

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2015-61

DATE:

From: Oct 13th/2015

to:

VESSEL:

J.P. Tully

PROJECT(S):

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: Dave Taylor
Fishing Master: _____

First Officer: Tony Maguire
Third Officer: Chris Seamore

Mission Participants / Agencies: DFO / EC / CHTS / MEAD

Scientific Personnel:

Chief Scientist: Steve Romaine

Name	Watch	Cabin	Name	Watch	Cabin
<u>Scott Rose</u>	<u>0-12</u>	<u>E</u>	<u>Marie Robert</u>	<u>12-24</u>	<u>3</u>
<u>Hake Blake</u>	<u>0-12</u>	<u>C</u>	<u>Melissa Hennekes</u>	<u>12-24</u>	<u>G</u>
<u>Artem Zaloga</u>	<u>12-24</u>	<u>E</u>	<u>Maire Galbraith</u>	<u>0-12</u>	<u>LP</u>
<u>Greg Jones</u>	<u>18-6</u>	<u>C</u>	<u>Megan Baker</u>	<u>6-18</u>	<u>F</u>
<u>Luke Halpin</u>	<u>6-18</u>	<u>H</u>	<u>Chloe Stanley</u>	<u>6-18</u>	<u>G</u>
<u>Kerry Wos</u>	<u>6-18</u>	<u>H</u>	<u>Wendy Stanislo</u>	<u>6-18</u>	<u>D</u>
_____	_____	_____	<u>Romney McPhie</u>	<u>6-18</u>	<u>D</u>
_____	_____	_____	<u>Cassie Bosana</u>	<u>18-6</u>	<u>F</u>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Second leg of Mission:

Chief Scientist: _____

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

Data logging computer:

Tully laptop

Data acquisition program:

Seasave

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

Primary CTD

Make: SBE model: 9+ serial number: 585 After Oct 18th noon
Primary temperature serial number: 4752 > 5725
Primary conductivity serial number: 3396 > 4448
Secondary temperature serial number: 2449 > 5724
Secondary conductivity serial number: 2399 > 4434
Transmissometer: Wetlabs Model: C-Star s/n: 11850R
Fluorometer: Model Seapoint Cable gain: 3x s/n: 3685 P, S or NO pump?
Oxygen sensor: SBE Model: 43 s/n: 1119 P, S or NO pump?
PAR sensor: Biospherical Model: QSP260L45 s/n: 4615
Other sensors: pH s/n: 0692 P, S or NO pump?
Other sensors: Attimeter 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: 103
Volume of bottles (litres): 10L

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: Sensave Version: S/N: 3363
Sampling interval (seconds): 30
Fluorometer sensor serial number: WS35-953P

Comments on performance during cruise (comments should also be reflected in the post-cruise report):

Sensave moved to Seisave server + modern

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>OCTOBER</u>			Year <u>2015</u>				Ship <u>TULLY</u>				Cruise ID <u>2015-61</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							
14	SI	0535	BE	ROS	US	1	48° 39.74	123° 30.37	172				SR	✓	PAR + pH ON bottles closed at the surface as a test
		0539	BO				39.74	30.35		164					
		0544	EN				39.74	30.32							
14	Loop 2	1946	BE	USW	—	2	48° 41.39	125° 43.72	145				MR		1 SAC FILTERING INTERFERED BY FIRE DRILL
14	Loop 3	2034	BE	USW		3	48° 45.22	125° 53.95	145						2 CIL →
15	Loop 4	0112	BE	USW	—	4	49° 08.20	126° 44.62	139						
15	CPE 2	140	BE	(-1D)		5	50° 43.	128° 39.					SR	✓	Cable failure → retermination No CAST
			BO				43	39							
			EN				43	39							
15	CPE 2	1538	BE	NET	—	6	50° 43.18	128° 39.74	121				MR		
		1541	BO				50° 43.18	128° 39.75		117					
		1544	EN				50° 43.16	128° 39.75							
15	CPE 2	1640	BE	NET	—	7	50° 43.0400	128° 39.7100	126				AS		MULTIPLY
			BO							117					
		1702	EN				50° 43.0900	128° 39.69							
15	CPE 2	1729	BE	CTD		8	50° 43.17	128° 39.71	124				SR		Trans missed on redeployment cleaned originally though
			BO												
			EN												

Cast Type:

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MOR = Mooring
NET = Plankton Net Haul
DRF = Drifter

Bottle Firing Method:

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Notes:

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Transmissometer & Fluorometer are to be cleaned before each cast

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This page is for any notes or observations

CHL LOOP 3A: Removed 75 ml of water while filtering b/o jelly-like "stuff" making
filtering painfully slow.
Oops, I had 2 filters... in me

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Month <u>OCTOBER</u>			Year <u>2015</u>				Ship <u>TULLY</u>				Cruise ID <u>2015-61</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	5.01	1926	BE	Grab		9	50° 44.50	128° 33.08	82						LOOP 10 TAKEN BY GRAB
		1929					50° 44.50	128° 33.09							
		1931					50° 44.50	128° 33.09							
15	5.01	1920	BE	USW	-	10	50° 44.45	128° 32.99	84		Loop 10				1 SA STOPPED ON 2 CHL SW
15	CPE2+est	2009	BE	ROS		11	50° 44.56	128° 33.16	84				SK		
		2012	BO				44.55	33.13		72					
		2013	EN				44.55	33.12							
15	CPE2	2057	BE	ROS	-	12	50° 43.17	128° 39.67	123		-	0	MR	✓	
		2100	BO				50° 43.16	128° 39.67		116					
		2102	EN				50° 43.16	128° 39.66							
15	LQ02	2217	BE	ROS	-	13	50° 43.51	128° 54.74	158		-	0	MR	✓	
		2221	BO				50° 43.50	128° 54.71		148					
		2224	EN				50° 43.49	128° 54.71							
15	CPE3	2321	BE	ROS	-	14	50° 40.02	128° 59.48	~990		-	0	MR	✓	P: 1040 A: 8.7 D: 1029 S: 963 TO 985
		2337	BO				50° 39.96	128° 59.46		1040					
		2353	EN				50° 39.86	128° 59.50							
16	CPE3	0004	BE	NET		15	50° 39.88	128° 59.59	981				CS		BONGO
		0012	BO				50° 39.91	128° 59.68		250					
		0017	EN				50° 39.96	128° 59.73							

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Month <u>OCTOBER</u>			Year <u>2015</u>			Ship <u>TULLEY</u>			Cruise ID <u>2015-61</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	3.01	0144	BE	GRAB		16	50°46.91	128°48.08	100				GJ KW CB		
		0147	BO				50°46.91	128°48.08							Rock, redo.
		0149	EN				50°46.91	128°48.08							
16	3.01	0154	BE	GRAB		16-B	50°46.91	128°48.08	98						BRIDGE 50°46.9077
		0157	BO				50°46.91	128°48.08							128°48.0658
		0159	EN				50°46.91	128°48.08							
16	3.02	0224	BE	GRAB		17	50°47.31	128°48.02	112						BRIDGE POSITION
		0227	BO				50°47.3100	128°48.0262							50°47.3047
		0230	EN				50°47.3102	128°48.0250							128°48.0386
16	3.03	0253	BE	GRAB		18	50°47.6259	128°48.0543	109						BRIDGE POS.
		0257	BO				50°47.6264	128°48.0533							50°47.6293
		0259	EN				50°47.6263	128°48.0531							128°48.0675
16	3.04	0331	BE	GRAB		19	50°48.2704	128°48.4122	109						BRIDGE POS.
		0335	BO				50°48.2699	128°48.4121							50°48.2784
		0337	EN				50°48.2701	128°48.4118							128°48.4204
16	3.05	0358	BE	GRAB		20	50°48.4462	128°48.6915	110						
		0402	BO				50°48.4461	128°48.6912							Redo
		0405	EN				50°48.4467	128°48.6915							

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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							
16	3.05	0406	BE	GRAB		20 B	50°48.4472	128°48.6917	109				GJ CB KW		BRIDGE POS:
		0410	BO				50°48.4474	128°48.6921							50°48.4561
		0412	EN				50°48.4474	128°48.6921							128°48.7001
16	3.06	0435	BE	GRAB		21	50°48.7934	128°48.9823	106						
		0438	BO				50°48.7941	128°48.9813							REDO
		0441	EN				50°48.7934	128°48.9817							
16	3.06	0443	BE	GRAB		21 B	50°48.7931	128°48.9820	106						BRIDGE POS:
		0446	BO				50°48.7939	128°48.9818							50°48.8034
		0448	EN				50°48.7948	128°48.9817							128°48.9889
16	3.07	0516	BE	GRAB		22	50°49.6105	128°48.6544	75						BRIDGE POS
		0518	BO				50°49.6115	128°48.6529							50°49.6203
		0519	EN				50°49.6120	128°48.6528							128°48.6607
16	3.08	0537	BE	GRAB		23	50°49.6860	128°48.2441	75						BRIDGE POS
		0540	BO				50°49.6867	128°48.2441							50°49.6953
		0541	EN				50°49.6863	128°48.2444							128°48.2514
16	3.09	0610	BE	GRAB		24	50°49.7894	128°47.8133	86						BRIDGE POS
		0613	BO				50°49.8002	128°47.8132							50°49.8090
		0615	EN				50°49.8005	128°47.8128							128°47.8112

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 =

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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								
16	3.10	0644	BE	GRAB		25	50°49.8837	128°47.5026	83				GJ KW		Bridge pos	
		0646	BO				50°49.8830	128°47.5022								
		0648	EN				50°49.8837	128°47.5025							50°49.8918 128°47.4980	
16	2.01	0750	BE	GRAB		26	50°49.8581	128°44.5393	85				SR		Bridge pos.	
		0752	BO				50°49.8478	128°44.5395							50°49.8547	
		0754	EN				50°49.8472	128°44.5395							128°44.5511	
16	2.02	0818	BE	Grab		27	50°49.6694	128°44.5261	70							
		0820	BO				50°49.6695	128°44.5267								
		0821	EN				50°49.6690	128°44.5260								
16	2.02	0823	BE	Grab		27b	50°49.6692	128°44.5253	70						Bridge pos	
		0825	BO				50°49.6692	128°44.5255							50°49.6766	
		0826	EN				50°49.6689	128°44.5256							128°44.5361	
16	2.03	0848	BE	Grab		28	50°49.5827	128°44.5180	68						Bridge Pos	
		0849	BO				50°49.5822	128°44.5186							50°49.5892	
		0850	EN				50°49.5831	128°44.5173							128°44.5300	
16	2.04	0915	BE			29	50°49.4822	128°44.4945	67							
		0917	BO				50°49.4817	128°44.4933								
		0918	EN				50°49.4817	128°44.4938								

Cast Type:

USW = Sea Water Loop

Bottle Firing Method:

Time Code:

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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							
16	2.04	0920	BE	Grab		296	50° 49.4818	128° 44.4944	67				SR		Bridge pos.
		0922	BO				50° 49.4812	128° 44.4930							50° 49.4896
		0923	EN				50° 49.4820	128° 44.4945							128° 44.5048
16	2.05	0944	BE	Grab		30	50° 49.0655	128° 44.3980	83						
		0946	BO				50° 49.0657	128° 44.3988							
		0948	EN				50° 49.0647	128° 44.3968							
16	2.05	0950	BE	Grab		30b	50° 49.0653	128° 44.3992	83						Bridge pos.
		0952	BO				50° 49.0659	128° 44.3991							50° 49.0716
		0954	EN				50° 49.0663	128° 44.3989							128° 44.4120
16	2.06	1020	BE	Grab		31	50° 48.6904	128° 44.0506	86						
		1022	BO				50° 48.6908	128° 44.0500							
		1024	EN				50° 48.6910	128° 44.0482							
16	2.06	1027	BE	Grab		31b	50° 48.6909	128° 44.0503	86						
		1028	BO				50° 48.6913	128° 44.0504							
		1030	EN				50° 48.6907	128° 44.0503							
16	2.06	1037	BE			31c	50° 48.6975	128° 44.0478	87						Bridge Pos.
		1039	BO				50° 48.6975	128° 44.0478							50° 48.6964
		1041	EN				50° 48.6968	128° 44.0473							128° 44.0627
													✓		

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							Latitude	Longitude							
16	2.07	1121	BE	Grab		32	50° 48.3448	128° 43.6478	87				SR		Bridge pos.
		1123	BO				50° 48.3453	128° 43.6486							50° 48.3510
		1124	EN				50° 48.3455	128° 43.6477							128° 43.6614
16	2.08	1151	BE	Grab		33	50° 48.0208	128° 43.4067	80				SR		
		1153	BO				50° 48.0218	128° 43.4069							
		1154	EN				50° 48.0210	128° 43.4072							
16	2.08	1159	BE	Grab		33b	50° 48.0221	128° 43.4064	80				SR		Bridge pos.
		1200	BO				50° 48.0215	128° 43.4065							50° 48.0281
		1202	EN				50° 48.0223	128° 43.4049							128° 43.4179
16	2.09	1226	BE	Grab		34	50° 47.7207	128° 43.1661	72				SR		Bridge pos.
		1227	BO				50° 47.7226	128° 43.1672							50° 47.7304
		1228	EN				50° 47.7190	128° 43.1678	1						128° 43.1760
16	LOOP35	1454	BE	USW		35	50° 45.64	129° 11.79	138	5	loop 35		MG		
16	CS03	1532	BE	ROS		36	50° 45.61	129° 20.14	243				SR	✓	
		1537	BO				45.63	20.13		233					
		1542	EN				45.61	20.11							
16	CS03	1555	BE	NET		37	50° 45.55	129° 20.07	243	235			MG		
		1602	BO				45.52	20.11							
		1610	EN				45.51	20.15							

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Month <u>OCTOBER</u>		Year <u>2015</u>		Ship <u>JP TULLY</u>		Cruise ID <u>2015-61</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	CS04	1701	BE	ROS	JS	38	50°49.23	129°13.02	97		1-7	7	SR	✓	
		1704	BO				49.22	13.06		87					
		1713	EN				49.28	12.99							
16	CS04	1720	BE	NET	-	39	50°49.25	129°13.07	96				MR		
		1724	BO				49.23	13.14		90					
		1730	EN				49.28	13.16							
16	CS2B	1848	BE	ROS	-	40	50°56.13	128°59.87	64		-	0	SR/MR	✓	SAL ≠ UP TO 0.11
		1850	BO				50°56.12	128°59.86		55					
		1851	EN				50°56.11	128°59.87							
16	CS2B	1901	BE	NET	-	41	50°56.15	128°59.91	64				CS/MR		
		1905	BO				50°56.14	128°59.89		52					
		1906	EN				50°56.14	128°59.89							
16	GBS-6	2016	BE	ROS		42	50°52.17	128°50.06	86				MR	✓	Stop @ 137 5/6 Wink
		2018	BO				50°52.18	128°50.05		75	-	0			
		2020	EN				50°52.18	128°50.07							
16	GBS-5	2105	BE	ROS		43	50°56.31	128°44.64	87		-	0	MR	✓	
		2107	BO				50°56.32	128°44.64		79					
		2109	EN				50°56.31	128°44.66							

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Month <u>OCTOBER</u>				Year <u>2015</u>			Ship <u>TULLY</u>				Cruise ID <u>2015-61</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	CS06	2156	BE	ROS	-	44	51°00.23	128°49.91	66				MR	✓	
		2158	Bo				51°00.23	128°49.91		58	—	0			
		2200	EN				51°00.22	128°49.90							
16	CS07	2252	BE	ROS	US	45	51°04.69	128°43.95	66				MR	✓	+ Loops 1x Sal 2x Ctl
		2253	Bo				51°04.68	128°43.96		58	8-15	8			Loops CS07
		2300	EN				51°04.67	128°44.01							
16	CS07	2307	BE	NET	—	46	51°04.63	128°44.05	66				MR		
		2310	Bo				51°04.60	128°44.00		60					
		2311	EN				51°04.59	128°44.00							
17	CS08	0008	BE	ROS	-	47	51°08.82	128°36.14	147		—	0	MR	✓	
		0011	Bo				51°08.82	128°36.16		138					
		0014	EN				51°08.83	128°36.17							
17	CS08	0044	BE	NET	—	48	51°07.83	128°38.26	124			0	CS	1	MULTINET
		0048	Bo				51°07.79	128°38.36							
			EN												
17	CS08	0104	BE	NET		49	51°07.59	128°38.65	120						MULTINET
		0110					51°07.63	128°38.64		115					FIRST BOT.
		0126					51°07.37	128°39.26							

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Month				Year			Ship			Cruise ID					
OCTOBER				2015			TULLY			2015-61					
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	LOOP 50	0151	BE	USW	-	50	51°05.62	128°37.51	103				MR		1 x SAC 2 x CML
17	1.13	0321	BE	GRAB		51	50°58.7144	128°28.6543	92				GJ CB RW		BRIDGE POS:
		0323	Bo				50°58.7141	128°28.6567							50°58.7142
		0324	EN				50°58.7140	128°28.6568							128°28.6698
17	1.12	0354	BE	GRAB		52	50°58.6597	128°30.8218	94						
		0357	Bo				50°58.6603	128°30.8228							ABORT, GRAB
			EN				50°58	128°							DIDN'T TOUCH BOT.
17	1.12	0401	BE	GRAB		52B	50°58.6614	128°30.8232	95						BRIDGE POS:
		0404	Bo				50°58.6608	128°30.8221							50°58.6655
		0406	EN				50°58.6606	128°30.8222							128°30.8366
17	1.11	0429	BE	GRAB		53	50°57.9841	128°31.5162	86						GRAB TANGLED
		0432	Bo				50°57.9854	128°31.5165							REDO
		0434	EN				50°57.9858	128°31.5168							
17	1.11	0436	BE	GRAB		53B	50°57.9860	128°31.5160							GRAB OPENED
		0438	Bo				50°57.9876	128°31.5159							REDO
		0441	EN				50°57.9862	128°31.5152							
17	1.11	0443	BE	GRAB		53C	50°57.9881	128°31.5147	85						GRAB DIDN'T
		0445	Bo				50°57.9854	128°31.5152							CLOSE
		0447	EN				50°57.9847	128°31.5230							

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Month OCTOBER				Year 2015			Ship TULLY			Cruise ID 2015-61					
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	1.10	0504	BE	GRAB		54	50°57.5198	128°31.6737	81				GS CB KW		BRIDGE POSITION? 50°57.5290 128°31.6800
		0507	BO				50°57.5203	128°31.6731							
		0508	EN				50°57.5194	128°31.6731							
17	1.09	0524	BE	GRAB		55	50°57.0359	128°31.4672	101						
		0527	BO				50°57.0359	128°31.4669							TAUGLED. RE DO
		0529	EN				50°57.0363	128°31.4677							
17	1.09	0533	BE	GRAB		55B	50°57.0366	128°31.4670	101						50°57.0453 128°31.4777
		0536	BO				50°57.0374	128°31.4678							
		0538	EN				50°57.0360	128°31.4681							
17	1.08	0554	BE	GRAB		56	50°56.7251	128°31.9699	94						50°56.7325 128°31.9778
		0558	BO				50°56.7238	128°31.9696							
		0559	EN				50°56.7240	128°31.9697							
17	1.07	0614	BE	GRAB		57	50°56.3545	128°32.5822	95						50°56.3641 128°32.5898
		0617	BO				50°56.3554	128°32.5812							
		0619	EN				50°56.3552	128°32.5812							
17	1.06	0637	BE	GRAB		58	50°55.9404	128°33.6418	86						CAME UP EMPTY RE DO.
		0639	BO				50°55.9414	128°33.6406							
		0641	EN				50°55.9423	128°33.6414							
													✓		

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Month <u>OCTOBER</u>				Year <u>2015</u>				Ship <u>TULLY</u>				Cruise ID <u>2015-61</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	1.06	0643	BE	GRAB		588	50°55.9414	128°33.6400	85				MR		BRIDGE POS.
		0646	BO				50°55.9410	128°33.6413					GS CB		50°55.9421
		0648	EN				50°55.9406	128°33.6404							128°33.6485
17	1.05	0707	BE	GRAB		59	50°55.6216	128°34.1198	82				SR		BRIDGE POS.
		0709	BO				55.6214	34.1192		82					50°55.6308
		0711	EN				55.6223	34.1202							128°34.1290
17	1.04	0749	BE	Grab		60	50°55.1457	128°34.3921	80				SR		BRIDGE POS
		0751	BO				55.1457	34.3920							50°55.1535
		0752	EN				55.1449	34.3911							128°34.4015
17	1.03	0822	BE	Grab		61	50°54.5576	128°34.8439	79						BRIDGE POS
		0824	BO				54.5584	34.8446							50°54.5664
		0826	EN				54.5582	34.8439							128°34.8539
17	1.02	0908	BE	Grab		62	50°54.2175	128°34.3723	95						BRIDGE P
		0910	BO				54.2172	34.3726							50°54.2257
		0912	EN				54.2183	34.3726							128°34.3825
17	LOOP63	0921	BE	USW		63	50°54.35	128°34.01	82						
17	1.22	0951	BE	Grab		64	50°54.9548	128°33.7499	93						BRIDGE POS.
		0952	BO				54.9546	33.7493							50°54.9620
		0954	EN				54.9539	33.7488							128°33.7431

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Month <u>October</u>				Year <u>2015</u>			Ship <u>Tully</u>				Cruise ID <u>2015-61</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	1.2	1028	BE	Grab		65	50° 56.3656	128° 31.7412	82				SR		Bridge pos
		1030	BO				56.3654	31.7413							50° 56.3734
		1032	EN				56.3655	31.7416							128° 31.7509
17	11.18	1100	BE	Grab		66	50° 56.9054	128° 31.2347	98				SR		Bridge pos
		1103	BO				56.9048	31.2350							50° 56.9140
		1105	EN				56.9044	31.2360							128° 31.2401
17	11.17	1134	BE	Grab		67	50° 57.3992	128° 31.0653	96				SR		Bridge pos
		1136	BO				57.3997	31.0657							50° 57.4083
		1138	EN				57.3998	31.0651							128° 31.0713
17	11.16	1208	BE	Grab		68	50° 57.6948	128° 31.0059	93				SR		Bridge pos
		1210	BO				57.6942	31.0072							50° 57.7027
		1212	EN				57.6943	31.0075							128° 31.0130
17	11.15	1240	BE	Grab		69	50° 58.0189	128° 30.3018	87				SR		
		1242	BO				58.0180	128° 30.3030							
		1243	EN				58.0178	30.3020							
17	11.15	1246	BE	Grab		696	50° 58.0182	128° 30.3022	87				SR		Bridge pos.
		1248	BO				58.0179	30.3018							50° 58.0268
		1249	EN				58.0185	30.3010							128° 30.3080

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Month <u>October</u>			Year <u>2015</u>				Ship <u>Tully</u>				Cruise ID <u>2015-61</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	11.14	1313	BE	Grub		70	50° 58.3218	128° 29.6247	95				SR		Bridge pos
		1314	BO				58.3224	29.6248							50° 58.3312
		1316	EN				58.3232	29.6258							128° 29.6314
17	GBS-4	1424	BE	ROS		71	50° 57.27	128° 23.92	62				SR	✓	
		1425	BO				57.26	23.92		52					
		1427	EN				57.24	23.93							
17	CS1B	1601	BE	ROS		72	50° 53.19	128° 40.01	78				SR	✓	
		1602	BO				53.19	40.00		68					
		1604	EN				53.20	39.99							
17	CS1B	1608	BE	NET		73	50 53.20	128° 39.92	79				MG/CS		
		1611	BO				53.195	39.880							
		1614	EN				53.186	39.834							
17	LQØ1		BE	USW		74					—		MG		
17	LQØ1	1728	BE	ROS		75	50° 47.30	128° 47.72	112				SR/MG		Paused @ 60db
		1730	BO				47.30	47.74							for wire angle
		1733	EN	s			47.31	47.78							adjustment
17	LQØ4	2007	BE	ROS	US	76	50° 35.99	129° 09.29	¹⁵⁸⁸ 1600		16-35	20	HR		PAR + pH have
		2045	BO				50 35.96	129° 09.29		16.98					been removed
		2135	EN				50 35.96	129 09 30							→

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This page is for any notes or observations

Stop @ 303 on downcast b/o wire angle.

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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	II 22	2233	BE	ROS	US	77	50° 39.80	129° 17.57	1523		36-56	21	MR	✓	SAL # = 0.2
		2301	BO				50° 39.78	129° 17.63		1537					
		2344	EN				50° 39.74	129° 17.76							
18	II 22	0000	BE	NET		78	50° 39.72	129° 17.75	1512		—		MG		Bongo
		0003	BO				50° 39.72	129° 17.73		250					
		0006	EN				50° 39.7300	129° 18.0100							
18	II 22	0042	BE	NET	—	79	50° 40.21	129° 16.02	1010		—	✓	CS		MULTINET
			BO							500					
			EN												
18	Loop 80	0314	BE	USW	—	80	50° 46.65	129° 03.06	117						1 XSW 2 XCHL 9LB
18	8.01	0339	BE	GRAB		81	50° 47.2127	129° 01.7156	111				GS CB KW		BRIDGE POSITION
		0343	BO				50° 47.2143	129° 01.7163							50° 47.2178
		0345	EN				50° 47.2139	129° 01.7164							129° 01.7310
18	8.04	0411	BE	GRAB		82	50° 47.59	129° 00.55	110						
		0416	BO				50° 47.5983	129° 00.5540							Redo
		0418	EN				50° 47.5987	129° 00.5540							
18	8.04	0418	BE	GRAB		82B	50° 47.5985	129° 00.5540	109						50° 47. Redo
		0421	BO				50° 47.5986	129° 00.5541							129° 00.
		0423	EN				50° 47.5981	129° 00.5543							

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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	8.04	0425	BE	GRAB		82 C	50°47.5981	129°00.5542	109				MR		50°47.6079
		0428	BO				50°47.5980	129°00.5550					GS		129°00.5624
		0430	EN				50°47.5984	129°00.5530					CB		
18	8.06	0447	BE	GRAB		83	50°47.8763	128°59.8070	106						50°47.8849
		0450	BO				50°47.8770	128°59.8067							128°59.8195
		0452	EN				50°47.8770	128°59.8075							
18	8.09	0513	BE	GRAB		84	50°48.3597	128°58.8426	107						50°48.3689
		0517	BO				50°48.3594	128°58.8478							128°58.8584
		0520	EN				50°48.3526	128°58.8494							
18	6.01	0726	BE	Grab		85	50°50.9584	128°34.7687	62				SR		
		0727	BO				50.9585	34.7691							
		0728	EN				50.9591	34.7687							
18	6.01	0730	BE	Grab		85b	50°50.9591	128°34.7684	62						50°50.9678
		0731	BO				50.9590	34.7685							128°34.7764
		0732	EN				50.9589	34.7688							
18	6.02	0757	BE	Grab		86	50°50.9957	128°34.1033	55						50°50.9929
		0758	BO				50.9955	34.1035							128°34.1169
		0759	EN				50.9954	34.1037							

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Notes:

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Month <u>October</u>				Year <u>2015</u>			Ship <u>Tully</u>			Cruise ID <u>2015-61</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							
18	6.03	0816	BE	Grab		87	50° 51.0157	128° 33.5298	54				SR		
		0817	BO				51.0157	33.5299							
		0818	EN				51.0159	33.5303							
18	6.03	0819	BE	Grab		87b	50° 51.0157	128° 33.5301	54				SR		50° 51.0166
		0820	BO				51.0157	33.5302							128° 33.5451
		0821	EN				51.0156	33.5305							
18	6.04	0840	BE	Grab		88	50° 51.0466	128° 32.9202	59						50° 51.0460
		0841	BO				51.0470	32.9207							128° 32.9350
		0842	EN				51.0470	32.9205							
18	6.05	0901	BE	Grab		89	50° 51.0546	128° 32.2777	54						50° 51.0498
		0902	BO				51.0546	32.2770							128° 32.2893
		0903	EN				51.0543	32.2765							
18	7.06	1003	BE	Grab		90	50° 52.1645	128° 25.1616	55						50° 52.1563
		1004	BO				52.1645	25.1617							128° 25.1643
		1005	EN				52.1645	25.1622							
18	Loop91	1013	BE	USW		91	50° 52.350	128° 25.070	58						
18	7.07	1032	BE	Grab		92	50° 52.6367	128° 25.1790	66						50° 52.6429
		1034	BO				52.6366	25.1790							128° 25.1684
		1035	EN				52.6367	25.1788							

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4.11 4.1 4.09

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Month <u>October</u>			Year <u>2015</u>			Ship <u>Tully</u>			Cruise ID <u>2015-61</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							
18	7.08	1101	BE	Grab		93	50°53.1080	128°25.1827	69				SR		50°53.0984
		1102	BO				53.1088	25.1819							128°25.1790
		1103	EN				53.1083	25.1829							
18	7.09	1125	BE	Grab		94	50°53.6369	128°25.3141	69						50°53.6408
		1126	BO				53.6375	25.3140							128°25.3023
		1127	EN				53.6376	25.3135							
18	7.11	1202	BE	Grab		95	50°53.6375	128°24.1631	59						50°53.6352
		1203	BO				53.6377	24.1636							128°24.1505
		1204	EN				53.6372	24.1637							
18	7.10	1236	BE	Grab		96	50°54.0938	128°25.3304	60						50°54.0914
		1237	BO				54.0944	25.3302							128°25.3438
		1238	EN				54.0942	25.3308							
18	4.12	1436	BE	Grab		97	50°57.6845	128°43.4370	88						
		1439	BO				57.6847	43.4363							
		1440	EN				57.6841	43.4365							
18	4.12	1443	BE	Grab		97b	50°57.6845	128°43.4383	88						
		1445	BO				57.6842	43.4375							
		1447	EN				57.6849	43.4376							

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Month <u>October</u>				Year <u>2015</u>			Ship <u>Tully</u>				Cruise ID <u>2015-61</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	4.12	1449	BE	Grab		97c	50°57.6852	128°43.4354	88				SR		
		1451	BO				57.6844	43.4375							
		1453	EN				57.6845	43.4381							
18	4.12	1457	BE	Grab		97d	50°57.6870	128°43.4365	88				SR		50°57.6847
		1500	BO				57.6863	43.4389							128°43.4529
		1501	EN				57.6863	43.4375							
18	4.11	1531	BE	Grab		98	50°57.7010	128°44.6981	83				SR		50°57.7018
		1533	BO				57.7003	44.6976							128°44.6855
		1534	EN				57.7000	44.6977							
18	4.10	1601	BE	Grab		99	50°57.6713	128°45.8625	79				AS		
		1602	BO				57.6715	45.8622							
		1604	EN				57.6713	45.8613							
18	4.10	1604	BE	GRAB		99b	50°57.6744	128°45.8625	79				AS		50°57.6775
		1605	BO				57.6742	45.8623							128°45.8504
		1607	EN				57.6743	45.8623							
18	4.09	1649	BE	GRAB		100	50°57.7458	128°46.9597	66				SR		
		1650	BO				57.7456	46.9603							
		1651	EN				57.7459	46.9604							

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Month <u>October</u>		Year <u>2015</u>		Ship <u>Tully</u>		Cruise ID <u>2015-61</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							
18	4.09	1653	BE	Grab		100b	50° 57.74 57	128° 46.96 05	69				SR		50° 57. 75 18
		1654	BO				57.74 64	46.95 97							128° 46. 97 11
		1656	EN				57.74 60	46.95 99							
18	USW 101	1717		USW		101	50° 58.58	128° 51.03	68				SR		2 CHL 1 SAL
															Con file change →
18	SS1	2240	BE	ROS		102	51° 12. 43	130° 00. 07	480		57-71	15	MR	✓	0.001 to 0.003 % SAL
		2249	BO				51° 12. 44	130° 00. 06		469					
		2311	EN				51° 12. 46	129° 59.95							
19	SS1	2322	BE	NET		103	51° 12. 42	129° 59.99	473				MR		Bongo VNA
		2332	BO				51° 12. 31	130° 00. 07		250					
		2337	EN				51° 12. 38	130° 00. 08							
19	MT-14	0156	BE	ROS	US	104	51° 18. 11	130° 18. 18	1257		72-73	2	MR	✓	2 SAL SAMPLES
		0216	BO				51° 18. 05	130° 18. 22		1273					
		0232	EN				51° 18. 06	130° 18. 21							
19	MT-13	0442	BE	ROS	US	105	51° 27. 87	130° 34. 45	1720		74-75	2	MR	✓	2 SAL SAMPLES
		0516	BO				51° 27. 85	130° 34. 60		1732					Stop @ 876 ↓ b/w wire 4
		0556	EN				51° 27. 81	130° 34. 95							Wait 20 signal

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Both the Primary and Secondary T's + C's were swapped out. Primary T 4752 to 5725
Primary C 3396 to 4448
Secondary T 2449 to 5724
Secondary C 2399 to 4434

AUBADCE
→ TUNA NOTED OFF STBD SIDE OF SHIP DURING EVENT 102-103

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Month <u>October</u>				Year <u>2015</u>			Ship <u>Tully</u>				Cruise ID <u>2015-61</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							
19	MT-12	0727	BE	ROS	US	106	51° 34.63	130° 45.79	1438		76-95	20	SR		180 min bot 1 tripped
		0800	BO			106b	34.99	46.10		1428					by accident @
		0906	EN				35.44	46.18							558 db →
19	MT-12	0919	BE	NET	—	107	51° 35.57	130° 46.06	1257				MG		
		0928	BO				35.76	46.06		250					
		0932	EN				36.02	46.03							
19	MT-11	1124	BE	ROS	US	108	51° 41.34	130° 59.13	2100		96-107	12	SR	✓	long pause @ 168
		1225	BO				41.94	59.13			110 min				db for a wire
		1315	EN				41.93	58.00							angle correction
19	MT-31	1548	BE	ROS		109	51° 59.66	130° 42.17	328				SR	✓	again @ ~ 660 db
		1554	BO				59.66	42.18							
		1559	EN				59.66	42.16							
19	MT-31	1605	BE	NET		110	51° 59.674	130° 42.165	327				SR/CS		
		1613	BO				51° 59.678	130° 42.175		250					
		1617	EN				51° 59.680	130° 42.203							
19	LOOP111	1712	BE	LOOP111		111	51° 53.82	130° 33.65	362				SR		?

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Bottle 1 was tripped by the Keyboard by accident so I restarted @ the bottom (file 106b) and switched to user defined firing to put the B-10 bottle @ 6 and the 500 m bottle, originally bot 6 was taken from bot 1 @ 558 db. The bottles and sample numbers were switched also. SR

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Month <u>OCTOBER</u>				Year <u>2015</u>			Ship <u>TULLY</u>				Cruise ID <u>2015-61</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							
19	MT-32	1831	BE	ROS		112	51° 51.29	130° 29.81	268		108-120		SR	✓	
		1835	BO				51.32	29.86		257					
		1853	EN				51° 51.23	130° 29.95							
19	MT-32	1906	BE	NET		113	51° 51.297	130° 29.841	260						Bongo ONLY
		1911	BO				51° 51.334	130° 29.825		250					
		1926	EN				51° 51.331	130° 29.859							
19	Ford Mooring	2124	DE	MOR		114	51° 39.8923	130° 17.3377	261						
19	MT-33	2212	BE	ROS	-	115	51° 43.28	130° 13.97	238		-	0	MR	✓	PAR + pH sensors back on.
		2217	BO				51° 43.27	130° 13.98		228					
		2221	EN				51° 43.26	130° 14.02							
19	MT-33	2225	BE	NET	-	116	51° 43.26	130° 14.01	238				CS		BONGO
		2236	BO				51° 43.37	130° 14.04		232					
		2241	EN				51° 43.40	130° 14.05							
20	MT-53	0127	BE	ROS	-	117	52° 04.87	129° 59.75	138		-	0	MR	✓	
		0129	BO				52° 04.86	129° 59.79		128					
		0132	EN				52° 04.86	129° 59.80							
20	MT-52	0307	BE	ROS	US	118	52° 11.20	130° 17.81	384		121-135	15	MR	✓	+ 2 CTD COUPS
		0314	BO				52° 11.20	130° 17.83		387					NOT-FR left outside
		0331	EN				52° 11.20	130° 17.80							until 0531 UTC, in the dark

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Month <u>OCTOBER</u>				Year <u>2015</u>			Ship <u>TULLY</u>				Cruise ID <u>2015-61</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	MT-52	0336	BE	NET		119	50° 11.1997	130° 17.8195	385				CB		Bongo
		0346	BO				50° 11.2862	130° 17.8216		250			MR		
		0350	EN				50° 11.2625	130° 17.8175							
20	LOOP120	0408	BE	USW		120	52° 12.47	130° 20.99	384				MR		2xCHL
20	MT-51	0525	BE	ROS	—	121	52° 18.29	130° 35.57	175		—	0	MR	✓	
		0528	BO				52° 18.29	130° 35.54		166					
		0532	EN				52° 18.30	130° 35.55							
20	M008	0712	BE	ROS	—	122	52° 28.39	130° 29.19	171		—	0	MR/SR	✓	
		0714	BO				28.36	29.21		161					
		0716	EN				28.34	29.22							
20	M008	0724	BE	NET		123	52° 28.2867	130° 29.2718	170				CB		Bongo
		0729	BO				52° 28.2514	130° 29.2188		165					
		0732	EN				52° 28.2368	130° 29.1487							
20	MT-71	0910	BE	ROS		124	52° 37.92	130° 23.45	177				SR	✓	
		0912	BO				37.90	23.42							
		0916	EN				37.87	23.38							
20	MT-72	1048	BE	ROS	US	125	52° 31.29	130° 8.53	294		136-148	13	SR	✓	
		1053	BO				31.32	8.51							
		1115	EN				31.42	8.41							

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Month <u>OCTOBER</u>				Year <u>2015</u>			Ship <u>JP TULLY</u>				Cruise ID <u>2015-61</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	MT-72	1120	BE	NET	—	126	52° 31.44	130° 08.49	293				MG		Bongo
		1130	BO				52° 31.44	130° 08.60		250					
20	MT-73	1315	BE	ROS	✓	127	52° 25.56	129° 54.34	224				SR	✓	
		1319	BO				25.56	54.35							
		1322	EN				25.56	54.38							
20	H03	1456	BE	ROS		128	52° 19.07	129° 41.90	215				SR	✓	
		1501	BO				19.05	41.89		207					
		1505	EN				19.07	41.89							
20	H03	1517	BE	NET		129	52° 19.076	129° 41.866	215				SR/CS		
		1524	BO				19.046	41.858							
		1528	EN				19.019	41.859							
20	LOOP130	1531	BE	USW		130	52° 19.04	129° 41.85	215				SR		?
20	MT-95	1739	BE	ROS		131	52° 36.73	129° 36.30	160				SR	✓	
		1742	BO				36.73	36.28							
		1745	EN				36.75	36.27							
20	MT-94	1840	BE	ROS		132	52° 39.40	129° 43.71	154				SR	✓	
		1843	BO				39.39	43.71		145					
		1847	EN				39.41	43.72							

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Notes:

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