

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2009-10

DATE:

From:

18 AUGUST

to:

4 SEPTEMBER 2009

VESSEL:

JOHN P. TULLY

PROJECT(S):

LINE P

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

WaterProperties.ca

Captain: BRYAN PENNEL First Officer: CORRIE COLE
Second Officer: SHANE LOUGHLAN Third Officer: STEPHANIE NADEAU
Fishing Master: _____

Mission Participants / Agencies: IOS, UBC, UVic, CWS/EC, OSU

Scientific Personnel:				Chief Scientist:		MARIE		ROBERT		A 0700-1900	
Name		Watch	Cabin	Name		Watch	Cabin				
MARTY	DAVELAAR	06-12	B	JENNIFER	BRUM	18-24	H				
SCOTT	ROSE	12-24	C	MIKE	BENTLEY	BIRDS	UP P				
JANET	BARWELL-CLARKE	NUTS	D	KENDRA	MITCHELL	00-06	UP S				
DAMIAN	GRUNDLE	18-24	E	MICHAEL	ARYCHUK	DMS/P	7				
JOHAN	SCHLIF	00-06	E	HUGH	MACLEAN	00-12	8				
KARINA	GIESBRECHT	06-12	F								
HOLLIE	JOHNSON	12-18	F								
TOBY	WESTBERRY	00-06	G								
GLENN	COOPER	18-24	G								
JODY	WRIGHT	12-18	H								

Second leg of Mission: Chief Scientist:

[illegible]

Data logging computer:

Data acquisition program:

CTD deck unit make: SBE model: 11 serial number: 0619

Primary CTD

Make: Sea-Bird model: 9 serial number: 0585

Primary temperature serial number: 4054

Primary conductivity serial number:	3321
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Secondary temperature serial number: 4700

Secondary conductivity serial number: 1766

Transmissometer: Wet Labs Model: _____

Fluorometer: Model	Seapoint	Cable gain:
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Oxygen sensor: S3F Model: 4
 O2 gauge: 4 O2 gauge: 4

PAR sensor:	Biospherical	Model:
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Other sensors: Altimeter

Other sensors:

Other sensors:

Other sensors:

Secondary CTD

Make: SBE model: 9 serial number: 0550

Primary temperature serial number: 4883

Primary conductivity serial number: 1763

Secondary temperature serial number: 2095

Secondary conductivity serial number: 2754

Transmissometer: Wet Labs Model: _____

Fluorometer: Model Seapoint Cable gain: _____

Oxygen sensor: SPB Model: 43

PAR sensor: _____ Model: _____

Other sensors: _____

Other sensors:

Other sensors: _____

CTD calibration bottle location (height above CTD in metres):

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month AUG				Year 2009			Ship I.A. TULLY				Cruise ID 2009-10				
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	SIO3	2344	BE	ROS		1									Bottle fire control
		2352	BO				48° 35.59	123° 29.99	225	220	1-11	11	SR	✓	not selected
19	SIO3	2355	BO	ROS	US	2	48° 35.59	123° 29.99	225	220	1-11	11	SR	✓	
20		0011	EN				48° 35.59	123° 29.99							
20	SIO3	0108	BE	ROS	US	3	48° 35.59	123° 29.99			12-19	8	SR	✓	
		0111	BO				48° 35.59	123° 29.98							
		0119	EN				48° 35.59	123° 29.96							
20	SIO3	0238	BE	ROS		4	48° 35.59	123° 30.01			0	0	SR		Test cast of FLARE
20	JF1	0806	BE	Loop			48° 15.95	123° 29.90	147		—	—	H.M.		Loop - SAL/CAL/NUIS
20	JF2	1004	BE	Loop			48° 18.02	124° 00.00			—	—	H.M.		Loop - SAL/CAL/NUIS
20	JF3	1156	BE	Loop			48° 26.98	124° 29.95	223		—	—	H.M.		Loop - SAL/CAL/NUIS
20	JF4	13?	BE	Loop			48° 32.40	124° 59.90	59				MD		Loop - SAL/CAL/NUIS
20	P1	1540	BE		US	5	48° 34.65	124° 30.02	110		20	1	H.M.		BOT@ 5m - SAL/CAL/NUIS
		1543	BO				48° 34.66	124° 30.01		100					
		1547	EN				48° 34.67	124° 30.00							
20	P2	1803	BE	ROS	US	6	48° 35.93	125° 59.45	115		21-28	8	H.M.		
		1806	BO				48° 35.95	125° 59.43		105					
		1815	EN				48° 35.99	125° 59.38							

EVENT 1 & 2 - 1 is DOWNCAST
2 is UPGAST } SEQUENTIAL SET TO 'NONE'

EVENT 4 - COMPUTER FROZE - REBOOT

- P1 - COMPUTER FROZE - HAD TO REBOOT (DISCONNECT NMEA)

- P2 - ALL OK

*Expanded
2009-10-0009

Pressure @ surf 2.9

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Month <u>AUG</u>				Year <u>2009</u>			Ship <u>TULLY</u>				Cruise ID <u>2009-10</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							
20	P2	1924	BC	NET		7	48 35.85	125 59 42	115				S.R	✓	BONGO TO 10m OFF BOTTOM
		1931	BO				48 35 86	125 59 43							
		1932	EN				48 35 86	125 59 43							
20	P2	2039	BC	ROS		8	48° 35.89	125° 59.44	115	105	29-39	11	SR	✓	Forgot to trip surface bottle. Sorry
		2041	BO				48° 35.89	125° 59.44							
		2053	EN				48° 35.88	125° 59.44							
21	P3	0515	BE	ROS		*	48 37.52	126 20.03	810		Sample # 40	1	SR	✓	
		0527	BO				48 37.51	126 20.01							
		0540	EN				48 37.51	126 20.02							
21	P3 1/2	0904	BC	NET		9	48° 37.96	126° 32.66	1337				H.M.		TOWNS NET Tow
		0912	BO				48° 37.89	126° 32.72							BIG WHITE NET →
		0943	EN				48° 37.05	126° 33.61							2 KITS - 1/2 HOUR
21	P4	1043	BC	ROS	U.S	10 *	48° 38.98	126° 40.10 *	1321		41-64	24	H.M		UBC DEEP CAST →
		1105	BO				48 38.10	126 40.04		1300					
		1133	EN				48° 39.01	126° 39.96							
21	P4	1238	BC	ROS	U.S	11	48° 38.98	126° 39.96	1312						UBC SHALLOW CAST
		1257	BO				48° 38.98	126° 39.94		1000	65-83	19	H.M		NMCA FIXED
		1320	EN				48° 39.01	126° 39.91							

Cast Type:

BOT = Bottle cast, no CTD
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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:

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

Produced by the Water Properties Group, IOS

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— P $3\frac{1}{2}$ - JOHNS NET TOW - DOWN TO 200m - Tow FOR 10m UP TO 150m Tow FOR 10m UP TO 100 Tow FOR 10m

P4. DATE ON NMEA STRING JAN 24/1944 - LAB GPS HOOPED / LATs & LONGS FROM BRIDGE

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Month <u>AUG</u>				Year <u>2009</u>			Ship <u>TULLY</u>				Cruise ID <u>2009-10</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							
21	P4	1541	BE	ROS	U.S.	12	48° 39.32	126° 39.23	1301		94-102	19	H.M.	✓	
		1605	BO				48° 39.20	126° 39.11							
		1642	EN				48° 39.13	126° 39.32							
21	P4	1709	BE	NET		13	48° 39.08	126° 39.33	1311		—	—	H.M.		BONGO
		1713	BO				48° 39.08	126° 39.36		250					
		1735	EN				48° 39.07	126° 39.60							
21	P4	1751	BE	ROS	U.S.	14	48° 39.03	126° 39.96	1300	200	103-115	13	H.M.	✓	AMS CAST
		1756	BO				48° 39.02	126° 39.97							
		1813	EN				48° 38.94	126° 40.01							
21	P4	1926	BE	ROS	US	15	48° 38.99	126° 39.96	1313	600	116-135	20	SR	✓	
		1935	BO				48° 38.97	126° 40.00							
		1956	EN				48° 38.97	126° 39.99							
21	P5	2229	BE	ROS	US	16	48° 41.48	127° 9.87	2084	2005	136-	1	SR	✓	Waited @ bottom to test
		2253	BO				48° 41.50	127° 9.94							heave comp for Bosun
		2323	EN				48° 41.47	127° 9.97							for ≈ 4 min
22	P6	0213	BE	ROS	US	17	48° 44.58	127° 39.93	2542	2005	137	1	SR	✓	The Ch. Eng wanted to
		0252	BO				48° 44.60	127° 39.98							stop @ 500m, 1000m
		0314	EN				48° 44.61	127° 39.98	*Stopped @ 730m for winch check					2000m	for boom pressure measurements

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This page is for any notes or observations

- COMPUTER FROZE

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month AUG				Year 2009			Ship TULLY				Cruise ID 2009-10					
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								
22	P7	0554	BE	ROS	US	18	48°46.61	128° 9.95	2503	2005	138	1	SR	✓		decent rate to high
		0620	BO				48°46.59	128° 9.95								at the start
		0639	EN				48°46.61	128°10.00								
22	P8	1008	BC	NET		19	48°48.85	128° 37.74	2523							
		1015	BO				48°48.86	128° 38.00		200			H.M.			White NET to 200, 150, 100 for 10m CA depth
		1047	EN				48°48.89	128° 39.84								
22	P8	1117	BC	ROS		20	48°48.97	128° 39.95	2517							
		1158	BO				48°48.98	128° 39.99		2005	139-158	20	H.M.	✓		
		1256	EN				48°49.01	128° 40.03								
22	P8	1315	BC	NET		21	48°49.14	128° 39.88	2515							
		1322	BO				48°49.10	128° 39.89		250			H.M.			Bo. N60
		1333	EN				48°49.09	128° 40.04								
22	P9	1740	BC	ROS		22	48°51.37	129° 09.96	2315							
		1811	BO				48°51.38	129° 10.04		2005	159	1	H.M.	✓		1 Bot + 1 Loop - Sal/Cdc/MORS
		1849	EN				48°51.38	129° 9.99								
22	P10	2316	BE	ROS		23	48°53.60	129° 39.92	2642		160	1	SR	✓		
		2336	BO				48°53.61	129° 39.94								
		2355	EN				48°53.60	129° 39.98								

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Month <u>AUG</u>				Year <u>2009</u>			Ship <u>TULLY</u>				Cruise ID <u>2009-10</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								
23	P11	0404	BE	ROS	US	24	48° 55.99	130° 9.89	2752	2005	161	1	SR	✓		LARS pressure reading
		0434	BO				48° 55.88	130° 9.82								@ 500, 1000, 1500.
		0454	EN				48° 55.89	130° 9.87								+ 2000m down + up
23	P12	0859	BE	NET		25	48° 57.65	130° 37.70	3520							
		0906	BO				48° 57.67	130° 38.07		200	—	—	H.M.			WHITE NET TOW 10 min @ 200, 150, 100m
		0940	EN				48° 58.02	130° 39.80								
23	P12	1004	BE	ROS		26	48° 58.14	130° 39.97	3236							
		1041	BO				48° 58.17	130° 40.02		2000	162-185	24	H.M.	✓		UBC DEEP CAST
		1117	EN				48° 58.20	130° 40.00								
23	P12	1131	BE	NET		27	48° 58.17	130° 40.00	3238							
		1137	BO				48° 58.15	130° 40.05		250	—	—	H.M.			BONGO
		1150	EN				48° 58.14	130° 40.10								
23	P12	1217	BE	ROS		28	48° 58.19	130° 40.01	3236							
		1234	BO				48° 58.21	130° 39.99		1000	186-201	16	H.M.	✓		UBC SHALLOW CAST
		1254	EN				48° 58.20	130° 40.03								
23	P12	1344	BE	ROS		29	48° 58.13	130° 40.07	3236				H.M.	✓		10S DEEP CAST
		1446	BO				48° 58.20	130° 40.03		3276	202-224	23				
		1608	EN				48° 58.21	130° 39.94								

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— 109 DEEP CAST - COMPUTER FROZE

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Month <u>AUG</u>				Year <u>2009</u>			Ship <u>TULLY</u>				Cruise ID <u>2009-10</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							
23	P12	1735	BE	ROS	U.S.	30	48° 58.19	130° 40.02	3233				H.M	✓	DMS CAST
		1740	BO				48° 58.23	130° 39.99		200	225-237	13			PAR ON
		1757	EN				48° 58.22	130° 39.99							
23	P12	1835	BE	ROS	U.S.	31	48° 58.21	130° 40.00	3233		238-251	14			Winch overshot 7.5m
		1845	BO				48° 58.22	130° 40.02		600			H.M	✓	LIGHT CAST bottle
		1904	EN				48° 58.22	130° 40.02							
24	P13	0113	BE	ROS		32	49° 2.63	131° 40.06	3033	2005	252	1	SR	✓	Paused @ 500, 1000, 1500
		0139	BO				49° 2.62	131° 40.07							+2000m for test to LARS
		0159	EN				49° 2.66	131° 40.05							→
24	P14	0642	BE	ROS		33	49° 7.42	132° 40.01	3270	2005	253	1	SR	✓	Paused @ 910m for
		0714	BO				49° 7.35	132° 39.90					H.M		CREW CHANGE
		0747	EN				49° 7.37	132° 39.98							→
24	P15	1246	BE	ROS		34	49° 12.04	133° 39.92	3717		254	1	H.M	✓	COMPUTER FROZE
		1323	BO				49° 12.00	133° 39.97		2005					* →
		1355	EN				49° 11.96	133° 39.95							
24	P16	2110	BE			35	49° 16.70	134° 43.15	3635	200	255-267	13	SR	✓	
		2114	BO				49° 16.71	134° 43.18							* →
		2128	EN				49° 16.70	134° 43.18							

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P13 chlorophyll for both loop & 5 meter filtered at 8:30 AM next day local time

P14 chloro filtered @ 8:30 AM local time

P15 - REGENERATED AFTER P 15

P16 - REGENERATED AFTER P 16

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Month AUG				Year 2009			Ship TULLY				Cruise ID 2009-10				
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	P16	2231	BE	ROS	US	36	49°16.78	134°43.15	3635	600	268-286	19	SR	✓	
		2240	BO				49°16.78	134°43.15							
		2255	EN				49°16.78	134°43.19							
25	P16	0102	BE	ROS	US	37	49°16.72	134°43.12	3695	3685	287-310	24	SR	✓	
		0151	BO				49°16.65	134°43.05							
		0308	EN				49°16.39	134°43.18							
25	P18	2124	BE	ROS	US	38	49°25.99	136°39.96	3872	2005	311	1	SR	✓	
		2203	BO				49°26.00	136°39.95							
		2227	EN				49°25.98	136°39.94							
26	P19	0338	BE	ROS	US	39	49°30.01	137°39.90	3928	2005	312	1	SR	✓	Switched to aft deck
		0405	BO				49°29.99	137°39.78							
		0429	EN				49°30.17	137°39.45							
26	P20	0926	BE	NET		40	49°33.91	138°39.74	3966						
		0931	BO				49°33.79	138°39.52		200			H.M.		WHITE NET TO 200, 150, 100 FOR 10min GO DEPTH
		0959	EN				49°33.25	138°38.28							
26	P20	1040	BE	ROS		41	49°34.04	138°40.00	3968						
		1113	BO				49°34.01	138°39.99		2000	313-336	24	H.M.	✓	VBC DEEP CAST
		1152	EN				49°33.98	138°40.04							

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Month <u>AUG</u>				Year <u>2009</u>			Ship <u>TULLY</u>				Cruise ID <u>2009-10</u>				
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							Latitude	Longitude							
26	P20	1210	BC	NET		42	49° 34.01	138° 39.92	3986	250	—	—	H.M.		BONGO (NEW NET)
		1215	BO				49° 34.00	138° 39.87							
		1225	EN				49° 33.92	138° 40.03							
27	P26	1204	BC	NET		43	49° 59.38	144° 52.17	4226						WHITE NETS 200. 150 100m FOR 10min EACH
		1210	BO				49° 58.45	144° 52.25		200					
		1239	EN				50° 00.25	144° 53.54							
27	P26	1316	BC	ROS		44	49° 59.97	145° 00.14	4295		337-360	24	H.M.	✓	105 DEEP CAST
		1428	BO				49° 59.99	145° 00.07		4317					* →
		1624	EN				50° 00.01	145° 00.01							
27	P26	1723	BC	NET		45	50° 00.0158	145° 00.0042	4290		—	—	H.M.		BONGO TO 250m
		1734	BO				50° 00.01	144° 59.93		250					
		1737	EN				50° 00.00	144° 59.91							
27	P26	1754	BE	ROS		46	49° 59.99	145° 00.02	4226					✓	UBC Deep Cast
		1826	BO				50° 00.01	144° 59.97			361-384	24	SR		
		1900	EN				50° 0.01	144° 59.88							
27	P26	2000	BE	ROS		47	50° 0.02	144° 59.90	4226	1800	385-404	20	SR	✓	PAR ON
			BO				50° 0.03	144° 59.91							AFTER CAST
			EN				50° 0.03	144° 59.89							

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WINCH SPOOLING PROBLEMS BETWEEN 275m - 400m YO-YO'D CAST FOR 10 min TO TRY AND FIX (BIG FILE)

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							Latitude	Longitude							
27	P26	2218	BE	ROS	US	48	49° 59.99	144° 59.90	4272	200	405-422	19	SR	✓	Triped bot @ 15m
		2221	BO				49° 59.99	144° 59.90							when it should
		2244	EN				49° 59.98	144° 59.89							have been @ 10
28	P26	0036	BE	ROS	US	49	49° 59.98	144° 59.99	4272	600	423-446	24	SR	✓	Trip 17 to fix it
		0047	BO				49° 59.94	144° 59.95							
		0112	EN				50° 00.00	144° 59.98							
28	P26	0159	BE	NET		50	50° 00.01	145° 00.03	4272	1000			SR	✓	
		0219	BO				49° 59.99	145° 00.16							
		0233	EN				50° 00.00	145° 00.23							
28	P26	0337	BE	ROS		51	50° 0.02	144° 59.96	4272	4000	447-465	19	SR	✓	PAR OFF
		0443	BO				49° 59.74	145° 0.08							
		0547	EN				49° 59.63	145° 0.51							
28	MOORING	0730	BE	ROS		52	50° 09.34	144° 48.62	4275		466-470	5	H.M.	✓	MOORING SITE ROSETTE
		0738	BO				50° 09.31	144° 48.66							NO PAR (NIGHT)
		0751	EN				50° 09.33	144° 48.64							
28	P35	1053	BE	ROS		53	50° 00.08	144° 18.12	4149		471	1	H.M.		ROSETTE - SAL/CH/NOTS
		1126	BO				50° 00.02	144° 18.14		2005					
		1207	EN				50° 00.00	144° 18.16							

This page is for any notes or observations

1 WINCH WINDING PROBLEMS - YO YU (BIG FILE)

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month AUG			Year 2009				Ship Tully				Cruise ID 2009-10				
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							
28	P25	1518	BE	ROS		54	50°00.04	143°36.33	4132		472	1	H.M.	✓	BOT @ 5m - SAL/CHL/NTS
		1552	BO				50°00.00	143°36.32		2005					+ LOOP
		1626	EN				50°00.00	143°38.26							
28	P24	2044	BE	ROS	US	55	49°50.23	142°39.94	4057	2005	473-496	24	SR	✓	
		2109	BO				49°50.22	142°40.01							
		2133	EN				49°50.21	142°40.03							
29	P23	0233	BE	ROS		56	49°45.99	141°40.07	4085	2005	497	1	SR	✓	* ->
		0300	BO				49°45.93	141°39.94							+ LOOP
		0327	EN				49°45.89	141°39.87							
29	P22	0849	BE	ROS		57	49°42.05	140°40.09	3975		498	1	H.M.	✓	BOT @ 5m - SAL/CHL/NTS
		0927	BO				49°42.01	140°40.00		2015					* 3
		1002	EN				49°42.00	140°39.98							
29	P21	1440	BE	ROS		58	49°37.95	139°39.89	3960		499	1	H.M.	✓	BOT @ 5m - SAL/CHL/NTS
		1514	BO				49°38.01	139°40.04		2005					
		1548	EN				49°38.02	139°40.04							PAR ON AFTER CAST
29	P20	2014	BE			59	49°33.98	138°39.92	3956	200	500-512	13	SR	✓	
		2017	BO				49°33.98	138°39.95							
		2032	EN				49°34.00	138°39.96							

Cast Type:

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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

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Time Code:

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BO = Bottom Time of Cast

EN = End Time of Cast

DE = Deployment Time

MR = Messenger Release Time

RE = Recover Mooring Time

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 06 March 2008

Notes:

— COMPUTER CRASH - COMPT 1 NOT WORKING - GO TO START RT CLICK MY COMPUTER - DEVICE MANAGER - PT SETTINGS

RT CLK PT 1 - DISABLE - REBOOT ☺ RT CLK PT 1 - ENABLE PT 1

ALL OF ABOVE, THEN...

— COMPUTER FROZE - SAME AS ABOVE

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>Aug</u>		Year <u>2009</u>					Ship <u>Tully</u>			Cruise ID <u>2009-10</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							
29	P20	2112	BE	ROS	US	60	49° 34.02	138° 39.99	3956	600	513-527	15	SR	✓	Take par off after
		2120	BO				49° 34.01	138° 39.98							
		2139	EN				49° 34.04	138° 39.96							
30	P20	0036	BE	ROS	US	61	49° 34.02	138° 39.97	3956	3946	528-551	24	SR	✓	
		0128	BO				49° 34.01	138° 40.01							
		0241	EN				49° 34.00	138° 39.96							
30	P20	0406	BE	ROS	US	62	49° 34.01	138° 39.93	3956	1000	552-567	16	SR	✓	bottle #15 dropped to 11.5 m @ the fire command, so I →
		0421	BO				49° 34.00	138° 39.97							
		0436	EN				49° 34.00	138° 39.91							
30	P20	0702	BO	NET		63	49° 34.23	138° 39.25	3958				H.M.		UNITS NOT TO 200, 50, 100
		0710	BO				49° 34.02	138° 39.56		200					
		0736	EN				49° 33.36	138° 40.49							
30	P19	1142	BO	ROS		64	49° 29.93	137° 39.93	3927		568	1	H.M.	✓	BUT 05m - SAL/CHL/NTS
		1218	BO				49° 29.98	137° 40.02		2005					
		1253	EN				49° 30.09	137° 40.11							
30	P19	1712	BO	ROS		65	49° 26.05	136° 40.04	3835		569	1	H.M.	✓	BUT 05m - SAL/CHL/NTS + LOOPS
		1747	BO				49° 26.02	136° 40.00		2005					
		1821	EN				49° 26.02	136° 40.01							

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—Tripped one more 10m bottle, bottle 1b.

DAILY SCIENCE LOG

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Month				Year				Ship				Cruise ID			
AUG 1				2009				TULLY				2009-10			
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							
30	P17	2239	BE	ROS		66	49 21.01	135 39.97	3561	2005	570-573	4	SR	✓	Bot 3+4 B- Toby
		2305	BO				49 21.01	135 39.94							Bottle #1 tripped @ 2005m
		2330	EN				49 20.99	135 39.94							Bottle #2 for 10S
31	P16	0505	BE	ROS	US	67	49 16.99	134 39.94	3636	2000	573-596	24	SR	✓	Reusing sample #
		0531	BO				49 16.98	134 39.96							573. Marie will
		0555	EN				49 16.98	134 39.97	Flip over +		See comments				correct it later
31	P16	0642	BE	ROS	US	68	49 16.99	134 39.96	3636	1000	597-616	20	SR	✓	
		0655	BO				49 16.93	134 39.99							
		0718	EN				49 16.98	134 39.99							
31	P16	0742	DE	NET		69	49 16.95	134 39.99	3635		—	—	H.M.		BONGO
		0747	BO				49 16.94	134 39.99		250					
		0750	EN				49 16.939	134 39.986							
31	P16	0803	BE	NET		70	49 16.92	134 40.22	3635		—	—	H.M.		WHITE NET - 200, 150, 100
		0807	BO				49 16.92	134 40.29		200					
		0838	EN				49 16.95	134 42.08							
31	P14	1713	BE	ROS		71	49 07.42	132 39.97	3316		617-639	23			
		1747	BO				49 07.40	132 40.00		2005					
		1842	EN				49 07.42	132 39.98							

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DO sensor looked odd on the down cast, but good on the up cast.

