

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2010-20

DATE:

From: 22 JUNE 2010 to: 27 JUNE 2010

VESSEL:

CCGS JOHN P. TULLY

PROJECT(S):

STRAIT OF GEORGIA / JUAN DE FUCA STRAIT
.....
WATER PROPERTIES SURVEY

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

WaterProperties.ca

Captain: ANDY QUAYE First Officer: RONA
Second Officer: CORY Third Officer: _____
Fishing Master: _____

Mission Participants / Agencies: _____

Scientific Personnel:			Chief Scientist: <u>PETER CHADDLER</u>		
Name	Watch	Cabin	Name	Watch	Cabin
<u>PETER CHADDLER</u>	<u>Day</u>	<u>A</u>			
<u>RON LINDSAY</u>	<u>1</u>	<u>B</u>			
<u>EUGENYIA PETROVA</u>	<u>2</u>	<u>C</u>			
<u>DAVID TIMOTHY</u>	<u>2</u>	<u>D</u>			
<u>CHESTER STANLEY</u>	<u>Day</u>	<u>E</u>			
<u>SCOTT ROSE</u>	<u>2</u>	<u>F</u>			
<u>MELISSA WENNEKES</u>	<u>1</u>	<u>G</u>			
<u>TANIA BURR</u>	<u>1</u>	<u>H</u>			

Second leg of Mission:			Chief Scientist: _____		
Name	Watch	Cabin	Name	Watch	Cabin

Data logging computer: _____
Data acquisition program: _____
CTD deck unit make: _____ model: _____ serial number: _____

Primary 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?

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

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Month June				Year 2010		Ship CCGS John D. Tully				Cruise ID 2010-20					
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							
23	SI 1	0226	BE	RDS	US	1	48° 39.40	123° 30.03	176		1-9	9		✓	using 3x fluorometer cable
		0229	BO				48° 39.41	123° 30.03		100					
		0241	EN				48° 39.48	123° 30.05							
23	58	0442	BE	RDS		2	48° 43.05	123° 14.27	344					✓	
		0450	BO				48° 43.03	123° 14.28		339					
		0456	EN				48° 42.98	123° 14.26							
23	59	0703	BE	RDS	US	3	48° 37.84	123° 14.62	230		10-23		RM	✓	
		0708	BO				48° 37.80	123° 14.57		225					To 100 + back to 125 for bottle fixes
		0730	EN				48° 37.77	123° 14.60							
23	60	0812	BE	RDS		4	48° 33.85	123° 12.79	293				RM+T	✓	
		0818	BO				48° 33.86	123° 12.83		288					5000d-wire and 174m + restrained
		0826	EN				48° 33.83	123° 12.8							
23	61	0923	BE	RDS		5	48° 29.20	123° 09.3	282				RM+T	✓	
		0930	BO				48° 29.21	123° 09.28		275					
		0935	EN				48° 29.22	123° 09.26							
23	101	1658	BE	RDS		6	48° 25.39	124° 45.253	230				RM+T	✓	
		1707	BO				48° 25.38	124° 45.30		217					
		1714	EN				48° 25.36	124° 45.3							

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USW = Sea Water Loop
MOR = Mooring
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DRF = Drifter

Bottle Firing Method:

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Transmissometer to be cleaned before each cast, do not use Ammonia products

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- sig. gills @ 18:30 - fair weather
- test station Danish belt, Fluorescence cable 3x, bottle 1 vent left open

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month			Year			Ship			Cruise ID						
JUNE			2010			Twilight			2010-20						
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							
23	102	18.00	BE	ROS	US	7	48° 30.06	124° 44.03	254	248	24-38		AMT	✓	bottle 13 leaking
		18.08	BO				48° 30.06	124° 43.57							
		18.28	EN				48° 30.23	124° 43.96							
23	103	1924	BE	ROS		8	48° 32.97	124° 42.85	123			50		✓	
		1927	BO				48° 32.95	124° 42.82		118					
		1930	EN				48° 32.96	124° 42.76							
23	76	2041	BE	ROS		9	48° 31.43	124° 29.84	89			SR		—	
		2044	BO				48° 31.37	124° 29.78		82					
		2046	EN				48° 31.36	124° 29.75							
23	75	2133	BE	ROS		10	48° 28.15	124° 32.63	220		39-52	SR		✓	Bottle 13 leaking
		2139	BO				48° 28.16	124° 32.61		215					Bottle 3's vent
		2201	EN				48° 28.19	124° 32.56							WASN't tight enough
23	74	2242	BE	ROS		11	48° 25.10	124° 35.62				SR		✓	pH sensor cap was lost
		2248	BO				48° 25.04	124° 35.64							Left on!
		2252	EN				48° 25.01	124° 35.62							
24	73	0131	BE	ROS		12	48° 15.01	124° 6.68	162			SR		✓	Bottle 3 replaced
		0134	BO				48° 15.01	124° 6.76		157					
		0138	EN				48° 15.02	124° 6.83							

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MR = Messenger Release Time
RE = Recover Mooring Time

Notes:

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Month		Year		Ship		Cruise ID									
JUNE		2010		Tully		2010									
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							
24	73	0142	BE	ROS		126?	48°14.96	124°6.95	163	5	53	1	SR	X	→
24	72	0313	BE	ROS	US	13	48°18.56	124°4.10	187		54-66	13	SR	✓	Cond cell # 2280
		0316	BO				48°18.54	124°4.12		179					removed, Cond
		0332	EN				48°18.46	124°4.36							Cell # 1764 installed
24	71	0416	BE	ROS		14	48°22.21	123°59.59			67	1	SR	✓	
		0419	BO				48°22.20	123°59.61							
		0423	EN				48°22.23	123°59.62							
24	70	0554	BE	ROS		15	48°19.18	123°43.13	155		—	—	SR	✓	
		0557	BO				48°19.14	123°43.20		148					
		0661	EN				48°19.13	123°43.25							
24	69	0712	BE	ROS	US	16	48°15.56	123°43.04	178		68-79	12	RM at	✓	
		0716	BO				48°15.54	123°43.10		173					
		0731	EN				48°15.57	123°43.18							
24	68	0800	BE	ROS		17	48°12.23	123°42.99	142		—		RM at	✓	
		0804	BO				48°12.22	123°43.03		135					
		0807	EN				48°12.22	123°43.03							
24	105	10:08	BE	ROS		18	48°10.97	123°19.01	87		—		RM at		
		10:11	BO				48°10.98	123°19.01		82					
		10:13	EN				48°10.97	123°19.01							

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I forgot to trip a bottle @ 5m for HPICs @ station 73, so Event 12b was just a bottle per
A tie-wrap was side loading Temp 2 to make it read 99°C constantly. The threshold cond 2's
reading of course.

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JUNE			2010			Tully			2010-20						
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							
24	40CD	10:45	BE	ROS	US	19	48°13.94	123°18.12	120		80-89	10	Rum-T	✓	
		10:48	BO				48°13.96	123°18.11		115					
		11:00	EN				48°13.95	123°18.05							
24	104	11:51	BE	ROS		20	48°20.02	123°18.09	84				Rum-T	✓	
		11:55	BO				48°20.01	123°18.08		81					
		11:57	EN				48°19.99	123°18.09							
24	67	12:27	BE	ROS		21	48°22.74	123°18.22	108				Rum-T	✓	
		12:30	BO				48°22.72	123°18.24		104					
		12:33	EN				48°22.69	123°18.31							
24	66	13:17	BE	ROS		22	48°19.28	123°14.22	161				Rum-T	✓	
		13:20	BO				48°19.27	123°14.26		96					
		13:23	EN				48°19.23	123°14.28							
24	65	14:02	BE	ROS	US	23	48°15.85	123°09.97	126		90-99	10	Rum-T	✓	
		14:06	BO				48°15.87	123°10.05		120					
		14:17	EN				48°15.82	123°10.05							
24	64	15:05	BE	ROS		24	48°12.91	123°06.01	111				Rum-T		
		15:09	BO				48°12.91	123°06.03		106					
		15:11	EN				48°12.92	123°06.07							

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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							
24	63	16:19	BE	ROS		25	48°14.54	122°58.65	155		—	—	RMW	✓	Log Bottom depth after delay is correct
		16:24	BO				48°14.50	122°58.76		150					
		16:27	EN				48°14.52	122°58.79						✓	
24	62	18:04	BE	ROS	US	26	48°22.88	123°02.69	147		100-110	11	RL	✓	
		18:10	BO				48°22.89	123°02.70		142					
		18:22	EN				48°22.89	123°02.74							
24	54	2020	BE	ROS		27	48°26.63	122°44.23	77		—	—	SR	✓	
		2021	BO				48°26.64	122°44.23		71					
		2023	EN				48°26.66	122°44.23							
24	53	2130	BE	ROS		28	48°33.22	122°44.92	61				SR	✓	
		2132	BO				48°33.27	122°44.94		55					
		2133	EN				48°33.30	122°44.95							
	52	2216	BE	ROS		29	48°34.03	122°43.24	89				SR	✓	Windows refresh,
		2218	BO				48°39.03	122°43.21		85					no problems though
		2220	EN				48°39.06	122°43.15							
	51	2327	BE	ROS		30	48°46.14	122°51.43	166				SR	✓	
		2330	BO				48°46.85	122°51.60		161					
		2333	EN				48°46.86	122°51.58							

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Month			JUNE			Year			2010			Ship			Tully			Cruise ID			2010-20		
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															
25	56	0047	BE	ROS	US	31	48°46.66	123° 1.50	187		111-123	13	SR	✓									
		0052	BO				48°46.79	123° 1.44		182													
		0105	EN				48°47.13	123° 1.04															
25	57	0154	BE	ROS		32	48°43.89	123° 8.06	165				SR	✓									
		0156	BO				48°43.82	123° 8.05		160													
		0201	EN				48°43.77	123° 8.02															
25	48	0337	BE	ROS		33	48°51.67	123° 3.44	220				SR	✓									
		0342	BO				48°51.65	123° 3.57		215													
		0346	EN				48°51.63	123° 3.70															
25	47	0418	BE	ROS		34	48°49.26	123° 6.08	182				SR	✓									
		0423	BO				48°49.14	123° 5.96		178													
		0426	EN				48°49.10	123° 5.85															
25	49	0719	BE	ROS	US	35	48°54.97	122°56.69	134		124	1	SR	✓	Bottle 5m								
		0722	BO				48°54.94	122° 59.68		188													
		0727	EN				48°54.91	122°59.67															
25	44	0814	BE	ROS	US	36	48°56.80	123° 05.96	122		125	1	R+M+T	✓	Bottle 5m								
		0817	BO				48°56.78	123° 05.99		117													
		0821	EN				48°56.78	123° 06.01															

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Month			JUNE			Year			2010			Ship			Tully			Cruise ID			Z570-20		
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															
25	45	08:54	BE	Ros	US	37	48° 53.92	123° 08.41	129	124	126	1	R+M+T	✓									
		08:57	BO				48° 53.89	123° 08.42															
		09:00	EN				48° 53.89	123° 08.45															
25	46	09:31	BE	Ros	US	38	48° 51.40	123° 10.74	176	171	127-138	12	R+M+T	✓									
		09:36	BO				48° 51.41	123° 10.75															
		09:50	EN				48° 51.43	123° 10.78															
25	108	12:22	BE	Ros	US	39	49° 0.95	123° 12.92	76	71	139	1	R+M+T	✓									
		12:25	BO				49° 0.95	123° 12.9															
		18:27	EN				49° 0.95	123° 12.9															
25	107	13:07	BE	Ros	US	40	48° 58.40	123° 17.91	180	175	140	1	R+M+T	✓									
		13:11	BO				48° 58.38	123° 17.88															
		13:16	EN				48° 58.34	123° 17.92															
25	43	14:32	BE	Ros		41	49° 0.21	123° 30.17	195	189			R+M+T	✓									
		14:37	BO				49° 0.21	123° 30.14															
		14:40	EN				49° 0.22	123° 30.13															
25	42	15:17	BE	Ros	US	42	49° 1.70	123° 26.22	317	312	141-156	16	R+M+T	✓									
		15:24	BO				49° 1.71	123° 26.19															
		15:45	EN				49° 1.79	123° 26.20															

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June			2010			Tully			2010-20						
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							
25	41	16:38	BE	ROS		43	49° 03.22	123° 22.39	241		—	—	RM-T	✓	
		16:43	BO				49° 03.17	123° 22.48							
		16:49	EN				49° 03.18	123° 22.49							
25	106	17:39	BE	ROS	US	44	49° 04.34	123° 19.05	89		157-159	3	RM+T	✓	
		17:42	BO				49° 04.36	123° 19.08		84					
		17:46	EN				49° 04.37	123° 19.10							
25	37	18:57	BE	ROS		45	49° 13.65	123° 20.65	211			2	SR	✓	2 bottles fired for unofficial sampler
		19:01	BO				49° 13.68	123° 20.61		205					
		19:07	EN				49° 13.71	123° 20.53							
25	38	19:48	BE	ROS		46	49° 11.95	123° 26.41	305			2	SR	✓	"
		19:54	BO				49° 11.93	123° 26.41		300					
		20:00	EN				49° 11.89	123° 26.42							
25	39	20:42	BE	ROS		47	49° 9.89	123° 33.18	376		160-176	17	SR	✓	
		20:50	BO				49° 9.92	123° 33.20		371					
		21:13	EN				49° 10.36	123° 33.54							
25	40	21:57	BE	ROS		48	49° 8.67	123° 36.89	142		—	—	SR	✓	
		22:01	BO				49° 8.66	123° 36.89		135					
		22:03	EN				49° 8.66	123° 36.89							

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							Latitude	Longitude							
25	26	2324	BE	ROS		49	49° 14.27	123° 50.78	256		177	1	SR	✓	
		2330	BO				49° 14.31	123° 50.68		250					
		2335	EN				49° 14.32	123° 50.59							
26	27	0021	BE	ROS		50	49° 19.14	123° 48.19	351		178-193	16	SR	✓	bottle #1 had an open vent
		0027	BO				49° 19.14	123° 48.12		345					
		0647	EN				49° 19.10	123° 48.01							
26	28	0133	BE	ROS		51	49° 24.09	123° 45.31	137		194	1	SR	✓	
		0136	BO				49° 24.10	123° 45.30		132					
		0139	EN				49° 24.12	123° 45.28							
26	24	0323	BE	ROS		52	49° 30.32	124° 5.95	424		195	1	SR	✓	
		0331	BO				49° 30.42	124° 5.81	424	419					
		0339	EN				49° 30.40	124° 5.77		419					
26	25	0413	BE	ROS		53	49° 27.79	124° 7.33	308				SR	✓	
		0420	BO				49° 27.80	124° 7.24		301					
		0425	EN				49° 27.78	124° 7.11							
26	2	0503	BE	ROS		54	49° 24.09	124° 9.37	278		196-210	14	SR	✓	
		0509	BO				49° 24.14	124° 9.31		273					
		0526	EN				49° 24.23	124° 9.31							

Cast Type:

ROS = Rosette plus CTD

CTD = CTD without Rosette

BOT = Bottle cast, no CTD

SET = Fish Set

USW = Sea Water Loop

DRF = Drifter

MOR = Mooring

NET = Plankton Net Haul

Time Code:

BE = Beginning Time of Cast

BO = Bottom Time of Cast

EN = End Time of Cast

Bottom Firing Method:

UN = Up / No stop

DN = Down / No stop

US = Up / Stop

Transmissometer to be cleaned before each cast, do not use Ammonia products

DE = Deployment Time

MR = Messenger Release Time

RE = Recover Mooring Time

Notes:

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month			Year			Ship			Cruise ID			Page			
JUNE			2010			Tuesday			201D-20			10 of 13			
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							
26	1	0615	BE	ROS		55	49° 20.31	124° 12.07	244				SR		May have touched down gently on the bottom
		0620	BO				49° 20.31	124° 12.06		243					
		0626	EN				49° 20.37	124° 12.04							
26	4	0748	BE	ROS		56	49° 24.52	124° 22.21	339				RMT	✓	Reboot - F102 @ NMEA Initializing
		0755	BO				49° 24.51	124° 22.145		334					
		08:01	EN				49° 24.51	124° 22.10							
26	3	09:34	BE	ROS	US	57	49° 26.60	124° 20.27	324		211-226	16	RMT	✓	Delay - wrench problem
		09:42	BO				49° 26.57	124° 20.28		318					
		10:03	EN				49° 26.60	124° 20.23							
26	5	10:58	BE	ROS		58	49° 27.38	124° 30.70	315				RMT	✓	Sndr
		11:04	BO				49° 27.41	124° 30.80		310					
		11:09	EN				49° 27.37	124° 30.80							
26	6	11:41	BE	ROS		59	49° 30.58	124° 27.87	192		227-239	13	RMT	✓	F101-H1
		11:46	BO				49° 30.58	124° 27.83		187					
		12:00	EN				49° 30.58	124° 27.89							
26	7	12:35	BE	ROS		60	49° 34.34	124° 24.22	347				RMT	✓	
		12:42	BO				49° 34.35	124° 24.22		342					
		12:48	EN				49° 34.38	124° 24.20							

Cast Type:
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Bottle Firing Method:
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"Birds nest" with wire on window.

— Souther jumpers between 333 and 315—

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE			Year 2010			Ship Tully			Cruise ID 2010-20						
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							
26	8	13:43	BE	ROS	-	61	49° 39.31	124° 32.99	335			✓	RMT	✓	Station name 270178 as in Hdr
		13:50	BO				49° 39.31	124° 32.95		330					
		13:56	EN				49° 39.30	124° 32.95							
26	9	14:41	BE	ROS		62	49° 35.54	124° 38.26	168		240-251	12	RMT	✓	
		14:45	BO				49° 35.53	124° 38.19		164					
		15:00	EN				49° 35.46	124° 38.21							
26	10	15:58	BE	ROS		63	49° 40.69	124° 47.29	92		-	-	RMT	✓	
		16:01	BO				49° 40.67	124° 47.29		85					
		16:03	EN				49° 40.67	124° 47.29							
26	21	18:57	BE	ROS		64	50° 2.08	125° 13.64	79		-	-	SR	✓	
		18:58	BO				50° 2.08	125° 13.64		73					
		19:00	EN				50° 2.07	125° 13.63							
26	16	19:50	BE	ROS		65	49° 57.70	125° 8.77	153		252-262	11	SR	✓	
		19:53	BO				49° 57.68	125° 8.77		148					
		20:04	EN				49° 57.83	125° 8.80							
26	17	20:36	BE	ROS		66	49° 58.86	125° 4.24	258		278	1	SR	✓	
		20:40	BO				49° 58.84	125° 4.22		253					
		20:44	EN				49° 58.81	125° 4.20							

Cast Type:

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Notes:

Bottle Firing Method:

UN = Up / No stop
DN = Down / No stop
US = Up / Stop

Time Code:

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Transmissometer to be cleaned before each cast, do not use Ammonia products

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STATION NAME "78" in ~~header~~, thought I erased "7". STATION WAS '7'.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month			June			Year			2010			Ship			Twelve			Cruise ID			2010-20		
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															
26	18	2134	BE	ROS		67	49° 59.24	124° 58.90	143		279	1	SR	✓									
		2137	BO				49° 59.23	124° 58.90		138													
		2141	EN				49° 59.23	124° 58.92															
26	19	2226	BE	ROS		68	50° 1.19	124° 52.89	273		280	1	SR	✓									
		2231	BO				50° 1.19	124° 52.81		267													
		2237	EN				50° 1.17	124° 52.66															
27	15	0041	BE	ROS		69	49° 51.63	125° 1.82	117		—	—	SR	✓									
		0043	BO				49° 51.62	125° 1.84		112													
		0045	EN				49° 51.62	125° 1.81															
27	14	0106	BE	ROS		70	49° 53.04	124° 59.58	315		263-277		SR	✓									
		0113	BO				49° 53.06	124° 59.61		310													
		0135	EN				49° 52.97	124° 59.34															
27	13	0218	BE	ROS		71	49° 55.29	124° 55.24	233		—	—	SR	✓									
		0222	BO				49° 55.25	124° 55.22		228													
		0224	EN				49° 55.29	124° 55.20															
27	11	0421	BE	ROS		72	49° 42.36	124° 43.30	301		—	—	SR	✓									
		0426	BO				49° 42.39	124° 43.29		295													
		0431	EN				49° 42.39	124° 43.29															

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Notes:

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Month			Year			Ship			Cruise ID				Page 13 of 13		
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
27	12	0507	BE	ROS	US	73	49° 43.62	124° 40.92	356		278-293	16	SR	✓	
		0513	BO				49° 43.68	124° 40.00		351					
		0535	EN				49° 43.80	124° 40.86							
27	20	0655	BE	ROS	US	74	49° 47.14	124° 32.21	344		294	1	SR	✓	Depth at 307m.
		0703	BO				49° 47.12	124° 32.26		309					
		0709	EN				49° 47.16	124° 32.27							
27	22	0843	BE	ROS		75	49° 40.27	124° 16.34	352		295	1	SR	✓	
		0850	BO				49° 40.25	124° 16.32		347					
		0857	EN				49° 40.25	124° 16.31							
		</													

Cast Type:

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