

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2016-47
Book 1/2

DATE:

From: May 24, 2016 to: June 5, 2016

VESSEL:

John P Tully

PROJECT(S):

Lobster

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

WaterProperties.ca

Captain: Nike Corbick First Officer: Ryan Hull
Second Officer: Dave Third Officer: Brent
Fishing Master: _____

Mission Participants / Agencies: DFO / Uvic / UBC

Scientific Personnel: Chief Scientist: Doug Yelland

Name	Watch	Cabin	Name	Watch	Cabin
<u>Marie Robert</u>	_____	_____	<u>Auranda Timmermans</u>	_____	_____
<u>Margie Galbraith</u>	_____	_____	<u>Theresa Venello</u>	_____	_____
<u>Kelly Young</u>	_____	_____	_____	_____	_____
<u>Nina Mungok</u>	_____	_____	_____	_____	_____
<u>Mark Bolton</u>	_____	_____	_____	_____	_____
<u>Chelsey Stanley</u>	_____	_____	_____	_____	_____
<u>John Dower</u>	_____	_____	_____	_____	_____
<u>Ever MacLennan</u>	_____	_____	_____	_____	_____
<u>Rob Tzetz</u>	_____	_____	_____	_____	_____
<u>Will Bort</u>	_____	_____	_____	_____	_____

Second leg of Mission: Chief Scientist: _____

Name	Watch	Cabin	Name	Watch	Cabin
<u>Stephane Gauthier</u>	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Data logging computer: Tully CTD Laptop (Arce)
Data acquisition program: Seasave
CTD deck unit make: SBE model: 111 serial number: 0425

Primary CTD
Make: SBE model: 9+ serial number: 443
Primary temperature serial number: 2106
Primary conductivity serial number: 2280
Secondary temperature serial number: 2663
Secondary conductivity serial number: 2754
Transmissometer: Wetlabs Model: C-Star s/n: 1185 DR
Fluorometer: Model Seapoint Cable gain: 10x s/n: 3640 P, S or NO pump?
Oxygen sensor: SBE Model: 43 s/n: 0997 P, S or NO pump?
PAR sensor: Biospherical Model: QSP2350 s/n: 70613
Other sensors: Altimeter s/n: 62354 P, S or NO pump?
Other sensors: older PAR Biospherical 46 s/n: 4615 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: 105
Volume of bottles (litres): 10L

Winches:

1. Make: Hawbolt Model: _____ Serial #: _____ Used for: CTD (LARS)
2. Make: Swan Model: _____ Serial #: 1237 Used for: MPC
3. Make: Swan Model: _____ Serial #: _____ Used for: Bongo

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

450 m wire removed from Hawbolt immediately
#1233 loaded so b/v Hawbolt could be loaded w new wire
for Line A (following)

Salinometer:

Make: _____ Model: _____ Serial Number: _____

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

Oxygen Kit(s):

Make: scripps 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: _____ Version: _____
Sampling interval (seconds): 30
Fluorometer sensor serial number: _____

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

assembled by Senior Engineer

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 sent to Germaine

CTD pressure reading on deck (db), before cast: 0.8 ? 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>MAY</u>				Year <u>2016</u>			Ship <u>ATOLL</u>			Cruise ID <u>2016-47</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							
25	TEST	1535	RE	CTD	US	1	48 39 47	123 29 15	73			24	MB	✓	TES CAST
		1537	RI				48 39 47	123 29 15		63					
		1540	EN				48 39 46	123 29 15							→
25	-	2241	BE	ROS	US	2	48 18.58	124 03.98	189		1-14		MR	✓	
		2245	Bo				48 18.58	124 03.97		179					
		2257	EN				48 18.56	124 03.93							
25	JF2	2306	BE	Bongo		3	48°18'59"	124°03'94"	189						
		2313	BO				48°18'58"	124°03'97"		180					
		2317	EN				48°18'58"	124°03'94"							
25	JF2	2321	DE	DRF		4	48 18 61	124 03 96							
26	JF3	0128	DE	DRF		5	48 26.41	124 29 97	234						Sponge Bob 378-377-380
26	LB01	0432	BE	ROS	US	6	48 40.43	124 59.50	34		15-19	5	MR	✓	
		0434	Bo				48 40.43	124 59.49		27					
		0438	EN				48 40.43	124 59.48							
26	LB02	0510	BE	ROS	US	7	48 39.02	125 02.45	56		20-24	5	MR	✓	
		0513	Bo				48 39.03	125 02.48		51					
		0517	EN				48 39.01	125 02.51							

Cast Type:

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

USW = Sea Water Loop

MOR = Mooring

NET = Plankton Net Haul

DRF = Drifter

____ = _____

Bottle Firing Method:

US = Up / Stop

UN = Up / No stop

DN = Down / No stop

Notes: _____

Time Code:

BE = Beginning Time of Cast

BO = Bottom Time of Cast

EN = End Time of Cast

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MR = Messenger Release Time

RE = Recover Mooring Time

Transmissometer & Fluorometer are to be cleaned before each cast

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CLOSED ALL BOTTLES @ SURFACE → Looks Good.

Took 440 m of wire off the CTD winch. Reterminated.

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Month <u>MAY</u>				Year <u>2016</u>			Ship <u>TULLY</u>				Cruise ID <u>2016-47</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							
26	LBO3	0549	BE	ROS	US	8	48 37.24	125 05.64	95		25	1	MR	✓	notes →
		0552	BO				48 37.30	125 05.63		85					
		0554	EN				48 37.28	125 05.67							
26	LBO4	0623	BE	ROS	US	9	48 35.73	125 08.78	113		26 - 32	7	MR	✓	
		0626	BO				48 35.70	125 08.78		103					
		0635	EN				48 35.70	125 08.91							
26	E1	0731	BE	ROS	US	10	48 31 66	125 3 81	120		-	2	MB	✓	Related rip caps on 5+7 since leaking, fire to surface check
		0733	BO				48 31 65	125 3 82		110					
		0736	EN				48 31 62	125 3 82							
26	E1	0743	BE	NET	-	11	48 31 70	125 3 82	118		-	-	KY/MB	-	Bowd
		0749	BO				48 31 63	125 3 83		108					
		0751	EN				48 31 67	125 3 81							
26	LBO5	0852	BE	ROS	US	12	48 33 98	125 12 09	103		33	1	MB	✓	see over →
		0855	BO				48 33 95	125 12 10		93					
		0857	EN				48 33 93	25							
26	LBO6		BE	ROS	US	13	48 32 15	125 15 56	117		34-41	8	MB	✓	see over →
		0932	BO				48 32 13	125 15 55		108					
		0942	EN				48 32 10	125 15 51							

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Up to now (L303) computer time 3 min ahead of UTC
Fixed @ 0612 UTC, 26 MAY

Batteries did not leak after rotating caps

0010 = 30x, 0012 = 10x, 0013 = 3x

Fluorescence gain parameter incorrectly set @ $\times 30$, changed to $\times 10$ and saved. initial config - 443-206-97.xml con.
- set incorrectly for all 260Vc, Fluorescence saturated > 15 .

Changed FI cable to 3x, and changed config to FI 3x

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Month MAY				Year 2016			Ship TULLY			Cruise ID 2016-41					
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	C1	1017	BE	ROS	-	14	48 28 87	125 15 29	154		-	-	MB	✓	
		1020	BO				48 28 92	125 15 27		144					
		1023	EN				48 28 96	125 15 25							
26	C1	1029	BE	NET	-	15	48 29 03	125 15 25	154		-	-	K/MB	-	Bwto
		1034	BO				48 28 93	125 15 26		144					
		1036	EN				48 28 87	125 15 26							
26	C2*	1122	BE	ROS	-	16	48 26 23	125 9 31	162		-	-	MB	✓	
		1125	BO				48 26 27	125 9 29							
		1128	EN				48 26 29	125 9 26							
26	C2*	1136	BE	NET	-	17	48 26 19	125 9 25	162				K/MB		Bwto
		1142	BO				48 26 04	125 9 16		152					
		1148	EN				48 25 95	125 9 04							
26	C3	1304	BE	ROS	US	18	48 23 48	125 20 73	124		42	1	MB	✓	
		1306	BO				48 23 48	125 20 74		123					
		1309	EN				48 23 46	125 20 75							
26	C3	1317	BE	NET	-	19	48 23 47	125 20 76	123		-	-	K/MB	-	Bwto
		1320	BO				48 23 57	125 20 59		113					
		1324	EN				48 23 57	125 20 59							

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Month <u>MAY</u>				Year <u>2016</u>			Ship <u>TULLY</u>			Cruise ID <u>20-47</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							
26	LB07	1418	BE	ROS	US	20	48 28 67	125 22 11	156		43	1	MR	✓	
		1421	BO				48 28 68	125 22 10		148					
		1424	EN				48 28 68	125 22 08							
26	LB07	1431	BE	NET	-	21	48 28 68	125 22 08	156		-	-	K/MR		BN
		1438	BO				48 28 67	125 22 15		146					
		1441	EN				48 28 66	125 22 17							
26	B8	1556	BE	ROS	US	22	48 34 49	125 30 00	120		44	1	MR	✓	
		1558	BO				48 34 51	125 30 00							
		1601	EN				48 34 55	125 29 98							
26	B8	1606	BE	NET	-	23	48 34 56	125 29 99	111		-	-	K/MR		BN
		1612	BO				48 34 63	125 29 97		101					
		1615	EN				48 34 65	8							
26	B7	1701	BE	ROS	-	24	48 32 04	125 35 46	78		-	-	MR	✓	
		1703	BO				48 32 02	125 35 44		68					
		1705	EN				48 32 01	125 35 42							
26	B7	1713	BE	NET	-	25	48 32 03	125 35 41	79		-		K/MR		
		1717	BO				48 32 08	125 35 30		68					
		1719	EN				48 32 08	125 35 29							

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Month <u>MAY</u>				Year <u>2016</u>			Ship <u>TULLY</u>				Cruise ID <u>2016 47</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							
26	LB08	1824	BE	ROS	US	26	48 25 22	125 28 54	135		45-57	13	MR	✓	
		1827	BO				48 25 19	125 28 53		123					
		1837	EN				48 25 15	125 28 48							
	LB08	1848	BE	NET	.	27	48 25 15	125 28 48	134				MG		
		1855	BO							125					
		1900	EN												
26	LB09	2052	BE	ROS	US	28	48 21 95	125 34 77	151		58-66	9	MR	✓	Pow deck Bt: 1.4
		2057	BO				48 21 99	125 34 72		141					Pow deck after:
		2107	EN				48 21 96	125 34 70							Stop @ 112 ↓ 4% w.
26	LB10	2213	BE	ROS	US	29	48 18.60	125 41.32	154		67	1	MR	✓	
		2217	BO				48 18.53	125 41.33		146					
		2221	EN				48 18.50	125 41.36							
26	LB11	2319	BE	ROS	US	30	48 15.19	125 47.70	208		68-78	11	MR	✓	
		2323	BO				48 15.20	125 47.65		198					
		2336	EN				48 15.21	125 47.55							
26/27	LB11	2347	BE	NET	—	31	48 15.16	125 47.81	208				MG		
		2358	BO				48 15.19	125 47.74		200					
		0002	EN				48 15.21	125 47.73							

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Notes:

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This page is for any notes or observations

Confirmed, by covering PAR sensors, that "Licor" is the new PAR, 70613, inside one,
and "Licor 2" is the old PAR, 4615, outside one.

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Month <u>MAY</u>				Year			Ship <u>TULLY</u>				Cruise ID <u>2016-47</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							
27	LB12	0039	BE	ROS	US	32	48°12.92	125°51.82	509		79-93	15	MR	✓	
		0050	BO				48°12.90	125°51.77		502					
		0112	EN				48°12.91	125°51.78							
27	LB13	0152	BE	ROS	US	33	48°10.56	125°56.15	926		94	1	MR	✓	stop @ 70 ↓ 40 wire ↓
		0211	BO				48°10.56	125°56.11		915					
		0227	EN				48°10.55	125°56.10							
27	LB14	0310	BE	ROS	US	34	48°08.44	126°00.01	1185		95-113	19	MR	✓	PAR 4615 Removed
		0331	BO				48°08.41	126°00.02		1186					
		0412	EN				48°08.37	126°59.95							
27	LB15	0515	BE	ROS	US	35	48°04.33	126°08.48	1561		114	1	MR	✓	At surface until 0518
		0545	BO				48°04.38	126°08.48							P 1556 D1536 S 1556 A 10
		0610	EN				48°04.30	126°08.42							
27	LB16	0710	BE	NET	-	36	48°00.48	126°16.91	1811		-	-	K1/MB	-	Row 250
		0717	BO				48°00.48	126°16.94		250					
		0722	EN				48°00.48	126°16.92							
		07:33	BE	NET	-	37	48°00.53	126°16.92	1810		-		K1/MB	-	Row 1200
		0806	BO				48°00.55	126°16.90		1200					
		0826	EN				48°00.47	126°16.96							

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Bottle Firing Method:

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Notes: _____

REPLACED BOTTLE 17 with spare from the spare rosette, the bottom cap does not seat very well, put note on the bottle. Replaced the silicon tubing, replaced O-rings with viton from the original 17.
↳ new acid washable tubing, seemed tighter - used 42".

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Month <u>MAY</u>				Year <u>21</u>			Ship <u>TULLY</u>				Cruise ID <u>7</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							
27	LB16	0835	RE	ROS	US	38	48 00 47		1797		115-116	2	MB	✓	TEST FIRE ^{new} 17
		0907	BO				48 00 48	126 16 83		1836					@ SURFACE
		0943	EN				48 00 45	126 16 90							P = 1836 S = 1826 D = 182 A = 10
27	LC12/A4	1314	RE	ROS	US	39	48 15 00	126 39 90	2543		117	1	MB	✓	
		1348	BO				48 15 00	126 39 89		2005					
		1422	EN					126 39 87							
27	LC12/A4	1429	BE	NET	-	40	48 14 98	126 39 97	2539		-		K1/MB		
		1436	BO				48 14 98	126 39 98		250					
		1441	EN				48 14 98								
27	LC12/A4	1450	-	NET	-	41	48 15 00	126 39 88	2539		-		K1/MB		Env. 1200
		1521					48 15 03	126 39 97		1200					
		1541	EN				48 15	39							
27	L	1551	RE	ROS	US	42	48 15 04	126 39 93	2543		118 → 125	8	MB	✓	Out of order Amade's CAST
		1554	BO				48 15 03	126 39 93		150					
		1612	EN					126 39 83							
27	LC11	1752	RE	ROS	US	43	48 18 96	126 26 68	1442		126 → 145	20	MB	✓	
		1818	BO					126 26 56					N1/MB		
		1901	EN				48 18.96								

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STOPPED @ 457m to correct wire angle. (~30sec)

TEST FIRE OF NEW BOTTLE 17 LOOKS GOOD - NO LEAKS.

Using bottles 17-24, to use new niter tubing installed, ended up using bottles 2, 17 → 23, bottles were fired in order to accommodate PAR readings for incubation experiment.
→ Altimeter bouncing around when not close to bottom

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Month MAY				Year 2016			Ship TULLY								
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							
27	LC11	1911	BE	Net		44	48° 18.94	126° 26.61	1432						Bongo/oblique
		1914	Bo				48° 18.91	126° 26.62		50					50 m Tow WIRE OUT
		1923	EN				48° 19.03	126° 26.84							slow recovery
27	LC10	2010	BE	ROS	/	45	48° 22.45	126° 20.19	1253		-	Ø	MR	✓	P 1242 S 1253
		2032	Bo				48° 22.45	126° 20.18		1242					D 1228 A 9
		2054	EN				48° 22.44	126° 20.13							
27	LC09/A3	2146	BE	ROS	US	46	48° 26.01	126° 13.68	598		162-178	17	MR	✓	(CSTN) FLUO CABLE? PAR 4615 ON
		2157	Bo				48° 26.00	126° 13.65		597					P 597 S 600
		2222	EN				48° 26.00	126° 13.49							D 591 A 9 →
27	LC09/A3	2232	BE	NET		47	48° 25.97'	126° 13.50'	594				MG		Bongo 250m
		2242	Bo				48° 26.00'	126° 13.46'	591						
		2247	EN				48° 26.02'	126° 13.46'	590						
27	A2	2350	BE	NET		48	48° 22.70	126° 03.77	352						Bongo 250m
28		0000	Bo				48° 22.73	126° 03.75							
		0005	EN				48° 22.74	126° 03.75							
28	A2	0013	BE	ROS		49	48° 22.72	126° 03.73	353		-	Ø	MR	✓	
		0020	Bo				48° 22.70	126° 03.76		348					
		0027	EN				48° 22.71	126° 03.78							
Transmissometer & Fluorometer are to be cleaned before each cast															

Transmissometer & Fluorometer are to be cleaned before each cast

Cast Type:

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

USW = Sea Water Loop

MOR = Mooring
 NET = Plankton Net Haul
 DRF = Drifter

Bottle Firing Method:

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

Notes:

Time Code:

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This page is for any notes or observations

Fluo trace went uplast 250-150

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Month				Year			Ship		Cruise ID						
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
28	AZ	0052	BE	NET	US	50	48°22.67	126°03.64	360	350			OS/MG		MPS HORIZONTAL
		0113	BO				48°22.86	126°04.29		310					
		0127	EN				48°23.01	126°04.45							
28	LCO8/A1	0232	BE	NET	UN	51	48°29.41	126°07.18	201				MG		BONGO
		0239	BO				48°29.40	126°07.23		195					
		0242	EN				48°29.40	126°07.25							
28	LCO8	0250	BE	ROS	US	52	48°29.38	126°07.21	201		179-189	11	MR	✓	
		0254	BO				48°29.39	126°07.19		193					
		0305	EN				48°29.37	126°07.18							
28	LCO7	0405	BE	ROS	-	53	48°33.15	126°00.01	124		-	Ø	MR	✓	
		0408	BO				48°33.14	126°00.02		116					
		0411	EN				48°33.13	126°00.02							
28	LCO6/B6	0459	BE	NET	-	54	48°36.46	125°53.98	91				MG		
		0502	BO				48°36.44	125°53.97		85					
		0504	EN				48°36.42	125°53.95							
28	LCO6/B6	0514	BE	ROS	US	55	48°36.43	125°53.97	92		190-196	7	MR	✓	
		0516	BO				48°36.42	125°53.95		84					
		0522	EN				48°36.40	125°53.84							

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Bottle Firing Method:

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

Notes:

Time Code:

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 EN = End Time of Cast
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Transmissometer & Fluorometer are to be cleaned before each cast

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Month <u>MAY</u>			Year <u>2011</u>				Ship <u>TULLY</u>				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							
28	LC05/B5	0612	BE	NET		56	48 39.92	125 47.39	63	58			MG		
		0614	BO				48 39.90	125 47.41							
		0616	EN				48 39.89	125 47.40							
28	LC05	0623	BE	ROS		57	48 39.92	125 47.34	64			Ø	MR	✓	
		0625	BO				48 39.91	125 47.34		55					
		0626	EN				48 39.91	125 47.36							
28	LC04	0716	BE	ROS	US	58	48 43.43	125 40.82	165		197-206	10	MS	✓	
		0719	BO				48 43.40	0 8		158					
		0730	EN				48 43.41	125 40.79							
28	LC03	0821	BE	ROS	US	59	48 46.88	125 34.32	140			-	MB	✓	
		0823	BO				48 46.89	125 34.30		132					
		0826	EN				48 46.91	125 34.29							
28	LC02	0857	BE	ROS	US	60	48 48.68	125 31.00	110		207-214	8	MB	✓	
		0859	BO				48 48.69	125 30.99		102					
		0907	EN				48 48.72	125 31.00							
28	LC01	0940	BE	ROS	US	61	48 50.43	125 27.80			215-221	7	MB	✓	
		0942	BO				48 50.43	125 27.80	96						
		0949	EN				48 50.50	2		88					

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=

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Notes:

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Month <u>MAY</u>				Year <u>2016</u>			Ship <u>AGULHAS</u>			Cruise ID <u>2016-47</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							
28	LD02	1134	RE	US	-	62	48 58 39	125 47 04	44		-	-	Ky/MB	-	Brugo
		1136	RE				48 58 40	125 47 04		34					
		1137	EN				48 58 40	125 47 04							
28	LD02	1146	RE	ROS	US	63	48 58 31	125 17 10	44		222-226	5	MB	✓	Stall @ srt way down
		1148	BO				48 58 31	125 17 09		36					for ship position
		1153	EN				48 58 37	125 47 11							Correction
28	LD04	1259	BE	ROS	US	64	48 53 25	125 57 12	64		227-231	5	MB	✓	
			BO				48 53 25	125 57 23		56					
			EN				48 53 26	125 57 33							
		1315	BE	NET	US	65	48 53 24	125 57 3	65		-	-	Ky/MB	-	Brugo
		1317	BO				48 53 24	125 57 33		55					
		1318	EN				48 53 24	125 57 32							
28	LD65	1520	BE	ROS	US	66	48 43 67	126 14 93	178		232-239	8	MB	✓	Amende's Per
		1525	BO				48 43 68	126 14 92		150					Cast
		1537	EN				48 43 72	126 14 92							
	LD08	1702	BE	ROS	US	67	48 39 18	126 23 35	769		240-256	17	MB	✓	
		1705	BO				48 39 17	126 23 39		766					D = 759 A = 10
		1706	EN				48 39 23	126 23 33							S = 770 P = 766
							LAPTOP	AFTER	0067						

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Notes:

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Month <u>MAI</u>				Year <u>2016</u>			Ship <u>TULLY</u>			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							
28	LG09	2242	BE	NET	/	68	48°51.23	127°19.35	2049	1500	_____		MG		PAR 4615 OFF MULTINET
		2354	BO				48°51.18	127°19.40							MPS VNH
		0023	EN				48°51.18	127°19.37							
29	LG09	0037	BE	ROS	US	69	48°51.17	127°19.48	2049		5	7	MR	✓	
		0121	BO				48°51.20	127°19.47		2070					P 2070 S 2050
			EN				48°51.23	127°19.37							D 2043 A 10
	LG09		BE	NET	—	70	48°51.16	127°19.37					MG		BONGO
		0223	BO				48°51.17	127°19.44							
		0229	EN				48°51.11	4							
29	LG08	0321	BE	ROS	/	71		127°13.21	2060			(1)	MR	✓	
		0358	BO				48°55.31	127°13.29		2075					
		0430	EN				48°55.30	127°13.28							D 2047 A 10
29	LG07	0519	BE	NET	/	72	48°59.40	127°07.17	1753				MG		
		0528	BO				48°59.38	127°07.20		250					
		0532	EN												
29	LG07	0544	BE	ROS	/	73	48°59.36	127°07.26	1752				MR/MB		
		0616	BO				48°59.39	127°07.18		1769					P 1769 S 1753
			EN				39	127°07.19							9

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Cast 0071 started ~ 3⁵ min before rosette went in the water b/o winch issues.

Wanted to close Niskin 7 to test it, closed #1 by mistake.
So 1 and 7 closed @ 0073, not needed, no leak on 7 - continue to monitor.

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Month <u>MAY</u>				Year <u>2016</u>			Ship <u>Tully</u>			Cruise ID <u>-47</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	LG06	0739	BE	ROS	US	74	49 3 46	127 1 20	960		263-279	17	MB	✓	PAR 465 back on
		0758	BO				49 3 46	127 1 08							
		0831	EN				49 3 44	127 1 07							
29	LG05	0917	BE	ROS	-	75	49 7 35	126 55 32	276			-	MB	✓	
		0922	BO				49 7 35	1		269					
		0927					49 7 36	126 55 22							
29	LG04	1012	BE		-	76	49 11 30	4	145			-	K/MR		
		1017	BO				49 11 30	126 49 36		135					
		1020	EN				49 11 31	126 49 38							
29	LG04	1029		R	US	77	49 11 34	126 49 31	145		280-288	9	MB	✓	
		1031	BO				49 11 33	2 9							
		1041	EN				49 11 28	-							
29	LG03	1136	BE	ROS	-	78	49 15 05		125			-	MR	✓	
		1139	BO				49 15 02	126 43 69		116					
		1141	EN				49 14 98	7							
29		12:22	BE	NET	-	79	49 18 68	126 38 09	100			-	K/MR		Bravo
		1225	BO				49 18 69	126 38 08		90					
		1226	EN				49 18 72	1 2							

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Bottle Firing Method:

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Month <i>MAY</i>				Year <i>2016</i>			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							
29	LG02	12 35	BE	Ros	US	80	49 18 74	126 38 02	100		289-296	8	MR	✓	
		12 37	BO				49 18 73	126 38 03		91					
		12 44	EN				49 18 72	126 38 01							
29		13 15	BE	Ros	US	81	49 20 54	126 35 01	52		297-301	5	MR	✓	
		13 16	BO				4	126 35 97		44					
		13 21	EN				49 20 55	126 35 26							
29	ATI	15 43	BE	Ros	US	82	49 34 46	126 54 85	65		302-309	8	AT MR	✓	Amara Cast
		15 45	BO				49 34 46	126 54 83		56					
		15 56	EN				49 34 44	126 54 72							
29	LBP1	21 58	BE	Ros	US	83	50 04 76	127 52 77	53		310	1	MR	✓	
		2200	BO				50 04 77	127 52 76		46					
		2202	EN				50 04 78	127 52 75							
29	LBP2	22 20	BE	Ros	-	84	50 04 07	127 54 19	89		-	0	MR		
		22 22	BO				50 04 08	127 54 16		84					
		22 24	EN				50 04 09	127 54 15							
29	LBP2	22 31	BE	NET		85	50 04 07	127 54 19	89				MG		BONGO
		22 33	BO				50 04 06	127 54 21		85					
		22 35	EN				50 04 05	127 54 22							

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Notes:

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Month <u>MAY</u>				Year <u>2016</u>			Ship <u>TULLY</u>				Cruise ID <u>2016-47</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	LBP3	2253	BE	ROS	US	86	50°03.20	127°55.33	166		311-320	10	MR	✓	2 NISLIN @ 5
		2258	BO				50°03.16	127°55.35		160		(11)			
		2309	EN				50°03.17	127°55.34							
29	LBP3	2316	BE	NET		87	50°03.17	127°55.29	167						Bongo to 163m
		2323	BO				50°03.16	127°55.29		163					
		2326	EN				50°03.14	127°55.29							
29	LBP4	2355	BE	ROS	-	88	50°01.37	127°58.14	1040		-	Ø	MR	✓	18 KHz wrong
30		0016	BO				50°01.37	127°58.12		1090					
		0034	EN				50°01.35	127°58.14							
30	LBP5	0057	BE	ROS	US	89	49°59.94	128°00.07	1277		321-339	19	MR	✓	PAR 4615 OFF
		0122	BO				49°59.95	128°00.24		1286					
		0200	EN				49°59.93	128°00.22							
30	LBP5	0207	BE	NET		90	49°59.99'	127°59.99'	1279				MR		Bongo 250m
		0217	BO				49°59.99'	127°59.97'	1279	250					
		0222	EN				49°59.99	127°59.99	1279						
30	LBP6	0306	BE	ROS	-	91	49°56.14	128°05.56	790		-	Ø	MR	✓	BRIDGE TURNED ON DOPPLER
		0323	BO				49°56.11	128°05.57							P 875 S 821
		0338	EN				49°56.14	128°05.55							D 865 .A 10

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Month <u>MAY</u>				Year <u>2016</u>				Ship <u>TULLY</u>				Cruise ID <u>2016-47</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							
30	LBP7	0425	BE	ROS	US	92	49°52.35	2	2160		0	21	MR	✓	
		0504	BO				49°52.37	128°11.36		2005					
		0557	EN				49°52.35	128°11.47							
30	LBP7	0608	BE	NET	.	93		128°11.26	2135				MG		Bongo
		0616	BO					128°11.27		250					
		0620	EN				49°52.48	128°11.29							
30	LBP8	0708	BE	ROS	US	94	49°48'54	128°16'94	2065		361-366	6	MB	✓	P=2085 S=2065 D=2058 A=9.0
		0740	BO				49°48'52	128°16'95		2085					ushed C D W
		0820	EN				49°48'48	128°17'03							DI 1/20 following cast
	LBP8	0829	BE	NET	.	95	49°48'65	128°17'03	2064						Bongo 250
		0836	BO				49°48'64	128°17'03		250			10		
		0842	EN				49°48'64	128°17'05							
30	LBP8	0854	BE	NET	.	96	49°48'61	128°16'88	2064						Bongo 1200
		0925	BO				49°48'60	128°16'88		1200			KY/MB		
30		0947	EN					28°1'89							
31	CPE2	1617	BE	ROS	.	97	50°43'05	128°39'84	127				MB	✓	PAR on 4615
		1620	BO				50°43'07	128°39'84		117					
		1622	EN				50°43'07	128°39'85							

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DOPPLER WAS NOT ON @ THE BEGINNING OF THE 00:00 → 12:00 WATCH.
PAR BACK ON AFTER CAST (4615)

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Month <u>MAY</u>				Year <u>2016</u>			Ship <u>Tow</u>				Cruise ID <u>6-7</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							
31	CPE7	1627	BE	NET	-	98	50 43.03	128 39 82	125			-	K/MB	-	Bongo
30		1633	BO				50 43 07	128 39 81		114					
		1635	EN				50 43 07	128 39 80							
31	MPS 1	1856	BE	NET	-	99	50 40.13	128 56.25	396		-	-		-	Multicist, en route
30		1910	BO				50 40.54	128 56.52		350					WINCH WITH BAD WRAP SENT BACK OUT
		1927	EN				50 40.74	128 57.15							DECK UNIT NOT TALKING TO MPS ABORT AFTER 2
30	LQ03	2003	BE	ROS	-	100	50° 39.69	129° 02.02	1251		-	0	MR	✓	PAR 465 off
		2027	BO				50° 39.68	129° 01.96		1275					P 1275 S 1230
		2048	EN				50° 39.69	129° 02.00							D 1260 A 10
30	LQ03	2054	BE	NET	-	101	50° 39.71	129° 02.04	1252				MG		BONGO
		2103	BO				50° 39.70	129° 01.99		250					
		2107	EN				50° 39.70	129° 01.98							
30	JI22	2221	BE	ROS	-	102	50° 39.83	129° 17.39	1385			0	MR	✓	
		2249	BO				50° 39.82	129° 17.37		1445					
		2213	EN				50° 39.81	129° 17.38							
30	JI22	2320	BE	NET	-	103	50° 39.82	129° 17.39	1394				MG		BONGO
		2330	BO				50° 39.81	129° 17.38		250					
		2335	EN				50° 39.81	129° 17.35							

Cast Type:

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

USW = Sea Water Loop

MOR = Mooring
 NET = Plankton Net Haul
 DRF = Drifter
 _____ = _____

Bottle Firing Method:

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

Notes: _____

Time Code:

BE = Beginning Time of Cast
 BO = Bottom Time of Cast
 EN = End Time of Cast

DE = Deployment Time
 MR = Messenger Release Time
 RE = Recover Mooring Time

Transmissometer & Fluorometer are to be cleaned before each cast

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page _____ of _____

Month <u>MAY</u>				Year <u>2016</u>			Ship <u>TULLY</u>				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							
31	CS00	0251	BE	NET	UN	104	50 27.64	129 54.99	2167				G		MPS VNH
		0419	BO				50 27.60	129.55.19		2000					
		0500	EN				50 27.59	129.57.97							
31	CS00	0532	BE	ROS	US	105	50 27.62	129.55.16	2167		367-386	20	MR/MB	✓	
		0610	BO				50 27.69	129.55.05		2005					
		0707	EN				50 27.71	129.55.06							
31	CS00	0713	BE	NET	-	106	50 27.70	129.55.10					KY		Pinco 250
		0720	BO				50 27.68	129.55.07		250					
		0725	EN				50 27.69	129.55.02							
31	CS01	0848	BE	ROS	-	107	50 34.93	129.41.51	2095			-	MR	✓	
		0922	BO				50 34.91	129.41.56		2005					
		0954	EN				50 34.94	129.41.44							
31	CS01	1005	BE	NET		108	50 34.95	129.41.53	2095			-			
		1009	BO				5	129.41.60		250			KY/MB		
		1015	EN				50 34.93	129.41.61							
31	CS02	1132	BE	NET	-	109	50 41.33	129.27.88	1894			-	KY/MB	-	250
		1140	BO				50 41.32	129.27.91		250					
		1144	EN				50 41.32	129.27.92							

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DRF = Drifter
=

Bottle Firing Method:

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

Notes:

Time Code:

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EN = End Time of Cast
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RE = Recover Mooring Time

Transmissometer & Fluorometer are to be cleaned before each cast

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Month <u>Mar</u>				Year <u>2016</u>			Ship <u>Tully</u>			Cruise ID <u>20 - 7</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							
31	CS02	1152	BE	ROS	US	110	50 41 32	129 27 96	1894		387-405	20	MB	✓	P: 1906 S: 1891 D: 1880 A: 10
		1227	BO				50 41 34	129 27 83		1906					
		1318	EW				50 41 34	129 27 96							
31	CS03	1415	BE	ROS	-	111	50 45 76	129 19 96	230		-	-	MB	✓	PAC on 4615
		1419	BO				50 45 69	129 19 97		224					W. ES
		1423	EW				50 45 70	129 19 94							
31	CS03	1428	BE	NET	-	112	50 45 69	129 19 94	230		-	-	KH/MS	-	
		1437	BO				50 45 64	129 19 80		220					
		1441	EW				50 45 66	129 19 80							
31	CS04	1528	BE	ROS	US	113	50 49 23	129 12 85	100		406-412	7	MB	✓	
		1530	BO				50 49 24	129 12 86		92					
		1537	EW				50 49 23	129 12 91							
31	CS04	1543	BE	NET	-	114	50 49 23	129 12 96	96			-	KH/MB		Bongo - 90m
		1547	BO				50 49 24	129 12 98	96	90					
		1550	EW				50 49 24	129 13 00	96						
31	WAWDAS	1938	BE	NET	-	115	50° 56.28'	129° 58.83'	2103						
		2110	BO				50° 55.64'	129° 58.53'		2000			MB/CS		MPS 1N4
		2154	EW				50° 55.41'	129° 58.60'							

Cast Type:

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MOR = Mooring

NET = Plankton Net Haul

DRF = Drifter

____ = _____

Bottle Firing Method:

US = Up / Stop

UN = Up / No stop

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BO = Bottom Time of Cast

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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

STOPPED BRIEFLY ON WAY DOWN ~100 TO LEFT BOOM + ~400 TO LOWER BOOM

PAR 4/6/5 OFF

DAILY SCIENCE LOG

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Page _____ of _____

Month <u>MAY / JUNE</u>			Year <u>2016</u>			Ship <u>TULLY</u>			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							
31	New ODAS	2227	BE	ROS	—	116	50° 56.39	129° 58.86	2105			2	MR	✓	
		2306	Bo				50° 56.36	129° 58.77		2005		Follow	!		
		2341	EN					129° 58.65							Stop @ 1940 1650 ↓ 2°
31	New ODAS	2349	BE	NET	—	117	50° 56.37	129° 58.82	2101				MG		
1		0002					50° 56.35	129° 58.82		250					
1		0006					50° 56.34								
1	Loop 118	0132	BE	USW	—	118	50° 58.52	129° 40.15	291		Loop 118		MR		
1	CS3B	0235	BE	ROS	—	119	51° 00.03	129° 27.02	220			(1)	MR	✓	
		0240	Bo					129° 27.07		213					PAR 4615 ON
		0244	EN				51° 00.05	129° 27.07							
	CS3B	0255		NET		120	51° 00.01	129° 26.99	221				MG		BONGO
		0303					50° 59.96	129° 27.06		215					
		0307	EN				50° 59.93	129° 27.11							
	CS05	0535	BE	ROS	—	121	50° 55.94	129° 00.03	65						
		0537	Bo				50° 55.92	129° 00.02		61		0	MR	✓	
			EN				50° 55.92	129° 00.02							
		0548	BE			122	50° 55.97	128° 59.85	65				MG		
		0550	Bo				50° 55.94	128° 59.80		60					
		0552	EN				50° 55.92	128° 59.77							

Cast Type:

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MOR = Mooring
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 DRF = Drifter

Bottle Firing Method:

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

Notes:

Time Code:

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Transmissometer & Fluorometer are to be cleaned before each cast

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Changed valve O-ring of Niskin 8 before cast 116.

Close N8 to test, not needed.

Cast 0116: ~ 8.5 min between start of file and start of acquisition.

NISKIN 8 OK

~ 25 min delay to fix light on LARS crane

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Month <u>JUNE</u>				Year <u>2016</u>			Ship <u>TULLY</u>			Cruise ID <u>201</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							
1	CS1B	0733	BE	ROS	-	123	50 53 00	128 40 11	72			-	MB	✓	
		0735	BO				50 53 01	128 40 07		65					
		0736	EN				50 53 01	128 40 04							
1	CS1B	0744	BE	NET	.	124	50 53 01	128 39 95					KY/MB		
		0747	BO				50 52 99	128 39 97	72	64					
		0749	EN				50 52 99	128 39 98							
1	CS06	09:06	BE	NET	-	125	51 00.0	128 51.77	64				1 T		
		09:08	BO				50 59.98	128 51.76		54					
		09:09	EN				50 59.97	128 51.78							
1	CS06	09:18	BE	ROS	US	126	50 59.890	128 51.750	64		413-418	6	KY/WB	✓	forgot to change station name
		09:21	BO				50 59.890	128 51.750		54					
		09:27	EN				50 59.910	128 51.750							
1	CS07	10:23	BE	ROS	-	127	51 4.61	128 44.150	63			-	KY	✓	
		10:27	BO				51 4.64	128 44.150		54					
		10:28	EN				51 4.63	128 44.160							
	0	3	BE	NET		128	51 4.62	128 44.215	63				MB/AT		borg
		10:37	BO				51 4.60	128 44.20		53					
		10:38					51 4.59	128 44.19							

Cast Type:

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 DRF = Drifter

Bottle Firing Method:

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

Notes:

Time Code:

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Transmissometer & Fluorometer are to be cleaned before each cast

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Page ____ of ____

Month <i>June</i>				Year <i>2016</i>			Ship <i>Tully</i>			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							
1	CSØ8	11:37	BE	ROS	-	129	51 8.552	128 36.149	142		-		KY/MB	✓	
		11:39	BO				51 8.578	128 36.186		134					
		11:42	EN				51 8.600	128 36.210							
1	CSØ8	5	BE	NET		130	51 8.71	128 36.36	142				MB/AT		bongo
			BO				51 8.74	128 36.50		132					
		12:00	EN				51 8.76	128 36.58							
1	CSØ9	12:58	BE	ROS	US	131	51 12.48	128 27.98	194		419-429	11	MB	✓	
			BO				51 12.47	28 27.92		185					
		13:15	EN				51 12.41	128 27.69							
1	CSØ9	1321	BE	NET		132	51 12.36	128 27.65	193						Bongo to
		1327	BO				51 12.42	27 45		182					
		1331	EN				51 12.72	128 27.77							
1	CS10	14:23	BE	ROS	-	133	51 16.480	128 19.890	79			-	KY	✓	
		14:25	BO				51 16.490	128 19.870		69					
		14:27	EN				51 16.500	128 19.840							
1	CS16	14:35	BE	NET	-	134	51 16.48	128 19.76	78			-	MB		bongo
		14:37	BO				51 16.49	128 19.78		67					
		14:38	✓				51 16.50	128 19.79							

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Bottle Firing Method:

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Time Code:

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Notes:

DAILY SCIENCE LOG

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Page 2 of

Month <u>JUN</u>			Year <u>2016</u>				Ship <u>TULLY</u>				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							
1	LOOP 135 CS10 SSO	1453	B	Loop	-	135	51 16 25	128 22 42	96	-	Loop 135	-	MR	-	1 SAC 2 CHL
1	LOOP 136 CSO → SSO	1712		Loop		136	51 12 76	128 54 23	140	-	Loop 136	-	MR	-	1
2	SSO	0048	BE	ROS	-	137	50° 59.95	130° 50.01				-	MR	✓	
		0123	BO				51° 00.02		2616	2005					
		0155	EN				51° 00.02	130° 50.14							
2	SS	0204	BE		-	138		130° 50.02				-	MR		
		0216	BO				51° 00.05			250					
		0220	EN				51° 00.05								
2	SSO	0224	BE	NET	-	139	51° 00.08	130° 50.01	2626			-	MR		Deep
		0313	BO				51° 00.08	130° 50.02		1200					
		0334	EN				51° 00.02	130° 50.01							
2	LOOP 14	0353	BE	LOOP		140	51 01.56	130 43.38	2441	4.5			MR	✓	2 C
2	LOOP 141	0447	BE			141	51 03.67	130 34.61	2094	4.5					1 SAC 2 CHL
2	SSI	0645	BE	ROS	-	142	51 12 00	9 5 9	494				MR	✓	
		0657	BO				51 11 99			489					
		0707	EN				51 11 98	130 0 01							
2	SSI	0714	BE	NET	-	143	51 11 97	129 59 89	490				KY		bone o
		0721	BO				51 11 98	129 59 96		250					
		0726	EN				51 11 96								

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=

Bottle Firing Method:

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Notes:

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This page is for any notes or observations

STOPPED @ 282 DOWN TO STRAIGHTEN WIRE, STARTED COMING BACK UP TO 200M, THEN BACK DOWN, (RESUMED IN WRONG DIRECTION), STOPPED @ 282M TO STRAIGHTEN WIRE ANGLE.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page _____ of _____

Month <u>JUNE</u>		Year <u>2016</u>		Ship <u>TULLY</u>		Cruise ID <u>2</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							
2	SS2	08:41	BE	ROS	-	144	51 13.040	129 43.040	585			-	KY	✓	
		08:55	BO				51 13.004	129 42.994		589					
		09:05	EN				51 13.000	129 43.070							
2	SS2	09:13	BE	NET	-	145	51 12.98	129 42.96	582			-	MB	-	bongo
		09:21	BO				51 12.94	129 42.90	566	250					
		09:26	EN				51 12.92	129 42.90							
2	SS3	11:05	BE	ROS	-	146	51 15 03	129 21 34	290			-	MB	✓	
		11:10	BO				51 15 04	129 21 34		283					
		11:16	EN				51 15 03	129 21 34							
2	SS3	11:22	BE	NET	-	147	51 15 05	129 21 37	289			-	KY	-	
		11:29	BO				51 15 06	2		250					
		11:33	EN				51 15 07	129 21 26							
2	SS4	13:17	BE	ROS	-	148	51 21.010	128 59.880	238			-	KY	✓	
		13:21	BO				51 21.020	128 59.890		230					
		13:26	EN				51 21.050	128 59.890							
2	SS4	13:31	BE	NET	-	149	51° 21'.07	128° 59'.92	238				MB		bongo 228 m
		13:37	BO				51° 21'.08	128° 59.98		228					
		13:42	EN				51 21'.07	128° 59'.99	237						
2	Loop 150	1536	BE	Loop	-	150	51 27 12	128 34 12	207	-	Loop 150	-	MB	-	

Cast Type:

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 =

Bottle Firing Method:

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 DN = Down / No stop

Notes:

Time Code:

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 EN = End Time of Cast
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Transmissometer & Fluorometer are to be cleaned before each cast

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Stopped at 16m down to correct aft wire lead, and at 142m

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Month <u>JUNE</u>				Year <u>2016</u>			Ship <u>TALUY</u>			Cruise ID <u>2016-47</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							
2	SS5	15:50	BC	ROS	-	151	51 28 05	128 30 00	200				MR	✓	
		15:54	BO				51 28 06	128 30 00		192					
		15:58	EN				51 28 07	128 29 98							
2	SS5	16:05	BC	NET	-	152	51 27 99	128 30 03	200				KY		Bongo
		16:14	BO				51 28 03	128 30 05		189					
		16:18	EN				51 28 01	128 30 03							
2	LOOP 153	17:47	BC	Loop	-	153	51 39 25	128 17.84					N ²		18.1.201
2	QCSI	18:19	BC	Ref	US	154	51 42.330	128 14.290	141		430-435	6	KY	✓	
		18:22	BO				51 42.340	128 14.340		133					
		18:30	EN				51 42.370	128 14.340							
2	QCSI	18:35	BC	NET		155	51° 42' 35	128° 14' 32	141						128 m Bongo
		18:42	BO				51° 42' 38	128° 14' 48		128					
		18:45	EN				51° 42' 41	128° 14' 56							
2	SS6	21:44	BC	ROS	-	156	51° 20.04	127° 59.91	176				MR	✓	
		21:48	BO				51° 20.03	127° 59.93		169					
		21:52	EN				51° 20.02	127° 59.95							
2	SS6	22:00	BC	NET	-	157	51° 19.98	128° 00.04	177				MB	✓	BONGO.
		22:08	BO				51° 19.95	128° 00.04		172					
		22:12	EN				51° 19.95	128° 00.05							

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Notes:

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Transmissometer & Fluorometer are to be cleaned before each cast

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DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2016-47 ^{Book}
2/2

DATE:

From: May 24, 2016 to: June 5, 2016

VESSEL:

John P. Tully

PROJECT(S):

La Perouse Zooplankton Monitoring

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

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>JUN</u>				Year <u>2016</u>			Ship <u>TULLY</u>				Cruise ID <u>2016-47</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							
2	SS7	2328	BE	ROS	—	158	51° 24.74	127° 47.54	122		—	0	MR	✓	
		2330	BO				51° 24.74	127° 47.59		113					
		2333	EN				51° 24.75	127° 47.60							
2	SS7	2338	BE	NET	—	159	51° 24.80	127° 47.69	120		—		MG		BONGLO
		2342	BO				51° 24.77	127° 47.75		115					
		2345	EN				51° 24.77	127° 47.77							
3	UBC7	0026	BE	ROS	—	160	51° 30.08	127° 49.10	158		—	0	MR	✓	
		0030	BO				51° 30.08	127° 49.08		151					
		0032	EN				51° 30.07	127° 49.10							
3	UBC7	0038	BE	NET		161	51° 30.06	127° 49.07	158				MG		BONGLO
		0043	BO				51° 30.07	127° 49.09		153					
		0046	EN				51° 30.08	127° 49.10							
3	Ri1	0148	BE	ROS	✓	162	51° 26.48	127° 38.33	305				N ²	✓	Did not wait at surface after 10 min purge
		0154	BO				51° 26.47	127° 38.37		298	—	0			
		0159	EN				51° 26.47	127° 38.35							
3	Ri1	0204	BE	NET		163	51° 26.48	127° 38.38	303				N ₂ /CS		
		0215	BO				51° 26.49	127° 38.45		298					
		0220	EN				51° 26.49	127° 38.45							

Cast Type:

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 CTD = CTD without Rosette
 ROS = Rosette plus CTD
 SET = Fish Set

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

Bottle Firing Method:

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

Notes:

Time Code:

BE = Beginning Time of Cast
 BO = Bottom Time of Cast
 EN = End Time of Cast
 DE = Deployment Time
 MR = Messenger Release Time
 RE = Recover Mooring Time

Transmissometer & Fluorometer are to be cleaned before each cast

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Month <u>JUNE</u>				Year <u>2016</u>			Ship <u>TULLY</u>				Cruise ID <u>2016-47</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							
3	Ri 2	0301	BE	ROS	/	164	51° 31.29	127° 33.50	330		/	0	MR	✓	
		0307	BO				51° 31.28	127° 33.54		325					
		0313	EN				51° 31.27	127° 33.61							
3	Ri 2	0319	BE	NET		165	51° 31.25	127° 33.64	330				MG		BONGO
		0330	BO				51° 31.22	127° 33.70		325					
		0336	EN				51° 31.20	127° 33.72							
3	Ri 3	0412	BE	ROS	-	166	51° 35.89	127° 32.06	325		-	0	MR	✓	
		0418	BO				51° 35.88	127° 32.08		320					
		0424	EN				51° 35.87	127° 32.06							
3	Ri 3	0429	BE	NET	-	167	51° 35.87	127° 32.06	325				MG		BONGO
		0442	BO				51° 35.79	127° 32.08		325					
		0448	EN				51° 35.77	127° 32.07							
3	Ri 4	0525	BE	NET		168	51° 38.95	127° 26.61	296				MG		BONGO
		0535	BO				51° 38.90	127° 26.58		295					
		0540	EN				51° 38.89	127° 26.60							
3	Ri 4	0547	BE	ROS		169	51° 38.86	127° 26.65	300		-	0	MR	✓	
		0552	BO				51° 38.87	127° 26.64		292					
		0558	EN				51° 38.88	127° 26.63							

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USW = Sea Water Loop

MOR = Mooring
 NET = Plankton Net Haul
 DRF = Drifter

Bottle Firing Method:

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

Notes: _____

Time Code:

BE = Beginning Time of Cast
 BO = Bottom Time of Cast
 EN = End Time of Cast
 DE = Deployment Time
 MR = Messenger Release Time
 RE = Recover Mooring Time

Transmissometer & Fluorometer are to be cleaned before each cast

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Month <u>JUNE</u>				Year <u>2016</u>			Ship <u>Alcyon</u>			Cruise ID <u>2016-47</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							
3	Loop 170	0913	BE	Loop	-	170	51 12 59	127 52 63	127		Loop 170	-	MB	-	1 SAC 1 2 CHL
3	CPE1	1035	BE	Ros	-	171	51 00 06	127 50 07	142				MB	✓	
		1037	BO				51 00 09	127 50 09		136					
		1041	EN				51 00 09	127 50 14							
3	CPE1	1047	BE	NET	-	172	51 00 15	127 50 15	410		-	-	KY	-	
		1051	BO				51 00 18	127 50 18		132					
		1053	EN				51 00 19	127 50 17							
3	CPE1 ~ P. 174	1100	BE	DRF	-	173	51 00 13	127 49 35	140	-	-	-	MB	-	Deployed @ 1 Knot 3 Drifters Sponge Sub
3	Loop 174	1448	BE	Loop	-	174	50 44 02	127 05 24	165	-	Loop 174	-	MB	-	1 SAC 1 2 CHL
3	Loop 175	1928	BE	Loop	-	175	50 29 03	126 14 02	380	4.5	Loop 175	-	MG	-	1 SAC 2 CHL
4	14	0206	BE	Ros	US	176	49 53.09	124 59.43	315		436-438	3	MR	✓	
		0211	BO				49 53.12	124 59.48		308					
		0219	EN				49 53.14	124 59.59							
4	14	0225	BE	NET	-	177	49 53.13	124 59.71	314						
		0235	BO				49 53.07	124 59.75		309					
		0241	EN				49 53.06	124 59.76							
4	11	0408	BE	Ros	US	178	49 42.41	124 43.46	300		439-449	11	MR	✓	
		0414	BO				49 42.41	124 43.52		293					
		0429	EN				49 42 53	124 43 75							

Cast Type:
 BOT = Bottle cast, no CTD
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 ROS = Rosette plus CTD
 CFE = Fish Set

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

Bottle Firing Method:
 US = Up / Stop
 UN = Up / No stop
 DN = Down / No stop

Notes:

Time Code:
 BE = Beginning Time of Cast
 BO = Bottom Time of Cast
 EN = End Time of Cast

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Transmissometer & Fluorometer are to be cleaned before each cast

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Month <u>JUN</u>				Year <u>2016</u>			Ship <u>TULLY</u>				Cruise ID <u>2016-47</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							
4	11	0434	BE	Net.	-	179	49° 42.62	124° 43.77	301						
		0444	BO				49° 42.59	124° 43.79		296					
		0450	EN				49° 42.61	124° 43.79							
4	CPF2	0631	BE	ROS	US	180	49° 28.00	124° 29.94	324		450-452	3	MR	✓	
		0637	BO				49° 28.01	124° 29.96		318					
		0645	EN				49° 28.00	124° 29.98							
4	CPF2	0652	BE	NET	-	181	49° 28.02	124° 29.94	324				KY		Barb
		0700	BO				49° 28.04	124° 29.95		314					
		0705	EN				49° 28.05	124° 29.94							
4	CPF1	08:49	BE	ROS	US	182	49 22.070	124 5.010	245		453-455	3	KY	✓	
		08:54	BO				49 22.050	124 5.040		238					
		09:01	EN				49 22.020	124 5.090							
4	CPF1	09:07	BE	NET		183	49 21.99	124 5.14	245				MB		
		09:15	BO				49 21.99	124 5.16		239					
		09:19	EN				49 22.00	124 5.19							
4	22	1117	BE	ROS	US	184	49 40 29	124 16 37	354		456-466	11	MB	✓	
		11 25	BO				49 40 36	124 16 45		353					
		11 41	EN				49 40 50	124 16 57							

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 =

Bottle Firing Method:

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Notes:

Time Code:

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(operator went in wrong direction)

Stopped @ ~30 on way down, came back up, rosette out of the water briefly, back in and down to depth. Salinity different on way up. (difference between 2s's ~ .25 on way up), difference improved towards surface; Difference between Sals fluctuated a lot. Rosette + CTD has red stringy stuff (jelly, fish?) all over it.

• Flushed CTD several times with DI H₂O, wiped CTD + rosette down.

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Month <u>JUNE</u>				Year <u>2016</u>			Ship <u>TULLY</u>			Cruise ID <u>2016-47</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							
4	22	11:42	BC	NET	-	185	49 40 51	124 16 60	359		-	-	KY	-	Bongo
		11:54	BO				49 40 51	124 16 60		354					
		11:59	EN				49 40 50	124 16 57							
4	24	13:16	BC	ROS	US	186	49 30.330	124 6.020	424		467-469	3	KY	✓	
		13:23	BO				49 30.300	124 6.010		418					
		13:37	EN				49 30.250	124 06.99							
4	24	13:37	BC	NET		187	49 30.26	124 06.94	423				MB		Bongo
		13:49	BO				49 30.27	124 06.94		418					
		13:50	EN				49 30.28	124 06.95							
4	28	15:33	BC	ROS	US	188	49 24 11	123 45 14	134		470-472	3	MR	✓	
		15:35	BO				49 24 11	123 45 13		132					
		15:42	EN				49 24 08	123 45 12							
4	28	15:46	BC	NET	-	189	49 24 09	123 45 12	134		-	-	KY	-	Bongo
		15:50	BO				49 24 08	123 45 13		129					
		15:52	EN				49 24 08	123 45 13							
4	Geo1	16:58	BC	ROS	US	190	49 14.920	123 45.010	398		473-483	11	KY	✓	→
		17:05	BO				49 14.930	123 45.00		393					
		17:22	EN				49 14.920	123 45.020							

Transmissometer & Fluorometer are to be cleaned before each cast

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Bottle Firing Method:

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Notes:

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briefly. Returned to water
quickly so

down to but came up w/ pump on + out of water. ↑ Left pump on + continued 10+ up. Sat at surface until temp + SAL difference stabilized (not sure how long I waited) then started. Realized I hadn't started archiving (was at 20m). Brought back to surface, started archiving + continued.

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Month <u>JUNE</u>				Year <u>2016</u>			Ship <u>TULLI</u>			Cruise ID <u>2016-47</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							
4	G601	1738	BE	NET	-	191	49°14.92	123°45.02	398				MR		
		1744	BO				49°14.92	123°45.00		393					
		1752	EN				49°14.93	123°44.98							
4	G601	1758	BE	NET	-	192	49°14.91	123°45.01	398			-	MR		
		1802	BO				49°14.91	123°45.01		393					
		1804	EN				49°14.91	123°45.01							
4	38	1932	BE	ROS	US	193	49°11.90	123°26.45	304		484-486	3	MR	✓	
		1938	BO				49°11.89	123°26.45		297					
		1947	EN				49°11.88	123°26.43							
4	38	1952	BE	NET	-	194	49°11.89	123°26.42	302			-	MR	-	BONCO
		2002	BO				49°11.91	123°26.42		295					
		2007	EN				49°11.92	123°26.43							
4	41	2112	BE	ROS	US	195	49°03.28	123°22.29	240		487-497	11	MR	✓	
		2116	BO				49°03.28	123°22.30		233					
		2129	EN				49°03.27	123°22.26							
4	41	2135	BE	NET	-	196	49°03.28	123°22.24	236						
		2145	BO				49°03.32	123°22.22		230					
		2149	EN				49°03.30	123°22.25							

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=

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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Cast Type: BOT = Bottle cast, no CTD CTD = CTD without Rosette ROS = Rosette plus CTD SET = Fish Set	USW = Sea Water Loop MOR = Mooring NET = Plankton Net Haul DRF = Drifter =	Bottle Firing Method: US = Up / Stop UN = Up / No stop DN = Down / No stop	Time Code: BE = Beginning Time of Cast BO = Bottom Time of Cast EN = End Time of Cast	DE = Deployment Time MR = Messenger Release Time RE = Recover Mooring Time	Transmissometer & Fluorometer are to be cleaned before each cast. <i>Produced by the Water Properties Group, IOS</i>	WaterProperties.ca Version: 7 July 2014
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