

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2012-01

DATE:

From: 6 FEBRUARY to: 21 FEBRUARY 2012

VESSEL:

J.P. Tully

PROJECT(S):

LINE P

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

WaterProperties.ca

Captain: MIKE CORFIELD
Second Officer: SHAPE LOVELACE
Fishing Master: C/E ROGER HANSON

First Officer: RICHARD MARRIOTT
Third Officer: SIM GARRETT

Mission Participants / Agencies: DFO/IOS, UBC, UVic, Bios, CUNY, RTU

Scientific Personnel: Chief Scientist: MARIK ROBERT 07-19 A

Name	Watch	Cabin	Name	Watch	Cabin
<u>DOUG YELLAND</u>	<u>12-24</u>	<u>B</u>	<u>HUGH MACLEAN</u>	<u>00-12</u>	<u>G</u>
<u>RIHANA BAMS</u>	<u>12-18</u>	<u>C</u>	<u>GILLIAN STEWART</u>	<u>18-24</u>	<u>H</u>
<u>NINA SCHWABACK</u>	<u>18-24</u>	<u>C</u>	<u>MONICA TORRES BELTRAN</u>	<u>00-06</u>	<u>H</u>
<u>KENNY SCORZAFAVA</u>	<u>18-24</u>	<u>D</u>	<u>KYLE SIMPSON</u>	<u>00-06</u>	<u>UP P</u>
<u>GLENN COOPER</u>	<u>06-12</u>	<u>D</u>	<u>MICHAEL ARYCHAVK</u>	<u>12-18</u>	<u>UP S</u>
<u>DOUG BELL</u>	<u>00-06</u>	<u>E</u>			
<u>ROGER KELLY</u>	<u>06-12</u>	<u>E</u>			
<u>PHILIPPE TORTEL</u>	<u>06-12</u>	<u>F</u>			
<u>DAVE CAPELLE</u>	<u>12-18</u>	<u>F</u>			
<u>IAN WYKIE</u>	<u>12-18</u>	<u>G</u>			

Second leg of Mission: Chief Scientist: _____

Name	Watch	Cabin	Name	Watch	Cabin
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Data logging computer: #2
Data acquisition program: Seasave 7.21b
CTD deck unit make: SBE model: 11 serial number: 0471 #2

Primary CTD

Make: SBE model: 9+ serial number: 0443
Primary temperature serial number: 2106
Primary conductivity serial number: 1764
Secondary temperature serial number: 2710
Secondary conductivity serial number: 2128
Transmissometer: Wetlabs Model: C-5ta s/n: 1396DR
Fluorometer: Model Wetlabs ECO Cable gain: 6 s/n: 2215 P, S or NO pump?
Oxygen sensor: SBE Model: 43 s/n: 0097 P, S or NO pump?
PAR sensor: BIO Model: QSP000L45 s/n: 4615
Other sensors: Altimeter s/n: 1204 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?
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: IOS
Volume of bottles (litres): 10L

Winches:

1. Make: H 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: IOS Model: 865+605 Kit Number: #1
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: _____
Sampling interval (seconds): 30
Fluorometer sensor serial number: WS3S-713P

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: 1.2 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>Feb</u>				Year <u>2012</u>			Ship <u>Tully</u>				Cruise ID <u>2012-01</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							
7	S103	2323	BE	ROS		1	48° 35.591	123° 30.100	228				HM	✓	
1		2327	BO				48° 35.608	123° 30.085		217	1-11	11			
		2342	EN				48° 35.614	123° 30.072							All rest @ surf
8	JDF1	0418		UWS			48° 16.0	123° 30.0		0					Loop 1
8	JDF2	0548		UWS			48° 18.0	124° 0.0		0					Loop 2
8	JF 3	0746		UWS			48° 27.0	124° 30.0							
8	JF 4	0950		UWS			48° 32.19	124° 59.41							
8	P1	1156	BO	ROS	US	2	48° 34.56	125° 30.01		114	12-13	2	HM.		
		1202	BO				48° 34.57	125° 29.98		105					
		1205	EN				48° 34.56	125° 29.95							
8	P1	1227		Loop			48° 34.76	125° 34.05							→
8	P2	1413	BO	NET		3	48° 35.93	126° 00.04	115						
		1418	BO				48° 35.92	125° 59.97		105					
		1422	EN				48° 35.89	126° 00.03							
8	P2	1445	BO	ROS	US	4	48° 36.02	126° 00.02	115				HM	✓	Deep cast + HPLC + CHL
		1447	BO				48° 36.01	126° 00.02		106	28-38	11			
		1500	EN				48° 36.00	126° 00.00							
8	?	2038		—	—	—	48° 34.44	124° 54.21		FILE # 002	RESTART TSG (NMCA FAILED)				

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

Bottle Firing Method:

US = Up / Stop
 UN = Up / No stop
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Notes:

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

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TSG started 0057 08/Feb/12 UTC

Loop P1 taken while sailing, not @ PI, so Loop P1 should be called Loop 1

Cast 0004: long time @ surface, pump 2 slow to pick up.

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Month <i>February</i>				Year <i>2012</i>			Ship <i>TULLY</i>				Cruise ID <i>2012-01</i>				
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							
9	P4		BE	ROS	US	5	48 39.034	126 40.016	1490				dy	✓	light cast
		2051	BO				48 39.029	126 40.002		150	39-57	19			
		2110	EN				48 39.016	126 40.045							
10	P4	0001	BE	ROS	US	6	48 39.020	126 39.956	1322					✓	Th+Bo cast
		0013	BO				48 39.011	126 39.982		500	58-81	24			
		0040	EN				48 39.006	126 40.026							
10	P4	0145	BE	PUMP		7	48 38.979	126 40.012							PAR OFF
	P4	0225	EN				48 38.998	126 39.941							Pumping (chain)
10	P4	0240	BE	ROS	US	8	48 38.940	126 40.018	1324					✓	100 deep cast
			BO							13	85-106	22			RETERMINATE
			EN												
10	P4		BE	PUMP		9	48 38.992	126 39.996	1317	200			GS/RK		In-situ pumps (brilliant)
		0840	EN				48° 39.96	126° 39.96					# WEIGHTS		LOST BOTTOM PUMP
10	P4	0853	BE	ROS		10	48° 39.99	126° 40.03	1318				HM	✓	DEEP CAST
		0929	BO				48° 39.02	126° 39.99		1324					
		1029	EN				48° 38.98	126° 39.98							
10	P4	1128	BO	NET		11	48 39.05	126 40.00	1320				H.M		105 BONGO
	P4	1208	BO	NET		12	48 39.04	126 40.06		250			H.M		EMPTY TOW

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Month <u>FEB</u>				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							
10	P4	1237	BE	ROS	U.S.	13	48° 38.99	126° 40.01	1313		107-118	12	H.M.	✓	UVC CAST
		1303	BO				48° 39.02	126° 39.87							
		1337	EN				48° 38.99	126° 39.96							
10	P6	1800	BE	ROS	U.S.	14	48° 44.63	127° 39.95	2541		119-120	2	H.M.	✓	
		1833	BO				48° 44.63	127° 40.02		1505					
		1903	EN				48° 44.60	127° 39.96							
10	P8	2334	BE	ROS	U.S.	15	48° 49.003	128° 40.045	2517				DY	✓	
11		0030	BO				48° 48.998	128° 40.042		2005	121-142	22			
11		0136	EN				48° 49.006	128° 40.003							
11		0200	BE	BOU40		16	48° 49.0173	128° 39.9913	2513				dy		Bouys 250 m
		0210	BO				48° 49.0277	128° 39.9681		250m			KS		
		0214	EN				48° 48.99	128° 39.98							
11	P10	0703	BE			17	48° 53.590	129° 40.020	2637				DY	✓	
		0743	BO				48° 53.560	129° 39.970		1505	143-144	2			
		0822	EN				48° 53.60	129° 40.00							
"	P12	1300	BE	BOT		18	48° 58.15	130° 39.95	2759		145-148	4	KS/HM		X. MISSING DEEP
		1339	BO				48° 58.18	130° 39.97		800					
		1411	EN				48° 58.07	130° 39.97							

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Month Feb				Year 2012			Ship TULLY				Cruise ID 2012-01				
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							
11	P12	1424	BE	ROS	US	19	48° 58.13	130° 39.87	2645		149-172	24	H.M.	✓	T140 Po CAST
		1436	BO				48° 58.18	130° 40.02		500					
		1501	EN				48° 58.20	130° 40.03							
11	P12	1511	BE	BOT		20	48° 58.20	130° 40.02	2645		173-178	4	H.M.		X-NISHIN SHALLOW
			BO							150					
			EN												
11	P12	1610	BE	NET		21	48° 58.20	130° 40.03	2560						
		1620	BO				48° 58.17	130° 40.06		250					IOS Bongo
		1625	EN				48° 58.17	130° 40.09							
11	P12	1631	BE	NET		22	48° 58.18	130° 40.03	3280						
		1640	BO				48° 58.21	130° 40.02		250					CUNY Bongo
		1644	EN				48° 58.23	130° 40.04							
11	P12	1712	BE	ROS	US	23	48° 58.186	130° 40.028	3280		177-195	19	GC	✓	PAR ON LIGHT CAST
		1716	BO				48° 58.126	130° 40.001		150					
		1732	EN				48° 58.165	130° 40.055							
11	P12	1804	BE	PUMP		24	48° 58.25	130° 39.84	3280				KS		TM PUMP
		1840	EN				48° 58.24	130° 39.96		40	196-198	3			

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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								
11	P12	1852	BE	ROS	US	25	48° 58.25	130° 39.95	3233		199-221	23	HA	✓	DEEP CAST	
		2008	BO				48° 58.224	130° 39.948		3276					P=3276 D=3223 S=2234 10 m off	
		2207	EM				48° 58.210	130° 39.965								
11	P12	2218	BE	PUMP		26	48 58.198	130 39.002	3236				GS/REK		IN SITU PUMPS	
		2237	BO							200						
12		0230	EN				48 58.194	130 39.897								
12	P12	0236	BE	ROS	US	27	48 58.195	130 40.028	3233				HA	✓	UBC	
		0324	BO				48 58.182	130 39.972		2005	222-233	12				
		0421	EN				48 58.166	130 40.102								
12	Loop P15	1714		Loop	USV		49° 12.03	133° 39.99	2975				HA		Loop P15	
12	P16	2125	BE	ROS	US	28	49 17.047	134 39.940	3635					✓	PAR on	
		2132	BO				49 17.154	134 39.887		150	234-252	19	DY		LIGHT CAST	
		2150	EN				49 17.144	134 39.896								
12	P16	2205	BE	BOT		29	17.36	40.140	3634		253-256		KS/DY		Go-flos	
		2245	BO				49 17.000	134 40.099		800						
12		2318	EN													
12	P16	2330	BE	ROS	US	30	49 17.01	134 39.97	3634		257-280	24		✓	ThiPs Cast	
		2343	BO				49 17.01	134 39.98		500						
13		0014	EN				49 17.008	134 40.000								

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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							
13	P16	0026	BE	BOT		31	49 17.004	134 40.013	3635				KS DY		TN 60-flos
		0037	BO				49 17.005	134 40.016		150	281-284	4			
		0049	EN				49 16.994	134 40.013							
13	P16	0056	BE	NET		32	49 16.998	134 39.994	3635						Bongo to 250
		0105	BO				49 16.953	134 39.930		250?					IOS Bongo
		0109	EN				49 16.945	134 39.922							
13	P16	0119	BE	NET		33	49 17.008	134 39.968	3635						PAR OFF
		0134	BO				49 17.000	134 40.008		250?					CUNT Bongo
		0141	EN				49 16.98	134 39.92							
13	P16	0200	BE	ROS	US	34	49 16.97	134 40.00	3635						Deep cast
		0322	BO				49 16.987	134 39.996		3684	285-308	24	DY / MK	✓	P = 3684 10m off S = 3634 D = 3623
		0503	EN				49 16.976	134 40.018							
13	P16	0530	BE	PUMP		35	49 16.944	134 40.014					KS DY		
		0537	BO				49 16.700	134 40.050		40m					
		0613	EN				49 16.669	134 40.145							
14	P24	1913	BE	ROS		36	49° 40.20	142° 40.05	3982		312-335	24	H7/DY	✓	CALIBRATION CAST
		1958	BO				49 50.23	142 40.08		2005					
		2049	EN				49 50.28	142 40.08							

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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							
15	P25	0100	BE	ROS	US	37	50 00.12	143 36.331	4205				74	✓	
		0129	BO				50 00.02	143 36.33		1505	336-337	2			
		0204	EN				49 59.986	143 36.454							
15	P26	0838	BE	ROS	US	38	50° 00.00	145° 00.10	4493		340 - 356	17	H.M.	✓	UBC / ONAR
		0924	BO				50° 00.03	144° 59.98		2005					
		1013	EN				50° 00.03	145° 00.01							
15	P26	1112	BO	NET		39	50° 00.00	145° 00.14	4493	1000	—	—	H.M.		DEEP BONGO
		1133	EN				50 00.03	145° 00.18							
15	P26	1200	BE	ROS		40	50° 00.04	145° 00.03	4493		357-361	5	H.M.	✓	DEEP ONAR
		1206	BO				50° 00.01	145° 00.02		200					
		1215	EN				50° 00.02	145° 00.04							
15	P26	1245	BE	BOT		41	50° 00.00	145° 00.08	4308				HS/H.M.		X - MISSING DEEP
		1303	BO				50° 00.00	145° 00.09		800					
		1338	EN				49° 59.99	144° 59.96							
15	P26	1357	BO	NET		42	49° 59.99	144° 59.92	4308		—		H.M.		CUMY BONGO
		1403	EN				50° 00.00	144 59.93		250					
15	P26	1423	BO	NET		43	50° 00.00	144 59.98	4308		—		H.M.		105 BONGO
			EN				50 00.00	144 59 98		250					

Cast Type:

BOT = Bottle cast, no CTD
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 — =

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Notes:

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

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DAILY SCIENCE LOG

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Month <u>Februr</u>				Year <u>2012</u>			Ship <u>TULLY</u>				Cruise ID <u>2012-01</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	P26	1450	BE	ROS	US	44	49° 59.99	144° 59.97	4308	500	386-389	24	ARC	✓	T40/PD CAST
			BO												
		1528	EN				49° 59.99	144° 59.99							
15	P26	1545	BE	BOT		45	49° 59.98	144° 59.12	4308		390-393	F	GC/KS		SHALLOW X-MASKIN
		1552	BO				49° 59.98	144° 59.93		150					
		1608	EN				49° 59.95	144° 59.84							
15	P26	1622	BE	ROS		46	49° 59.99	144° 59.94	4308		394-417	24	NM	✓	R.F. CAST
		1629	BO				50° 00.02	144° 59.98		300					
		1639	EN				49° 59.98	144° 59.92							
15	P26	1704	DE	DRF		47	50° 01.13	144° 57.82	4308				MR		Met Ocean float 17
15	P26	1843	BE	PUMP		48	49° 59.95	144° 59.97	4308	40	418-420	3	KS		MAGNET OFF 1651
15	P26	1853	BE	ROS		49	50° 00.01	144° 59.98	4308		421-434	14	NM	✓	40m END?
		1857	BO				49° 59.99	144° 59.97		150					LIGHT CAST
		1912	EN				49° 59.99	145° 00.00							
15	P26	1952	BE	ROS		50	50° 0.023	145° 0.035	4308				H-7/DT	✓	DEEP IOS CAST
		2152	BO				49° 59.99	144° 59.99		4313					PAR off
		2357	EN				50° 0.02	145° 0.04							+12m P=4232
15	P26	0008	BE	PUMP		51	50° 00.136	145° 00.201	4251	200			GS/RPK		
		0350	EN				50° 00.325	145° 00.774							

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This page is for any notes or observations

17 BE 0938 P
0948. 40

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Month <u>February</u>				Year <u>2002</u>			Ship <u>TULLY</u>				Cruise ID <u>2002-01</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	P26	0028/120	BO	PUMP		52									Chains - bulk water
16	P26	0205/10235		BOAT		53									
16	P26	4:19	DE	DRF		54	50°00.22	145°00.33							Float 7601
16	P26	4:23	DE	DRF		55	50°00.34	145°00.23							Float 7049
16	PA-005	0548	BE	ROS	US	56	50 6.98	144 48.69	4216				DY	✓	ONAr
		0555	BO				50 6.97	144 48.73		250	460-471	12			
		0614	EN				50 6.98	144 48.70							
16		1545	DE	DRF		57	49 51.61	142 17.95							
16	Loop 2	1613		USW		—	49 50.75	142 09.17	4031				HM		SAL, NUT, CBL, HPLC
16	P22	2105	DE	ROS	US	58	49 42.03	140 40.16	3934				DY	✓	
		2130	BO				49 42.02	140 40.02		1005	472-475	4			
		2157	EN				49 42.04	140 40.05							
17	P21	0110	BE	ROS	US	59	49 38.06	139 39.95	3958					✓	
		0133	BO				49 38.02	139 39.98		1005	476-477	2			
		0201	EN				49 38.03	139 39.88							
17	P20	0518	BE	ROS	US	60	49 34.03	138 39.94	3966				DY	✓	
		0553	BO				49 33.96	138 39.86		1505					
		0646	EN				49 33.88	138 40.13			478-499	22			

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Month <u>Feb</u>				Year <u>2012</u>			Ship <u>Tully</u>				Cruise ID <u>2012-01</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	P20	0728	BE	Net		61	49° 34.05	138° 40.10	3967				DY		Bongo
		0734	BO				49° 34.00	138° 40.23		250					
		0742	EN				49° 33.88	138° 40.19							
17	P20	0754	BO	NET		62	49° 33.99	138° 40.00					H.M.		
		0804	BO				49° 33.99	138° 39.96		250					Bongo CUNY
		0818	GM				49° 33.95	138° 39.93							
17	P20	0845	BO	Pump		63	49° 34.08	139° 40.33	3967				HS/H.M.		40m Pumping
		0917	EN				49° 34.22	138° 40.82		40					
17	P20	0930	BE	ROS		64	49° 34.01	138° 40.15	3967		503-526	24	H.M.	✓	T110/P0 CAST
		0941	BO				49° 34.04	138° 40.14		500					
		1006	EN				49° 34.16	138° 40.04							
18	P18	1126	BE	ROS		65	49° 25.94	136° 40.05	2975		527-528	2	H.M.	✓	
		1153	BO				49° 25.88	136° 40.17		1005					
		1219	EN				49° 25.87	136° 40.39							
18	P14	0120	BE	ROS		66	49° 07.37	132° 40.00	2977		529-530			✓	
		0144	BO				49° 7.46	132° 40.09		1005		2			
		0209	EN				49° 7.46	132° 40.17							

P14
Should be
19th Feb.

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494
NutFroz
P20
25 m
2012-01
Bot 17

477
NutFroz
P20
59
2012-01
Bot 2

479
NutFroz
P20
1500 m
2012-01
Bot 2

Samples lost - found on floor

- more maybe?
- freezer block out & warm (samples & refrozen) → 471, 473, 474, 475, 476, 493, 527, 528.

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Cast Type:	USW = Sea Water Loop	Bottle Firing Method:	Time Code:	Transmissometer to be cleaned before each cast, do not use Ammonia products	
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ROS = Rosette plus CTD	DRF = Drifter	DN = Down / No stop	EN = End Time of Cast	RE = Recover Mooring Time	
SET = Fish Set	=				
		Notes:			

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