

DAILY LOG BOOK

MISSION
NUMBER

2016-62

DATE:

From: Aug 31 - Sept 12 to:

VESSEL:

Tully

PROJECT:

La Perouse Zooplankton Monitoring
D. Yelland

1/2

INSTITUTE OF OCEAN SCIENCES
OCEAN SCIENCES AND PRODUCTIVITY DIVISION
SIDNEY, BC, CANADA

Rosette Setup:

Number of bottles: 24
Manufacturer: 105
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:

Salinometer:

Make: Model: Serial #:

Comments on performance during cruise:

Oxygen Kit # ☐

Comments on performance of kit and chemicals:

Thermosalinograph System:

Program: Seasate Version: 7.23.2 SBE21 SV 3411
Sampling interval (seconds): 30
Fluorometer sensor serial number: W535-953D

Comments on performance during cruise:

ADCP Setup:

Computer time zone:	User Exits:	Name:	Exit Points:
Sampling interval (seconds):		Name:	Exit Points:
Bin Length (2^x):		Name:	Exit Points:
Pulse Length:			
Buffer (bytes):		Work File:	
Gyro Offset:			

Comments:

CTD Test Cast Information

Test Cast at IOS Jetty? (optional)

yes ☐ no ☒

Comments: (i.e. how did everything work??)

Test cast in Saanich Inlet? (recommended)

yes ☐ no ☐

If no, give reason:

Comments: (i.e. how did everything work??)

CTD pressure reading on deck (db): _____
(Should be 0.0 db ± 0.5)

Pumps working? yes ☐ no ☐
(i.e. Was the red LED display on the deck unit 0011 and not still 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 <i>Sept</i>				Year <i>2016</i>			Ship <i>Tully</i>			Cruise ID <i>2016-62</i>					Comments
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	
							Latitude	Longitude							
01	L301	1405	BE	ROS	US	01	48 40.50	124 59.70	30		1-5	5	MG	✓	
		1406	BO				48 40.60	124 59.68		27					
		1412	EN				48 40.48	124 59.73							
01	L302	1442	BE	ROS	US	02	48 39.07	125 02.46	55		6-10	5	MG	✓	
		1444	BO				48 39.08	125 02.48		47					
		1449					48 39.12	125 02.61							
01	L303	1522	BE	ROS	US	03	48 37.35	125 05.69	93		11	1	MG	✓	
		1524	BO				48 37.36	125 05.71		84					
		1527	EN				48 37.39	125 05.75							
01	L304	1600	BE	ROS	US	04	48 35.73	125 08.68	111		12-18	7	MG	✓	SHIP'S HYDRAULIC WAIT 5/10 MIN
		1602	BO				48 35.75	125 08.69		102					
		1612	EN				48 35.90	125 08.90							
01	E1	1703	BE	ROS	/	05	48 31.72	125 03.87	115		—	—	MG	✓	
		1705	BO				48 31.81	125 03.89		107					
		1708	EN				48 31.86	125 03.93							
01	E1	17:17	BE	NET	—	06	48 32.03	125 04.16	110		—	—	MG	—	BONGO
		17:23	BO				48 32.16	125 04.15		105					
		17:26	EN				48 32.28	125 04.21							

Cast type:
 BOT = bottle cast, no CTD
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USW = sea water loop
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Transmissometer to be cleaned for each cast, do not use Ammonia products

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Month SEPT				Year 2016			Ship J P TOLLY				Cruise ID 2016-62				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
01	LB05	1806	BE	ROS	US	07	48 34.13	125 11.98	104		19	1	MG	✓	
		1808	BO				48 34.10	125 11.98		94					
		1811	EN				48 34.12	125 11.98							
01	LB06	1846	BE	ROS	US	08	48 32.26	125 15.40	115		20-27	8	MG	✓	
		1842	BO				48 32.26	125 15.42		104					
		1851	EN				48 32.21	125 14.43							
1	C1	1944	BE	ROS	—	9	48° 29.00	125° 15.26	152		—	∅	MR	✓	STOP @ 110 ↑ 1/2 °
		1947	BO				48° 29.02	125° 15.19		143					
		1951	EN				48° 28.99	125° 15.18							
1	C1	2011	BE	NET	—	10	48° 28.94	125° 15.12	153		—	—	JD/TV	—	
		2016	BO				48 28.92	125° 15.10		145					
		2018	EN				48° 28.91	125° 15.09							
1	C2	2057	BE	ROS	—	11	48° 26.31	125° 09.30	160		—	∅	MR	✓	
		2100	BO				48° 26.32	125° 09.27		151					
		2103	EN				48° 26.32	125° 09.24							
1	C2	2109	BE	NET	—	12	48° 26.31	125° 09.21	160				JD/TV		
		2114	BO				48° 26.29	125° 09.21		155					
		2117	EN				48° 26.29	125° 09.20							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
1	C2	2127	BE	NET		13	48°26.26	125°09.13	161				JD/TV		EUGENY'S NET
		2129	Bo				48°26.25	125°09.13		50					
		2130	EN				48°26.24	125°09.12							
1	C3	2235	BE	ROS	US	14	48°23.42	125°20.68	123		28	1	MR	✓	
		2238	Bo				48°23.41	125°20.67		114					
		2241	EN				48°23.40	125°20.66							
1	C3	2248	BE	NET		15	48°23.38	125°20.66	123				JD/TV		
		2251	Bo				48°23.34	125°20.68		115					
		2253	EN				48°23.32	125°20.68							
1	LB07	2338	BE	NET		16	48°28.62	125°22.11	156				TV/SD		
		2342	Bo				48°28.58	125°22.16		150					
		2345	EN				48°28.56	125°22.19							
1	LB07	2352	BE	ROS	US	17	48°28.55	125°22.23	157				MR	✓	
		2355	Bo				48°28.56	125°22.22		147	29	1			
		2359	EN				48°28.56	125°22.21							
2	B8	0101	BE	ROS	US	18	48°34.46	125°30.06	135				MR	✓	
		0104	Bo				48°34.44	125°30.07		127	30	1			
		0107	EN				48°34.44	125°30.07							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
2	B8	0112	BE	NET		19	48°34.43	125°30.08	135				TV/JO		
		0116	BO				48°34.40	125°30.16		130					
		0119	EN				48°34.36	125°30.21							
2	B7	0155	BE	ROS	-	20	48°31.95	125°35.47	78		-	Ø	MR	✓	
		0157	BO				48°31.94	125°35.49		69					
		0158	EN				48°31.94	125°35.50							
2	B7	0202	BE	NET	-	21	48°31.93	125°35.55	78				JO/TV		
		0205	BO				48°31.91	125°35.58		73					
		0207	EN				48°31.90	125°35.59							
2	LB08	0305	BE	ROS	US	22	48°25.34	125°28.73	155		31-40	10	MR	✓	
		0309	BO				48°25.36	125°28.75		145					
		0319	EN				48°25.39	125°28.81							
2	LB08	0328	BE	Net		23	48°25.27	125°28.88	152						Bongo to 145m
		0333	BO				48°25.25	125°28.81		145					
		0335	EN				48°25.25	125°28.79							
2	LB08	0344	BE	Net		24	48°25.21	125°28.71	135						VNH - Eugene's net
		0348	BO				48°25.19	125°28.65		125					
		0350	EN				48°25.18	125°28.62							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
02	LB09	0437	BE	ROS	US	25	48°22.07	125°34.76	150		44-52	9	MR	✓	
		0440	Bo				48°22.06	125°34.76		140					
		0450	EN				48°22.11	125°34.72							
2	LB10	0535	BE	ROS	US	26	48°18.55	125°41.30	153		53	1	MR	✓	
		0539	Bo				48°18.53	125°41.29		145					
		0543	EN				48°18.51	125°41.27							
2	LB11	0631	BE	ROS	US	27	48°15.22	125°47.60	206		57-64	11	MR	✓	
		0635	Bo				48°15.19	125°47.60		199					
		0648	EN				48°15.19	125°47.70							
2	LB11	0655	BE	NET	—	28	48°15.1808	125°47.6900	207						Bongo
		0703	Bo				48°15.1388	125°47.6134		200					
		0708	EN				48°15.0897	125°47.5974							
02	LB12	0747	BE	ROS	US	29	48°12.94	125°51.83	508		65-79	15	MG	✓	BURNING
		0757	Bo				48°12.94	125°51.82		500					
		0823	EN				48°12.91	125°51.84							
02	LB13	0857	BE	ROS	US	30	48°10.56	125°56.05	913		80	1	MG	✓	
		0913	Bo				48°10.55	125°56.10		902					
		0931	EN				48°10.55	125°56.20							

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INSTITUTE OF OCEAN SCIENCES

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
02	LB14	1002	BE	ROS	US	31	48 08.51	125 59.91	1167		81-99	19	MG	✓	NOT C NOT TAKEN
		1023	BO				48 08.47	125 00.04		1185					
		1101	EN				48 08.50	125 00.20							
02	LB15	1158	BE	ROS	US	32	48 04.38	126 08.38	1532		100	1	MG	✓	
		1225	BO				48 04.35	126 08.41		1550					
		1254	EN				48 04.38	126 08.43							
02	LB16	1351	BE	ROS	US	33	48 00.53	126 16.97	1782		101	1	MG	✓	
		1423	BO				48 00.58	126 17.08		1800					
		1455	EN				48 00.52	126 17.13							
2	LB16	1505	BE	Net		34	48 0.55	126 17.08	1765						Bongo to 250
		1516	BO				48 0.58	126 17.01		250					net tangled!
		1521	EN				48 0.57	126 17.12							
2	LB16	1527	DE	Net		35	48 0.58	126 17.17	1759						Redo bongo 250
		1538	BO				48 0.61	126 17.22		250					
		1543	EN				48 0.62	126 17.18							
2	LB16	1549	DE	Net		36	48 0.56	126 17.14	1760						1200m Bongo
		1635	BO				48 0.59	126 17.48		1200					
		1653	EN				48 0.70	126 17.49							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
02	A4/L02	1922	BE	NET	—	37	48 14.78	126 40.11	2519		—	—	MG		BONGO
		1931	BO				48 15.06	126 40.12		250					
		1936	EN				48 15.16	126 40.12							
02	A4/L02	1958	BE	NET	UN	38	48 15.12	126 39.94	2529		—	—	MG		MPS
		2117	BO				48 15.23	126 41.39		2005					
		2200	EN				48 15.15	126 40.99							
02	A4/L02	2221	BE	ROS	US	39	48 15.04	126 39.89	2522		102	1	MR	✓	
		2254	BO				48 15.02	126 39.96		2005					
		2326	EN				48 14.96	126 39.97							
3	LC11	0034	BE	ROS	US	40	48 19.05	126 26.61	1440		103-121	19	MR	✓	SANDON JUMPING 1410-1460
		0058	BO				48 19.08	126 26.71		1432					
		0139	EN				48 19.08	126 26.76							
3	LC10	0222	BE	ROS	—	41	48 22.32	126 20.15	1240		—	0	MR	✓	
		0243	BO				48 22.33	126 20.25		1243					
		0303	EN				48 22.35	126 20.29							
3	LC09	0346	BE	ROS	US	42	48 25.87	126 13.68	610		122-138	17	MR	✓	
		0357	BO				48 25.90	126 13.63		601					
		0420	EN				48 25.92	126 13.64							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
3	LC09	0425	BE	NET		43	48 25.92	126 13.66	601						Bongo to 250m
		0433	BO				48 25.95	126 13.71		250					
		0436	EN				48 25.96	126 13.72							
3	LC09	0442	BE	NET		44	48 25.96	126 13.73	607						Emergency SCOR to 250m
		0456	BO				48 25.97	126 13.76		250					
		0500	EN				48 25.98	126 13.77							
3	A2	0555	BE	ROS	-	45	48 22.77	126 03.84	342		-	Ø	MR	✓	
		0601	BO				48 22.77	126 03.86		334					
		0606	EN				48 22.79	126 03.88							
3	A2	0611	BE	NET	-	46	48 22.81	126 03.90	337				JP/TV		Bongo
		0621	BO				48 22.82	126 03.93		250					
		0625	EN				48 22.85	126 03.94							
3	LC08	0720	BE	ROS	US	47	48 29.41	126 07.15	200		139-149	11	MG	✓	
		0724	BO				48 29.41	126 07.12		192					
		0738	EN				48 29.44	126 07.03							
3	LC08	0758	BE	NET	-	48	48 29.46	126 06.95	197	19	-	-	MH	✓	Bongo
		0757	BO				48 29.49	126 06.91		190					
		0802	EN				48 29.46	126 06.91							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
03	L007	0848	BE	ROS	/	49	48 32.95	126 0.510	129		—	—	MG	✓	^{3→1} DROP IN G ₂ @ 100 M
		0850	BO				48 32.93	126 0.510		120					
		0853	EN				48 32.92	126 0.53							
03	L006	0935	BE	ROS	US	50	48 36.47	125 54.08	94		150-156	7	MG	✓	
		0937	BO				48 36.48	125 54.09		85					
		0946	EN				48 36.54	125 54.07							
03	L006	1001	BE	NET	/	51	48 36.62	125 54.07	94		—	—	MG	—	Bongo
		1004	BO				48 36.64	125 54.05		89					
		1006	EN				48 36.65	125 54.05							
03	B5	1115	BE	ROS	/	52	48 40.02	125 47.41	65		—	—	MG	✓	
		1116	BO				48 40.03	125 47.41		56					
		1118	EN				48 40.02	125 47.40							
03	B5	1125	BE	NET	/	53	48 40.02	125 47.39	64		—	—	MG	—	Bongo
		1126	BO				48 40.00	125 47.39		59					
		1127	EN				48 40.00	125 47.39							
03	L004	1211	BE	ROS	US	54	48 43.40	125 40.81	166		157-166	10	MG	✓	#2 BEAD IS CRACKED
		1214	BO				48 43.39	125 40.81		157					#7 NO BEAD
		1228	EN				48 43.37	125 40.80							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
03	LCO3	1310	BE	ROS	—	55	48 46.96	125 34.24	135		—	—	MG	✓	
		1312	BO				48 46.95	125 34.24		126					
		1315	EN				48 46.96	125 34.24							
03	LCO2	1343	BE	ROS	US	56	48 48.69	125 30.93	109		167-174	8	MG	✓	
		1344	BO				48 48.69	125 30.96		100					
		1353	EN				48 48.68	125 31.03							
03	LCO1	1426	BE	ROS	US	57	48 50.43	125 27.81	95				MG	✓	
		1428	BO				48 50.42	125 27.86		86	175-181	7			
		1436	EN				48 50.40	125 27.85							
03	LDO2/D1	1617	BE	ROS	US	58	48 58.43	125 47.07	42		182-186	5	MG	✓	DA: WRONG FILTER
		1612	BO				48 58.43	125 47.05		32					
		1618	EN				48 58.39	125 47.02							
03	LDO2/D1	1625	BE	NET	—	59	48 58.38	125 46.91	42		—	—	MG	—	BONGO
		1626	BO				48 58.39	125 46.89		37					
		1627	EN				48 58.39	125 46.89							
03	LDO4/D2	1728	BE	ROS	US	60	48 53.20	125 57.10	62		187-191	5	MG	✓	ADDED DA
		1729	BO				48 53.22	125 57.11		53					
		1735	EN				48 53.24	125 57.09							
Cast type: USW = sea water loop bottle firing method: Time Code															

Cast type:

BOT = bottle cast, no CTD
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ROS = Rosette plus CTD

USW = sea water loop
MOR = mooring
NET = net haul
DRF = drifter

bottle firing method:

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UN = up/no stop
DN = down/no stop

Time Code

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

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship JP TULLY				Cruise ID 2016-62 p 11/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
03	LD04/02	17:41	BE	NET	-	61	48° 53.2469	125° 57.1458	62		-	-	MG	-	Bongo
		17:43	BO				48° 53.2582	125° 57.1710		57					
		17:45	EN				48° 53.2546	125° 57.1862							
3	LD08	2019	BE	ROS	US	62	48° 39.23	126° 23.37	767		192-208	17	MR	✓	
		2033	BO				48° 39.20	126° 23.49		768					
		2059	EN				48° 39.27	126° 23.58							
3	LD09	2142	BE	NET	UN	63	48° 35.78	126° 29.97	1037		-	-	JD, TV	-	Bongo
		2151	BO				48° 35.79	126° 30.02		250					
		2156	EN				48° 35.81	126° 30.07							
3	LD09	2204	BE	NET	UN	64	48° 35.83	126° 30.12	1034		-	-	JD, TV	✓	Eugeniy's net.
		2214	BO				48° 35.86	126° 30.20		250					
		2218	EN				48° 35.87	126° 30.22							
3	LD09	2225	BE	ROS	US	65	48° 35.90	126° 30.22	1032		209-222	14	MR	✓	
		2243	BO				48° 35.89	126° 30.28		1037					
		2307	EN				48° 35.88	126° 30.40							
3	LG09	0311	BE	Net		66	48° 51.23	127° 19.41	2049						NPS 2000 m
		0442	BO				48° 51.58	127° 19.75		2037					
		0520	EN				48° 51.20	127° 19.94							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship TULLY				Cruise ID 2016-62 p 12/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
4	LG09	0542	BE	ROS	US	67	48° 51.23	127° 19.65	2061		223-228	6	MR	✓	UVIC/UBC
		0620	BO				48° 51.33	127° 19.55		2019					Stop 233 ↓ <°
		0657	EN				48° 51.51	127° 19.88							
4	LG09	0703	BE	NET	-	68	48° 51.57	127° 19.78	2060		-	-	JD/MH	-	BONGO
		0712	BO				48° 51.67	127° 19.79		250					
		0716	EN				48° 51.69	127° 19.83							
04	LG08	0806	BE	ROS	-	69	48° 55.30	127° 13.29	2060		-	-	MG	✓	
		0842	BO				48° 55.26	127° 13.35		8005					
		0913	EN				48° 55.26	127° 13.44							
04	LG07	1000	BE	ROS	-	70	48° 59.37	127° 07.23	1752		-	-	MG	✓	
		1033	BO				48° 59.32	127° 07.27		1768					
		1101	EN				48° 59.32	127° 07.28							
04	LG07	1109	BE	NET	-	71	48° 59.36	127° 07.24	1753		-	-	MG	-	BONGO
		1118	BO				48° 59.39	127° 07.24		250					
		1122	EN				48° 59.39	127° 07.21							
04	LG06	1210	BE	ROS	US	72	49° 03.50	127° 01.10	946		229-245	17	MG	✓	
		1227	BO				49° 03.53	127° 01.12		948					
		1301	EN				49° 03.60	127° 01.15							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <i>Sept</i>				Year <i>2016</i>			Ship <i>Tully</i>				Cruise ID <i>2016-62 P13</i>					
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments	
4	LG05	1345	BE	ROS	—	73	49 7.37	126 55.33	276				dy	✓		
		1351	BO				49 7.36	126 55.32		270	—	—				
		1356	EN				49 7.37	126 55.34								
04	LG04	1438	BE	ROS	US	74	49 11.30	126 49.37	145		246-254	9	MG	✓		
		1441	BO				49 11.33	126 49.35		136						
		1454	EN				49 11.33	126 49.34								
4	LG04	1459	BE	NET	—	75	49 11.32	126 49.34	144		—	—	MG	—	Bongo to 140 m	
		1504	BO				49 11.33	126 49.33		140						
		1507	EN				49 11.34	126 49.32								
4	LG03	1547	BE	ROS	—	76	49 14.99	126 43.77	119		—	—	MG	✓	FOG	
		1549	BO				49 15.00	126 43.77		109						
		1551	EN				49 15.00	126 43.78								
4	LG02	1636	BE	ROS		77	49 18.71	126 38.06	99		255-261	7	MG	✓	FOG FORGOT ^{CIAL} PHYLOS	
		1638	BO				49 18.71	126 38.06		89					BUT TOOK DA	
		1646	EN				49 18.70	126 37.97								
	LG02	1651	BE	NET		78	49 18.72	126 37.92	98						Bongo to 93	
		1654	BO				49 18.71	126 37.95		93						
		1656	EN				49 18.70	126 37.99								

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month			Year				Ship				Cruise ID				
SEPT.			2016				JP TULLY				2016-62 P14/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
09	L601	1726	BE	ROS	US	79	49 20.56	126 35.04	54		262-266	5	MG	✓	PHYTO XXX + DA x 5m
		1727	BO				49 20.50	126 35.04		42					
		1733	EN				49 20.50	126 35.06							
4	LJ01	2100	BE	ROS	-	80	49 44.29	127 02.54	61		-	Ø	MR	✓	
		2101	BO				49 44.29	127 02.54		52					
		2102	EN				49 44.29	127 02.54							
4	LJ02	2128	BE	ROS	-	81	49 42.71	127 05.33	83		-	Ø	MR	✓	
		2130	BO				49 42.71	127 05.33		74					
		2131	EN				49 42.71	127 05.33							
4	LJ02	2136	BE	NET		82	49 42.69	127 05.30	83				JD/TU		BONOO
		2139	BO				49 42.68	127 05.29		77					
		2140	EN				49 42.68	127 05.28							
4	LJ03	2222	BE	ROS	-	83	49 39.17	127 10.96	126		-	Ø	MR	✓	
		2225	BO				49 39.16	127 10.97		116					
		2227	EN				49 39.16	127 10.97							
4	LJ04	2312	BE	ROS	-	84	49 35.60	127 16.89	159		-	Ø	MR	✓	
		2315	BO				49 35.59	127 16.89		151					
		2317	EN				49 35.56	127 16.88							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship TULLY				Cruise ID 2016-62 p15/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
4	LJ04	2323	BE	NET		85	49° 35.49	127° 16.89	163				TV/SD		BONGO
		2328	Bo				49° 35.45	127° 16.93		157					
		2331	EN				49° 35.43	127° 16.96							
5	LJ05	0036	BE	ROS	-	86	49° 31.62	127° 22.60	1064		-	Ø	MR	✓	
		0054	Bo				49° 31.60	127° 22.67		1071					
		0110	EN				49° 31.56	127° 22.76							
5	LJ06	0151	BE	ROS	-	87	49° 27.96	127° 28.48	1004		-	Ø	MR	✓	
		0209	Bo				49° 27.98	127° 28.54		1026					
		0225	EN				49° 27.99	127° 28.57							
5	LJ06	0230	BE	NET	-	88	49° 28.00	127° 28.56	993				JD/TV		BONGO
		0239	Bo				49° 28.06	127° 28.60		250					
		0243	EN				49° 28.09	127° 28.60							
5	LJ07	0330	BE	ROS	-	89	49° 24.16	127° 34.67	1796		-	Ø	MR	✓	
		0401	Bo				49° 24.22	127° 34.82		1807					
		0429	EN				49° 24.28	127° 34.93							
5	LJ08	0518	BE	ROS	-	90	49° 20.11	127° 41.05	1723		-	Ø	MR		
		0547	Bo				49° 20.07	127° 41.32		1787					
		0615	EN				49° 20.08	127° 41.56							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship JP Tully				Cruise ID 2016-62 p16/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
5	L509	07:15	BE	NET	UN	91	49 16.16	127 47.37	2482		—	—	MG	—	MPS VNH
		0912	BO				49 16.22	127 47.76		2005					
		10:02	EN				49 16.24	127 47.87							
05	L509	10:24	BE	ROS	—	92	49 16.11	127 47.22	2483		—	—	MG	✓	
		1056	BO				49 16.10	127 47.40		2005					
		1130	EN				49 16.10	127 47.43							
05	LBP8	1540	BE	NET	UN	93	49 48.47	128 16.67	2728		—	—	MG	—	MPS VNH
5		1725	BO				49 47.78	128 15.33		2005					
		1756	EN				49 47.52	128 14.69							
05	LBP8	1818	BE	ROS	US	94	49 48.64	128 16.71	2718		267-272	6	MG	✓	UNIC SAMPLES + MCC
		1852	BO				49 48.45	128 16.32		2005					CALLED LBP4 in
		1928	EN				49 48.23	128 16.29							WLONG DEPTH BL
5	LBP7	2012	BE	ROS	US	95	49 52.32	128 11.19	2184		273-293	21	MR	✓	
		2044	BO				49 52.27	128 10.96		2020					
		2133	EN				49 52.14	128 10.51							
5	LBP7	2143	BE	NET		96	49 52.14	128 10.37	2201						Bongo to 250m
		2151	BO				49 52.11	128 10.22		250					
		2156	EN				49 52.07	128 10.16							

Cast type:

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship TULLY				Cruise ID 2016-62 P17/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
5	LBP6	2239	BE	ROS	-	97	49°56.20	128°05.58	~770		-	Ø	MR	✓	
		2254	BO				49°56.19	128°05.56		817					
		2305	EN				49°56.19	128°05.52							
5	LBP5	2349	BE	ROS	US	98	50°00.02	128°00.07	1279		294-312	19	MR	✓	
6		0010	BO				50°00.04	128°00.08		1285					
		0045	EN				50°00.22	128°00.23							
6	LBP5	0052	BE	NET	-	99	50°00.27	128°00.20	1288				TV/SD		BONGO
		0101	BO				50°00.26	128°00.14		250					
		0105	EN				50°00.26	128°00.11							
6	LBP4	0125	BE	ROS	-	100	50°01.45	127°58.21	1000		-	Ø	MR	✓	
		0143	BO				50°01.45	127°58.16		1036					
		0158	EN				50°01.42	127°58.12							
6	LBP3	0227	BE	ROS	US	101	50°03.24	127°55.51	168		313-322	10	MR	✓	
		0231	BO				50°03.25	127°55.55		161					
		0241	EN				50°03.26	127°55.64							
6	LBP3	0249	BE	NET	-	102	50°03.27	127°55.65	168						
		0255	BO				50°03.26	127°55.65		160					
		0257	EN				50°03.26	127°55.64							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <u>Sept</u>				Year <u>2016</u>				Ship <u>TULLY</u>				Cruise ID <u>2016-62 pg 18</u>			
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
6	LBP3	0307	BE	NET		103	50° 03.29	127° 55.70	165		—	—	JD,TV	✓	Eugeny Net.
		0312	BO				50° 03.28	127° 55.73		160					
		0315	EN				50° 03.28	127° 55.72							
6	LBP2	0332	BE	ROS	—	104	50° 03.99	127° 54.31	98		—	∅	MR	✓	
		0333	BO				50° 03.99	127° 54.36		88					
		0335	EN				50° 03.99	127° 54.36							
6	LBP2		BE	NET		105	00 P.S.!		96				50/07		BONGO
		0345	BO				50° 04.13	127° 54.46		91					
		0347	EN				50° 04.15	127° 54.49							
6	LBP1	0404	BE	ROS	US	106	50° 04.84	127° 52.87	48		323	1	MR	✓	
		0405	BO				50° 04.82	127° 52.87		40					
		0407	EN				50° 04.81	127° 52.91							
6	CPE2	0908	BE	CPE2	—	107	50 43.09	128 39.90	124		—	—	MG	✓	PETRAL
		0910	BO				50 43.08	128 39.91		112					
		0912	EN				50 43.10	128 39.93							
6	CPE2	0919	BE	CPE2	—	108	50 43.16	128 39.94	123				MG	—	BONGO
		0924	BO				50 43.10	128 39.95		118					
		0927	EN				50 43.10	128 39.95							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <i>SEPT</i>				Year <i>2016</i>			Ship <i>JP TULLY</i>				Cruise ID <i>2016-62</i> <i>P19/</i>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
06	LQ03	1118	BE	ROS	—	109	50 39.85	129 02.08	1292		—	—	MG	✓	WRONG STN DEPTH IN HEX
		1141	BO				50 39.83	129 02.15		1329					Z @ 1130 NOW 1334
		1203	EN				50 39.10	129 02.22							PETALS
06	LQ03	1209	BE	NET	—	110	50 39.92	129 02.23	1307		—	—	MG	—	BONGO
		1218	BO				50 39.77	129 02.30		250					
		1222	EN				50 39.75	129 02.33							
06	J122	1338	BE	ROS	—	111	50 39.81	129 17.27	1384		—	—	MG	✓	Z @ 1415 DEPTH IS 1520M
		1401	BO				50 39.80	129 17.42		1427					
		1423	EN				50 39.79	129 17.52							
06	J122	1432	BE	NET	—	112	50 39.79	129 17.50	1521				MG	—	BONGO
		1440	BO				50 39.80	129 17.57		250					
		1445	EN				50 39.79	129 17.57							
06	CS00	1755	BE	ROS	US	113	50 27.63	129 55.03	2171		324-343	20	MG	✓	SALINITY CALIBRATION
		1833	BO				50 27.67	129 55.18		2005					
		1923	EN				50 27.76	129 55.52							
06	CS00	1931	BE	NET	—	114	50° 27.81	129° 55.58	2169						Bongo to 1200
		2012	BO				50° 28.13	129° 55.97		1200					
		2031	EN				50° 28.27	129° 56.11							

Cast type:

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USW = sea water loop

MOR = mooring
NET = net haul
DRF = drifter

bottle firing method:

US = up/stop
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Time Code

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

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <u>Sep</u>				Year <u>2016</u>			Ship <u>S.P. TULLY</u>				Cruise ID <u>2016-62</u> <u>pg 20</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
6	CS00	2037	BE	NET	-	115	50° 28.32	129° 56.14	2170					TV/SD	
		2046	BO				50° 28.40	129° 56.20		250					Bongo to 250
		2050	EN				50° 28.43	129° 56.23							
6	CS01	2214	BE	ROS	-	116	50° 34.87	129° 41.46	2105			Ø	MR	✓	
		2248	BO				50° 34.90	129° 41.57		2006					
		2319	EN				50° 34.97	129° 41.57							
6	CS01	2325	DE	Net		117	50° 34.97	129° 41.54	2100						Bongo to 250
		2333	BO				50° 35.01	129° 41.57		250					
		2337	EN				50° 35.02	129° 41.58							
7	CS02	0053	BE	ROS	US	118	50° 41.28	129° 27.99	1900		344-363	20	MR	✓	
		0125	BO				50° 41.25	129° 28.08		1912					
		0212	EN				50° 41.29	129° 28.16							
7	CS02	0217	BE	NET	-	119	50° 41.29	129° 28.17	1896						Bongo to 250
		0227	BO				50° 41.28	129° 28.22		250					
		0231	EN				50° 41.29	129° 28.25							
7	CS02	0241	BE	NET	-	120	50° 41.30	129° 28.35	1896						Evgenys Net
		0250	BO				50° 41.32	129° 28.39		250					to 250
		0254	EN				50° 41.34	129° 28.41							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship TULLY				Cruise ID 2016-62 p21 /				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
7	CS03	0348	BE	ROS	-	121	50°45.58	129°19.95	220		-	4	MR	✓	
		0352	BO				50°45.59	129°19.94		211					
		0355	EN				50°45.60	129°19.96							
7	CS03	0402	BE	NET		122	50°45.60	129°19.97	223				TV/SD		BONGO
		0409	BO				50°45.62	129°19.99		215					
		0413	EN				50°45.63	129°20.01							
7	CS04	0503	BE	ROS	US	123	50°49.24	129°13.12	95		364-370	7	MR		DO SENSOR WEIRD
		0505	BO				50°49.24	129°13.14		87					SD-40 VPCAST
		0512	EN				50°49.26	129°13.19							
7	CS04	0521	BE	NET	-	124	50°49.27	129°13.16	96						
		0524	BO				50°49.24	129°13.20		90					BONGO
		0525	EN				50°49.23	129°13.22							
7	ODAS	0857	BE	ROS	-	125	50°56.38	129°58.70	2107		-	-	MG	✓	
		0920	BO				50°56.38	129°58.59		2005					
		0949	EN				50°56.40	129°58.68							
7	ODAS	0959	BE	NET	-	126	50°56.36	129°58.75	2105		-	-	MG	-	BONGO
		1006	BO				50°56.33	129°58.75		260					
		1011	EN				50°56.31	129°58.76							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship JP TULLY				Cruise ID 2016-62 p 22/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
07	CS3B	1223	BE	ROS	-	127	51 00.00	129 26.95	220		-	-	MG	✓	POTRAUS
		1227	BO				50 59.98	129 26.97		212					
		1232	EN				50 59.97	129 26.98							
07	CS3B	1238	BE	NET	-	128	50 59.94	129 27.02	220		-	-	MH/EVA/RS	-	BONGO
		1245	BO				50 59.94	129 27.07		215					
		1248	EN				50 59.95	129 27.09							
07	CS05	1451	BE	ROS	-	129	50 55.85	129 00.13	64		-	-	MG	✓	
		1452	BO				50 55.86	129 00.13		53					
		1453	EN				50 55.82	129 00.16							
07	CS05	1458	BE	NET	-	130	50 55.75	129 00.25	64		-	-	MH/EVA	-	BONGO
		1501	BO				50 55.74	129 00.23		59					
		1502	EN				50 55.72	129 00.21							
07	CS1B	1631	BE	ROS	-	131	50 53.04	128 39.92	73		-	-	MG	✓	
		1632	BO				50 53.04	128 39.91		65					
		1634	EN				50 53.04	128 39.93							
07	CS1B	1639	BE	NET	-	132	50 53.10	128 39.90	75		-	-		-	BONGO
		1642	BO				50 53.14	128 39.82		70					
		1644	EN				50 53.15	128 39.76							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship JPTULLY				Cruise ID 2016-62 P 23				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
07	CS06	1756	BE	ROS	US	133	51 00.02	128 51.79	64		371-376	6	MG	✓	
		1757	BO				51 00.03	128 51.39		55					
		1804	EN				51 00.03	128 51.84							
07	CS06	1809	BE	NET	-	134	51° 00.00	128.51.89	64		-	-	MG	-	BONGO
		1811	BO				51° 00.00	128° 51.91		60					
		1812	EN				51° 00.00	128° 51.91							
7	CS07	1902	BE	ROS	-	135	51° 04.58	128° 44.03	64		-	Ø	MR	✓	
		1904	BO				51° 04.60	128° 44.07		56					
		1905	EN				51° 04.60	128° 44.10							
7	CS07	1914	BE	NET		136	51° 04.58	128° 44.23	64				TV/SD		BONGO
		1916	BO				51° 04.59	128° 44.26		60					
		1917	EN				51° 04.60	128° 44.27							
7	CS08	2006	BE	ROS	-	137	51° 08.53	128° 35.95	144		-	Ø	MR	✓	
		2008	BO				51° 08.53	128° 35.97		135					
		2011	EN				51° 08.52	128° 35.99							
7	CS08	2020	BE	NET	-	138	51° 08.51	128° 35.98	143				SD/DY		BONGO
		2024	BO				51° 08.48	128° 35.94		138					
		2026	EN				51° 08.47	128° 35.92							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship TULLY				Cruise ID 2016-62 p24 /				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
7	CS09	2119	BE	ROS	US	139	51°12.52	128°28.01	194		377-387	11	MR	✓	
		2123	Bo				51°12.49	128°28.05		186					
		2135	EN				51°12.51	128°28.18							
7	CS09	2145	BE	Net		140	51°12.54	128°28.28	195						Bongo to 190m
		2151	Bo				51°12.51	128°28.33		190					
		2153	EN				51°12.50	128°28.31							
7	CS09	2202	BE	Net		141	51°12.47	128°28.28	196						Expend to 190m
		2209	Bo				51°12.40	128°28.26		190					
		2212	EN				51°12.34	128°28.25							
7	CS10	2305	BE	ROS	-	142	51°16.60	128°19.90	80		-	Ø	MR	✓	
		2307	Bo				51°16.61	128°19.92		71					
		2308	EN				51°16.61	128°19.89							
7	CS10	2315	BE	NET		143	51°16.60	128°19.90	80				SD/07		BONGO
		2318	Bo				51°16.58	128°19.91		75					
		2319	EN				51°16.57	128°19.90							
8	SSS	0102	BE	ROS	-	144	51°27.98	128°29.92	202		-	Ø	MR	✓	
		0105	Bo				51°27.94	128°29.94		192					
		0109	EN				51°27.89	128°29.99							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship TULLY				Cruise ID 2016-62 p 25/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
8	SS5	0116	BE	NET	-	145	51° 27.85	128° 30.02	202				TV/50		BONGO
		0122	BO				51° 27.83	128° 30.11		197					
		0125	EN				51° 27.81	128° 30.17							
8	SS4	0405	BE	ROS	-	146	51° 21.07	129° 00.11	238		-	Ø	MR	✓	HEAVY ROLLS
		0410	BO				51° 21.07	129° 00.10		231					
		0413	EN				51° 21.06	129° 00.12							
8	SS4	0421	BE	NET	-	147	51° 21.05	129° 00.16	239				MG		Bongo
		0429	BO				51° 21.08	129° 00.22		233					
		0433	EN				51° 21.09	129° 00.26							
8	SS3	0639	BE	ROS	-	148	51° 15.10	129° 21.32	289		-	Ø	MR		
		0644	BO				51° 15.14	129° 21.33		282					
		0650	EN				51° 15.19	129° 21.36							
8	SS3	0719	BE	NET	-	149	51° 15.30	129° 21.58	289				MG		switched nets (spare bongo)
		0729	BO				51° 15.22	129° 21.61		250					
		0733	EN				51° 15.24	129° 21.62							
8	SS2	0940	BE	ROS	-	150	51° 12.99	129° 42.82	570		-	0	MG		
		0949	BO				51° 12.99	129° 42.83		566					
		0958	EN				51° 12.96	129° 42.87							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship JPTOLLY				Cruise ID 2016-62 p 261				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
8	SS2	1005	BE	NET	-	151	51° 12.95	129° 42.91	580		-	-	MG	-	BONGO NEW NETS SAME FRAME + FM
		10:16	BO				51° 12.95	129° 43.84		250					
		10:20	EN				51° 12.95	129° 43.05							
8	SS1	1203	BE	ROS	-	152	51° 12.01	129° 59.85	486		-	-	MG	✓	
		1211	BO				51° 11.98	129° 59.87		479					
		1218	EN				51° 11.99	129° 59.91							
8	SS1	1225	BE	NET	-	153	51° 11.99	129° 59.29	489		-	-	MH/EVA	-	BONGO
		1233	BO				51° 11.96	129° 59.91		250					
		1237	EN				51° 11.95	129° 59.01							
8	SS0	1657	BE	ROS	-	154	51° 00.00	130° 56.05	2631		-	-	MG	-	
		1728	BO				50° 59.98	130° 50.10		2005					
		1805	EN				51° 00.03	130° 50.14							
8	SS0	1815	BE	NET		155	51° 00.08	130° 50.15	2633		-	-	EVA/MH	-	
		1822	BO				51° 00.06	130° 50.18		250					BONGO
		1827	EN				51° 00.06	130° 50.21							
8	SS0	1834	BE	NET		156	51° 00.05	130° 50.25	2632		-	-	EVA/ROSS	-	BONGO DEEP
		1916	BO				51° 00.04	130° 50.50		1200			JD/TV		
		1936	EN				51° 00.11	130° 50.67							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <u>SEPT</u>				Year <u>2016</u>			Ship <u>TULLY</u>				Cruise ID <u>2016-62 P27/</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
8	NL01	2134	BE	ROS	-	157	51° 22.27	130° 50.77	2198		-	0	MR	✓	
		2209	Bo				51° 22.21	130° 50.84		2005					
		2240	EN				51° 22.23	130° 51.07							
8	NL01	2248	BE	NET	-	158	51° 22.24	130° 51.11	2205	250					BONGO
		2256	Bo				51° 22.26	130° 51.20							
		2300	EN				51° 22.28	130° 51.23							
9	NL02	0108	BE	ROS	-	159	51° 33.53	130° 16.26	846		-	0	KS	✓	→
		0121	Bo				51° 33.52	130° 16.27		843					
		0135	EN				51° 33.50	130° 16.28							
9	NL02	0141	BE	NET	-	160	51° 33.48	130° 16.30	849		-		JD, TV, KS		Bongo
		0150	Bo				51° 33.41	130° 16.46		250					
		0154	EN				51° 33.39	130° 16.54							
9	NL03	0421	BE	ROS	-	161	51° 47.91	129° 39.94	294		-	0	MR	✓	
		0426	Bo				51° 47.85	129° 39.91		283					
		0431	EN				51° 47.78	129° 39.90							
9	NL03	0438	BE	NET	-	162	51° 47.75	129° 40.06	293				TV/SD		Bongo
		0446	Bo				51° 47.84	129° 40.36		250					
		0450	EN				51° 47.79	129° 40.42							

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Additional comments

- Event 159- Odd jump in oxygen trace on upcast. Follows downcast profile but offset above ~ 250 m.

DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship TULLY				Cruise ID 2016-62 p28/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
9	NL04	0639	BE	ROS	-	163	51 55.96	129 11.94	166		-	0	MG	✓	SEASAVE PROGRAM DISAPPEARED
		0642	BO				51 55.95	129 11.91		158					
		0645	EN				51 55.93	129 11.82							
9	NL04	0652	BE	NET	-	164	51 55.92	129 11.76	167		-	-	EVA/ROSS	-	BONGO
		0658	BO				51 55.90	129 11.64		162					
		0702	EN				51 55.91	129 11.58							
9	NL05	0842	BE	ROS	-	165	51 40.54	128 54.31	43		-	-	MG	-	
		0843	BO				51 40.55	128 54.31		33					
		0844	EN				51 40.56	128 54.31							
9	NL05	0848	BE	NET	-	166	51 40.59	128 54.35	43		-	-	MH/EVA/ROSS	-	BONGO
		0850	BO				51 40.64	128 54.36		35					
		0851	EN				51 40.66	128 54.36							
9	SSG	1217	BE	ROS	-	167	51 19.98	128 00.06	178		-	-	MG	✓	
		1220	BO				51 19.97	128 00.04		168					
		1224	EN				51 19.97	128 00.05							
9	SSG	1229	BE	NET	-	168	51 19.93	128 00.01	177						BONGO
		1235	BO				51 19.91	127 59.92		172					
		1238	EN				51 19.93	127 59.89							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <i>Sept</i>				Year <i>2016</i>			Ship <i>Tully</i>				Cruise ID <i>2016-62</i> <i>p 29/30</i>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
9	SS07	1331	BE	ROS	—	169	51 24.77	127 47.57	123		—	—	Dy	✓	
		1334	BO				51 24.78	127 47.58		114					
		1336	EN				51 24.77	127 47.60							
9	SS07	1342	BE	Net	—	170	51 24.74	127 47.65	123		—	—	EVA/ROSS/MH	—	Bongo to
		1345	BO				51 24.72	127 47.67		118					
		1347	EN				51 24.72	127 47.75							
9	UB07	1423	BE	ROS	—	171	51 30.02	127 49.05	160		—	—	MG	✓	
		1425	BO				51 30.01	127 49.02		151					
		1428	EN				51 30.01	127 49.00							
9	UB07	1432	BE	NET	—	172	51 30.00	127 49.01	160		—	—	EVA/ROSS/MH	—	BONGO
		1438	BO				51 29.99	127 49.01		155					
		1440	EN				51 30.00	127 49.02	311						
9	Ri1	1534	BE	ROS		173	51 26.45	127 38.30	311		—	—	MG	✓	
		1540	BO				51 26.43	127 38.36		305					
		1546	EN				51 26.43	127 38.44							
9	Ri1	1552	BE	NET		174	51 26.38	127 38.44	310		—	—	EVA/ROSS/MH	—	BONGO
		1602	BO				51 26.33	127 38.64		305					
		1607	EN				51 26.28	127 38.70							

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

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month SEPT				Year 2016			Ship TULLY				Cruise ID 2016-62 p 30/				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
9	Ri 2	1656	BE	ROS	-	175	51 31.23	127 33.65	329		-	-	MG	✓	
		1702	BO				51 31.22	127 33.68		322					
		1708	EN				51 31.21	127 33.70							
9	Ri 2	1732	BE	NET	-	176	51 31.20	127 33.70	329		-	-	MG	-	MPS
		1746	BO				51 31.21	127 33.72		324					
		1754	EN				51 31.23	127 33.74							
9	Ri 3	1849	BE	ROS	US	177	51 35.82	127 32.12	324			0	TY	✓	
		1854	BO				51 35.84	127 32.18		317	-				
		1859	EN				51 35.84	127 32.21							
9	Ri 3	1908	BE	Net		178	51 35.86	127 32.19	325				JP/TU		Bongo to 320
		1920	BO				51 35.91	127 32.20		320					
		1925	EN				51 35.93	127 32.17							
9	Ri 4	2008	BE	ROS	-	179	51 38.92	127 26.96	298		-	0	MR		
		2013	BO				51 38.90	127 26.93		291					
		2018	EN				51 38.90	127 26.91							
9	Ri 4	202	BE	NET		180	51 38.90	127 26.80	298				TV/JD		Bongo
		2033	BO				51 38.90	127 26.78		295					
		2038	EN				51 38.91	127 26.71							

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Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <u>SEPT</u>				Year <u>2016</u>			Ship <u>TULLY</u>				Cruise ID <u>2016-62 p31 /</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
9	R:5	2120	BE	ROS	-	181	51°40.64	127°19.99	202		-	0	MR	✓	
		2124	Bo				51°40.65	127°19.99		192					
		2127	EN				51°40.65	127°20.00							
9	R:5	2133	BE	NET		182	51°40.66	127°19.95	201				JD/TV		
		2140	Bo				51°40.66	127°19.86		195					
		2143	EN				51°40.65	127°19.86							
9	R:6	2202	BE	ROS	-	183	51°40.52	127°17.09	146		-	0	MR	✓	
		2204	Bo				51°40.51	127°17.11		137					
		2207	EN				51°40.50	127°17.14							
9	R:6	2213	BE	NET		184	51°40.42	127°17.18	149				TV/JD		
		2218	Bo				51°40.37	127°17.15		145					
		2220	EN				51°40.37	127°17.14							
10	CPE1	0359	BE	ROS	-	185	51°00.00	127°50.04	144		-	0	MR		
		0402	Bo				51°00.02	127°50.03		135					
		0404	EN				51°00.02	127°50.02							
10	CPE1	0410	BE	NET		186	50°59.99	127°50.00	148				TV/JD		
		0415	Bo				50°59.96	127°49.94		141					
		0417	EN				50°59.97	127°49.93							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <u>SEPT</u>				Year <u>2016</u>			Ship <u>TULLY</u>				Cruise ID <u>2016-62</u> <u>p 32/</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
11	14	0908	BE	ROS	US	187	49 52.95	124 59.59	312		388-390	3	MG	✓	
		0914	BO				49 53.00	124 59.71		306					
		0924	EN				49 53.03	124 59.81							
11	14	0936	BE	NET	—	188	49 53.62	124 59.86	311		—	—	MG/ROSS	—	BONGO
		0940	BO				49 53.11	125 00.07		305					
		0946	EN				49 53.13	125 00.14							
11	11	1118	BE	ROS	US	189	49 42.31	124 43.32	295		391-401	3	MG	✓	
		1123	BO				49 42.31	124 43.37		288					
		1139	EN				49 42.24	124 43.27							
11	11	1144	BE	NET	—	190	49 42.26	124 43.32	292		—	—	MG/ROSS	—	BONGO
		1154	BO				49 42.19	124 43.45		287					
		1159	EN				49 42.18	124 44.47							
11	CPF2	1332	BE	ROS	US	191	49 28.00	124 29.97	324		402-404	3	MG	✓	
		1338	BO				49 27.99	124 29.99		316					
		1347	EN				49 28.10	124 29.97							
11	CPF2	1354	BE	NET	—	192	49 28.01	124 29.96			—	—	MG/ROSS	—	BONGO
		1404	BO				49 28.07	124 30.05							
		1409	EN				49 28.08	124 30.06							

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DAILY LOG

Ocean Sciences and Productivity Division

INSTITUTE OF OCEAN SCIENCES

Month <i>SEPT</i>				Year <i>2016</i>			Ship <i>JP TULLY</i>				Cruise ID <i>2016-62</i> <i>p 33/</i>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Position		Bottom Depth	Max Depth	Sample Numbers	#of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
<i>11</i>	<i>CPF1</i>	<i>1610</i>	<i>BE</i>	<i>ROS</i>	<i>US</i>	<i>193</i>	<i>49 21.95</i>	<i>124 05.08</i>	<i>239</i>		<i>405-407</i>	<i>3</i>	<i>MG</i>	<i>✓</i>	
		<i>1614</i>	<i>BO</i>				<i>49 21.94</i>	<i>124 05.12</i>	<i>243</i>	<i>233</i>					
		<i>1621</i>	<i>EN</i>				<i>49 21.93</i>	<i>124 05.22</i>							
<i>11</i>	<i>CPF1</i>	<i>1627</i>	<i>BE</i>	<i>NET</i>	<i>—</i>	<i>194</i>	<i>49 21.90</i>	<i>124 05.32</i>	<i>262</i>		<i>—</i>	<i>—</i>	<i>MG/ROSS</i>	<i>—</i>	<i>BONGO</i>
		<i>1635</i>	<i>BO</i>				<i>49 21.93</i>	<i>124 05.40</i>		<i>257</i>					
		<i>1639</i>	<i>EN</i>				<i>49 21.93</i>	<i>124 05.48</i>							
<i>11</i>	<i>22</i>	<i>1909</i>	<i>BE</i>	<i>ROS</i>	<i>US</i>	<i>195</i>	<i>49 40.15</i>	<i>124 16.21</i>	<i>349</i>		<i>408-418</i>	<i>11</i>	<i>MR</i>	<i>✓</i>	
		<i>1915</i>	<i>BO</i>				<i>49 40.13</i>	<i>124 16.26</i>		<i>342</i>					
		<i>1929</i>	<i>EN</i>				<i>49 40.12</i>	<i>124 16.38</i>							
<i>11</i>	<i>22</i>	<i>1939</i>	<i>BE</i>	<i>NET</i>	<i>—</i>	<i>196</i>	<i>49° 40.14</i>	<i>124° 16.55</i>	<i>348</i>		<i>—</i>	<i>—</i>	<i>TV/JO</i>		<i>BONGO</i>
		<i>1948</i>	<i>BO</i>				<i>49 40.15</i>	<i>124 16.60</i>		<i>343</i>					
		<i>1954</i>	<i>EN</i>				<i>49 40.17</i>	<i>124 16.65</i>							
<i>11</i>	<i>24</i>	<i>2118</i>	<i>BE</i>	<i>ROS</i>	<i>US</i>	<i>197</i>	<i>49 30.18</i>	<i>124 05.91</i>	<i>428</i>		<i>419-421</i>	<i>3</i>	<i>MR</i>	<i>✓</i>	
		<i>2126</i>	<i>BO</i>				<i>49 30.22</i>	<i>124 05.91</i>		<i>418</i>					
		<i>2135</i>	<i>EN</i>				<i>49 30.28</i>	<i>124 05.92</i>							
<i>11</i>	<i>24</i>	<i>2140</i>	<i>BE</i>	<i>NET</i>		<i>198</i>	<i>49 30.25</i>	<i>124 05.90</i>	<i>421</i>				<i>JP/TV</i>		<i>BONGO</i>
		<i>2154</i>	<i>BO</i>				<i>49 30.32</i>	<i>124 05.99</i>		<i>415</i>					
		<i>2201</i>	<i>EN</i>				<i>49 30.39</i>	<i>124 06.07</i>							

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DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2016-62

DATE:

From: Aug 31 - Sept 12

VESSEL:

J.P. Tully

PROJECT(S):

LaPerouse Zooplankton Monitoring
D. Yelland

2/2

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

WaterProperties.ca

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>SEPT</u>			Year <u>2016</u>			Vessel <u>TULLY</u>			Cruise ID <u>2016-62</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
199	28	11	23:38	BE	NET	-	49°24.03	123°45.13	136		-		TV/SD	☐ ☐	Bongo
			23:42	BO			49°24.04	123°45.20		130	-			☐ ☐	
			23:44	EN			49°24.04	123°45.22			-			☐ ☐	
200	28	11	23:49	BE	ROS	US	49°24.04	123°45.24	139 ^{135?}		422-424	3	MR	☒ ☐	
			23:52	BO			49°24.04	123°45.25		127	-			☐ ☐	
			23:57	EN			49°24.04	123°45.28			-			☐ ☐	
201	GEO1	12	01:00	BE	ROS	US	49°15.18	123°44.90	400		425-435	11	MR	☒ ☐	
			01:07	BO			49°15.11	123°44.93		394	-			☐ ☐	
			01:21	EN			49°15.14	123°45.00			-			☐ ☐	
202	GEO1	12	01:26	BE	NET	-	49°15.13	123°45.03	401		-			☐ ☐	Bongo
			01:38	BO			49°15.12	123°45.09		390	-			☐ ☐	
			01:44	EN			49°15.13	123°45.18			-			☐ ☐	
203	GEO1	12	01:56	BE	NET	UN	49°15.15	123°45.22	401		-			☐ ☐	MPS
			02:16	BO			49°15.17	123°45.46		390	-			☐ ☐	
			02:25	EN			49°15.19	123°45.57			-			☐ ☐	
204	38	12	03:58	BE	ROS	US	49°11.95	123°26.30	302		436-438	3	MR	☒ ☐	
			04:03	BO			49°11.96	123°26.31		296	-			☐ ☐	
			04:10	EN			49°11.95	123°26.34			-			☐ ☐	
			:				°	°			-			☐ ☐	

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SET = Fish Set

LOOP = Sea Water Loop

MOR = Mooring
NET = Plankton Net Haul
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Bottle Firing Method:

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Notes: _____

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CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

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Produced by the Water Properties Group, IOS

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Version: 14 February 2013

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>SEPTEMBER</u>				Year <u>2016</u>		Vessel <u>TULLY</u>		Cruise ID <u>2016-62</u>							
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
205	38	12	04:18	BE	NET	—	49° 11.96	123° 26.36	306		-		JD/TV	☐ ☐	BONGO
			04:29	BO			49° 12.01	123° 26.40		299	-			☐ ☐	
			04:34	EN			49° 12.06	123° 26.44			-			☐ ☐	
206	41	12	05:39	BE	ROS		49° 03.23	123° 22.35	243		439-452	14	MR	☒ ☐	
			05:44	BO			49° 03.24	123° 22.36		236	-			☐ ☐	
			06:00	EN			49° 03.29	123° 22.41			-			☐ ☐	
207	41	12	06:06	BE	NET	—	49° 03.29	123° 22.38	245		-		JD/TV	☐ ☐	Bongo
			06:14	BO			49° 03.35	123° 22.33		240	-			☐ ☐	
			06:18	EN			49° 03.42	123° 22.34			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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