		320 - 330	11	PC	✓	
		21 40	BO				1.75	43.94		129					
		21 50	EN				1.75	43.93							
19	Swim	1550	BE	MOB		101	50 4.78	124 47.61							Men ^{Woman} Overboard PCN - PC, SP, FL 17C in situ sampling
20	20	0200	BE	ROS		102	49 47.22	124 32.33	310				PC	✓	
		0206	BO				47.21	32.32		310					
		0211	EN				47.20	32.31							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
20	22	0334	BE	NET		103	49 40.20	124 16.32	355				SR		
		0346	BO				40.20	16.30		345					
		0351	EN				40.20	16.29							
20	22	0359	BE	ROS	US	104	49 40.19	124 16.29	355		331-333	3	PC	✓	
		0405	BO				40.20	16.28							
		0413	EN				40.20	16.27							
20	24	0704	BE	ROS		105	49° 24.16	123° 45.43	135				SR	✓	
		0707	BO				24.16	45.46		131					
		0710	EN				24.16	45.46							
20	25	0733	BE	ROS		106	49° 21.80	123° 46.58	112				SR	✓	
		0735	BO				21.80	46.57		109					
		0736	EN				21.79	46.57							
20	27	0805	BE	ROS	US	107	49° 19.19	123° 48.01	352		334-340	7	SR	✓	
		0812					19.19	48.08		348					
		0825					19.19	48.13							

Cast Type:

BOT = Bottle cast, no CTD
CTD = CTD without Rosette
ROS = Rosette plus CTD
SET = Fish Set

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

Bottle Firing Method:

US = Up / Stop
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

Transmissometer & Fluorometer are to be cleaned before each cast

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Notes:

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month				Year				Ship				Cruise ID			
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
20	265	0909	BE	ROS		108	49° 16.69	123° 49.52	413		/	/	SR	✓	
		0915	BO				16.71	49.53		408					
		0921	EN				16.72	49.53							
20	26	0942	BE	ROS		109	49° 14.27	123° 50.80	243		/	/	SR	✓	
		0946	BO				14.26	50.82		240					
		0950	EN				14.27	50.81							
20	GI-01	1405	BE	ROS		110	48° 45.83	123° 20.58	68		/	/	SR	✓	
		1407	BO				45.82	20.57		63					
		1408	EN				45.82	20.57							
20	GI-01	1416	BE	NET		111	48° 45.823	123° 20.574	68		—	—	SL, JH		
		1418	BO				45.824	20.575		57					
		1419	EN				45.824	20.571							
20	SC-04	1447	BE	ROS		112	48° 43.49	123° 24.87	85		/	/	SR	✓	
		1449	BO				43.	24.		82					
			EN				43.	24							

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