

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2014 - 16

DATE:

From: MAR 6 / 14 to: MAR 21 / 14

VESSEL:

W.E. RICHER

PROJECT(S):

TRUDGEL H. SEAS

Book 2 of 2

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

WaterProperties.ca

Captain: AL YOUNG First Officer: IAN COPPING
Second Officer: SCOTT M'COLL Third Officer: _____
Fishing Master: _____

Mission Participants / Agencies:

Scientific Personnel:

Name	Watch	Cabin	Name	Watch	Cabin
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Second leg of Mission:

Chief Scientist:

Name	Watch	Cabin	Name	Watch	Cabin

Data logging computer:

Data acquisition program:

CTD deck unit make: _____ model: _____ serial number: _____

Primary CTD

Make: SBC
model: 9+
serial number: 550

Primary temperature serial number: 2710

Primary conductivity serial number: 2126

Secondary temperature serial number: 2374

Secondary conductivity serial number: 3396

Transmissometer:	Model:
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Fluorometer: Model wetLABS Cable gain: 60

Oxygen sensor: SBC Model: 4

PAR sensor: _____ Model: _____

Other sensors: PH

Other sensors:

Other sensors:

Other sensors:

Secondary CTD

Make: _____ model: _____ serial number: _____

Primary temperature serial number: _____

Primary conductivity serial number:

Secondary temperature serial number:

Secondary conductivity serial number:

Transmissometer: _____ Model: _____

Fluorometer: Model _____ Cable gain: _____

Oxygen sensor: _____ Model: _____

PAR sensor: _____ Model: _____

Other sensors: _____

Other sensors:

Other sensors: _____

Other sensors:

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

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Month <u>MARCH</u>				Year <u>2014</u>			Ship <u>W. G. RICHES</u>				Cruise ID <u>2014-16</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							
11	DI 12	1904	BE	CTD		87	50° 14. 84	124° 37. 76	731			1	H.M.		T: 7.22 S: 29-20
		1910	BO				50° 14. 85	124° 37. 75		250					Bottom - SAL/CHL/NUTS
		1917	EN				50° 14. 87	124° 37. 71							
			BE	NET		88									BONGO
		1952	BE	TRAWL		89	50° 14. 56	124° 37. 84			MOIRA STA HOMPERET				TRAWL
11	DI 13		BE	CTD		90	CANCELLED - WINCH PROBLEMS					1			T: S:
			BO												Bottom - SAL/CHL/NUTS
			EN												
		2040	BE	NET	*	91	50° 11. 50	124° 37. 83	565					*	BONGO to 50m
		2049	BE	NET	*	92	50° 11. 50	124° 37. 83						*	BONGO to 150m
		2131	BE	TRAWL		93	50° 11. 06	124° 38. 39							TRAWL
	DI 14	2200	BE	NET		94	50° 09. 29	124° 43. 56			(NO CTD - WINCH BROKEN)				BONGO
		2223	BE	TRAWL		95	50° 08. 82	124° 44. 41							TRAWL

Cast Type:

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

USW = Sea Water Loop

MOR = Mooring
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 DRF = Drifter

Bottle Firing Method:

US = Up / Stop
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BE = Beginning Time of Cast DE = Deployment Time
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Transmissometer to be cleaned before each cast, do not use Ammonia products

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This page is for any notes or observations

CTD TURNED OFF @ 14.7 m - HYDRAULIC LEAK ON WINCH - CTD PULLED IN BY HAND

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Month MARCH				Year 2014			Ship W.E. RICHER				Cruise ID 2014-16				
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							Latitude	Longitude							
12	GS 09	2207	BE	NET		96	48° 53.01	123° 16.47	100	90	CTD DEAD-SLIPRIBGS				BONGO
		2230	BE	TRAWL		97	48° 53.36	123° 15.55							TRAWL
12	GS 10	2312	BE	NET		98	48° 53.76	123° 11.05	131	126					BONGO
		2233	BE	TRAWL		99	48° 53.19	123° 09.98							TRAWL
13	GS 11	0045	BE	NET		100	48° 50.92	123° 06.33	200	150					BONGO
		0107	BE	TRAWL		101	48° 50.31	123° 05.16							TRAWL
13	GS 12	1402	BE	NET		102	49° 00.65	123° 12.32	85	75					BONGO
		1422	BE	TRAWL		103	49° 00.87	123° 13.15							TRAWL
13	GS 13	1512	BE	TRAWL		104	49° 02.89	123° 17.00	66						TRAWL ONLY
13	GS 14	1603	BE	NET		105	49° 06.29	123° 19.35	54	45					BONGO
		1621	BE	TRAWL		106	49° 06.87	123° 19.37	86						TRAWL
13	GS 15	1718	BE	TRAWL		107	49° 11.47	123° 18.74	120						TRAWL ONLY

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							Latitude	Longitude							
13	GS 16	1812	BC	NET		108	49° 16.48	123° 17.60	40	30			4.7.		BONGO
		1829	BC	TRAWL		109	49° 16.92	123° 19.49	92						TRAWL
13	GS 17	1931	BC	TRAWL		110	49° 15.08	123° 23.02	246						TRAWL ONLY
13	GS 18	2018	BC	NET		111	49° 10.84	123° 25.54	296	150					BONGO
		2040	BC	TRAWL		112	49° 10.59	123° 25.94	246						TRAWL
13	GS 19	2128	BC	TRAWL		113	49° 07.43	123° 28.54	335						TRAWL ONLY
13	GS 20	2212	BC	NET		114	49° 04.07	123° 29.70	291	150					BONGO
		2236	BC	TRAWL		115	49° 03.32	123° 29.89	329						TRAWL
13	GS 21	2319	BC	TRAWL		116	49° 02.64	123° 31.08	285						TRAWL ONLY Tow NT 45m
14	GS 22	1404	BC	CTD		117	49° 29.51	124° 02.29	61			1			T: 7.47 S: 29.38
		1405	BC				49° 29.51	124° 02.28		50					Bottom Sal/calc/moss
		1408	BC				49° 29.50	124° 02.28							
		1411	BC	NET		118	49° 29.49	124° 02.26							BONGO
			BC	TRAWL		119	49° 29.85	124° 03.24							TRAWL SURFACE Tow

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							Latitude	Longitude							
14	GS 23	1512	BC	TRAWL		120	49 32.24	124 5.27					H.M.		TRAWL ONLY 15m TOW
14	GS 24	1600	BC	CTD		121	49° 35.36	124° 05.35	264			1			T: 7.64 S: 28.93
		1605	BO				49° 35.37	124° 05.37		250					Bottom - SAL/CAL/NTS
		1610	EN				49° 35.39	124° 05.40							
*	GS 25	1613	BC	NET		122	49° 35.42	124° 05.45		150	MOIRA STA	*			BONGO *
		1640	BC	TRAWL		123	49 35.62	124 6.72							TRAWL 30m TOW
14	GS 25	17:35	BC	TRAWL		124	49 36.47	124 13.51							TRAWL ONLY 15m TOW
14	GS 26	1829	BC	CTD		125	49° 40.07	124° 16.19	348						T: 7.77 S: 28.93
		1833	BO				49° 40.06	124° 16.17		250					Bottom - SAL/CAL/NTS
		1838	EN				49° 40.05	124° 16.15							
*	PC 22	1841	BC	NET		126	49° 40.04	124° 16.16		150	MOIRA STA.	*			BONGO *
		19:04	BC	TRAWL		127	49 40.54	124 16.49			TOW @ 40m				TRAWL 45m TOW
14	GS 27	1956	BC	TRAWL		128	49 44.05	124 18.44			TOW @ 60m				TRAWL ONLY

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							Latitude	Longitude							
14	GS 28	2038	BE	CTD		129	49° 45. 24	124° 22. 21	112			1	H.M.		T: 7.85 S: 28.32
		20 41	BO				49° 45. 25	124° 22. 21		100					BOT@10 - SAL/CHL/NUIS
		20 45	EN				49° 45. 26	124° 22. 22							
		20 48	BE	NET		130	49° 45. 27	124° 22. 24		100					BONGO
		21:07	BE	TRAWL		131	49 45. 16	124 23. 41							TRAWL SURFACE
14	GS 29	21:52	BE	TRAWL		132	49 44. 64	124 28. 82			Tow at 30m				TRAWL ONLY
14	GS 30	22 31	BE	CTD		133	49° 45. 90	124° 31. 39	267			1			T: 7.77 S: 29.55
		22 37	BO				49° 45. 93	124° 31. 39		250					BOT@10 - SAL/CHL/NUIS
		22 43	EN				49° 45. 94	124° 31. 37							
		22 45	BE	NET		134	49° 45. 96	124° 31. 40		150					BONGO
		23:07	BE	TRAWL		135	49 46. 74	124 31. 85			Tow at 15m				TRAWL
14	GS 31	23:55	BE	TRAWL		136	49 49. 55	124 32. 67			Tow at 0m				TRAWL ONLY

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							Latitude	Longitude							
15	GS 32	0100	BE	CTD		137	49° 51.56	124° 34.06	80			1	H.M.		T: 7.76 S: 28.96
		0101	BO				49° 51.56	124° 34.06		70					BOT@10m - SAL/CAL/NUTS
		0104	EN				49° 51.56	124° 34.06							
		0109	BE	NET		138	49° 51.55	124° 34.05		70					BONGO
		0127	BE	TRAWL		139	49 51.92	124 35.14							TRAWL
											Tow at	15m			
15	JS 01	1403	BE	CTD	3 rd	140	50° 31.32	126° 38.29				1			T: 7.08 S: 30.94
		1408	BO				50° 31.30	126° 38.24							BOT@10m - SAL/CAL/NUTS
		1414	EN				50° 31.28	126° 38.16							
			BE	NET	1 st	141	} CANCELLED - Hi WINDS & TIDES								* BONGO to 50m
			BE	NET	2 nd	142									* BONGO to 150m
		1417	BE	TRAWL	4 th	143	50 30.89	126 36.54							TRAWL
											Tow at	15m			
16	JS 02	1429	BE	CTD		144	50° 30.99	126° 36.68	430			1			T: 6.99 S: 30.51
		1434	BO				50° 30.98	126° 36.65							BOT@10m - SAL/CAL/NUTS
		1439	EN				50° 30.98	126° 36.66							
		1502	BE	NET	*	145	50° 30.84	126° 36.69		50					* BONGO to 50m
		1510	BE	NET	*	146	50° 30.85	126° 36.55		150					* BONGO to 150m
		1452	BE	TRAWL		147	50° 30.82	126 35.92							TRAWL
											Tow at	SURFACE			

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							Latitude	Longitude							
16	JS 03	1535	BC	CTD		148	50° 30. 46	126° 31. 66	383			1	H.M.		T: 6.95 S: 30.44
		1540	BO				50° 30. 49	126° 31. 67		250					Bottom Sal/CAL/NOTES
		1546	EN				50° 30. 49	126° 31. 68							
		1549	BC	NET		149	50° 30. 54	126° 31. 77		150					BONGO
		16 13	BC	TRAWL		150	50 30.47	126 31.36			Tow AT	30m			TRAWL
16	JS 04	1657	BC	CTD		151	50° 30. 17	126° 27. 33	383			1			T: 7.04 S: 30.79
		17 01	BO				50° 30. 14	126° 27. 34		250					Bottom Sal/CAL/NOTES
		17 07	EN				50° 30. 12	126° 27. 34							
		17 09	BC	NET		152	50° 31. 00	126° 27. 37		150					BONGO
		17 32	BC	TRAWL		153	50 29.88	126 26.80			Tow AT	15m			TRAWL
16	JS 05	1844	BC	CTD		154	50° 29. 50	126° 22. 34	374			1			T: 7.06 S: 31.04
		18 49	BO				50° 29. 51	126° 22. 35		250					Bottom Sal/CAL/NOTES
		18 55	EN				50° 29. 51	126° 22. 36							
		18 59	BC	NET		155	50° 29. 52	126° 22. 38		150					BONGO
		19:19	BC	TRAWL		156	50 29.26	126 21.32			Tow AT	45m			TRAWL

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							Latitude	Longitude							
16	JS 06	20 07	BC	CTD		158	50° 29. 92	126° 16. 32	275			1	H.M.		T: 7.15 S: 30.87
		20 11	BO				50° 29. 91	126° 16. 32		240					Bottle 10m SAL/CHL/NUTS
		20 17	EN				50° 29. 89	126° 16. 33							
		20 20	BC	NET		159	50° 29. 88	126° 16. 31							BONGO TO 50m
		20 26	BC	NET		160	50° 29. 89	126° 16. 31							BONGO TO 150m
		20 47	BC	TRAWL		161	50 29. 74	126 15. 22		Tow AT 15m					TRAWL
16	JS 07	21 33	BC	CTD		162	50° 28. 82	126° 09. 72	318			1			T: 7.13 S: 30.81
		21 39	BO				50° 28. 85	126° 09. 75		250					Bottle 10m SAL/CHL/NUTS
		21 45	EN				50° 28. 89	126° 09. 71							
		21 58	BC	NET		163	50° 28. 90	126° 09. 67							BONGO
		22 04	BC	TRAWL		164	50° 28. 67	126 08. 54			Tow AT 60m				TRAWL
16	JS 08	22 52	BC	CTD		165	50° 27. 54	126° 03. 97	257			1			T: 7.18 S: 30.87
		22 57	BO				50° 27. 56	126° 03. 99		245					Bottle 10m SAL/CHL/NUTS
		23 03	EN				50° 27. 56	126° 04. 00							
		23 06	BC	NET		166	50° 27. 59	126° 03. 98							BONGO
		23 28	BC	TRAWL		167	50 27. 14	126 02. 94			Tow AT SURFACE				TRAWL

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							Latitude	Longitude							
17	DI 15	1401	BE	CTD		168	50° 31.74	125° 22.12	42			1	U.M.		T: 7.51 S: 29.20
		1402	BO				50° 31.75	125° 22.12		35					BOTEION SAL/CHL/NOTS
		1404	EN				50° 31.76	125° 22.11							
		1407	BE	HET		169	50° 31.79	125° 22.09							BONGO
		1412	BE	TRAWL		170	50 31.00	125 21.93			TOW AT	SURFACE			TRAWL
17	DI 16	1515	BE	CTD		171	50° 28.45	125° 21.70	120			1			T: 7.34 S: 29.81
		1517	BO				50° 28.47	125° 21.72		110					BOTEION SAL/CHL/NOTS
		1520	EN				50° 28.49	125° 21.74							
		1528	BE	NET		172	50° 28.53	125° 21.87							BONGO
		1545	BE	TRAWL		173	50 28.24	125 21.00			TOW AT	15m			TRAWL
17	DI 17	1645	BE	CTD		174	50° 29.52	125° 15.36	68			1			T: 7.63 S: 29.64
		1647	BO				50° 29.49	125° 15.38		60					BOTEION SAL/CHL/NOTS
		1649	EN				50° 29.47	125° 15.40							
		1651	BE	NET		175	50° 29.45	125° 15.41							BONGO
		1709	BE	TRAWL		176	50 28.77	125 15.95			TOW AT	SURFACE			TRAWL

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17	Di 18		BC	TRAWL		177	50 28.8	125 15.80		Tow AT 30m		1	H.M.		TRAWL ONLY
	Di 19		BC	TRAWL		178	50 28.82	125 16.05		Tow AT 45m					TRAWL ONLY
17	Di 20	20 03	BC	CTD		179	50° 27. 11	125° 17. 80	306			1			T: 7.76 S: 30.10
		20 08	BO				50° 27. 13	125° 17. 79		250					Boreion - SAL / CML / HUR
		20 14	GM				50° 27. 14	125° 17. 77							
		20 16	BC	NET		180	50° 27. 15	125° 17. 73							BONGO
		20 36	BC	TRAWL		181	50 26.49	125 18.06		Tow AT SURFACE					TRAWL
17	Di 21	21 12	BC	CTD		182	50° 24. 80	125° 19. 30	286			1			T: 7.74 S: 29.99
		21 17	BO				50° 24. 80	125° 19. 30		250					Boreion - SAL / CML / HUR
		21 22	GM				50° 24. 80	125° 19. 28							
		21 24	BC	NET		183	50° 24. 81	125° 19. 25							BONGO
		21 44	BC	TRAWL		184	50 24.32	125 19.73		Tow AT 15m					TRAWL
17	Di 22	22 19	BC	CTD		185	50° 22. 75	125° 20. 95	227			1			T: 7.65 S: 29.83
		22 23	BO				50° 22. 76	125° 20. 94		215					Boreion - SAL / CML / HUR
		22 28	GM				50° 22. 77	125° 20. 93							
		22 30	BC	NET		186	50° 22. 77	125° 20. 90							BONGO
		22 49	BC	TRAWL		187	50 22.12	125 21.47		Tow AT 30m					TRAWL

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

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Month				Year			Ship			Cruise ID					
MARCH				2014			W.E. RICKER			2014-16					
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
17	DI 23	23:31	BE	TRAWL		188	50 21.74	125 22.73	263		TOW AT 60m				
18	GS 33	1359	BG	CTD		189	49° 58.72	125° 05.49	204			1	H.M.		T: 7.91 S: 30.18
		1404	BO				49° 58.64	125° 05.44		195					BOT @ 10m SAL/KAL/NOTS
		1409	EN				49° 58.64	125° 05.39							
		1412	BE	NET		190	49° 58.63	125° 05.37							BONGO
		14:32	BE	TRAWL		191	49° 58.74	125° 04.19			TOW AT SURFACE				TRAWL
18	GS 34	1549	BG	TRAWL		192	49 58.09	124 58.52			TOW AT 30m				TRAWL ONLY
18	GS 35	1601	BG	CTD		193	49° 55.24	124° 58.38	146			1			T: 7.61 S: 29.77
		1604	BO				49° 55.22	124° 58.37		135					BOT @ 10m SAL/KAL/NOTS
		1608	GN				49° 55.19	124° 58.33							
		1610	BE	NET		194	49° 55.20	124° 58.31							BONGO
		1628	BG	TRAWL		195	49 55.46	124 59.04			TOW AT 45m				TRAWL
18	GS 36	1709	BE	TRAWL		196	49 55.56	125 01.9			TOW AT 15m				TRAWL ONLY

Cast Type:

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Month <u>MARCH</u>				Year <u>2014</u>			Ship <u>W.E. RICKER</u>				Cruise ID <u>2014-16</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
18	GS 37	1747	BC	CTD		197	49° 53. 91	125° 03. 03	175			1	11.m		T: 7.61 S: 29.85
		1750	BO				49° 53. 86	125° 02. 97		165					BOTOM - SAL/CHL/NTS
		1755	EN				49° 53. 78	125° 02. 94							
*	MUDGE	1757	BC	NET	*	198	49° 53. 79	125° 02. 95			MOIRA	*			BONGO
		18:15	BC	TRAWL		199	49 53. 17	125 02. 97			Tow AT 30m				TRAWL
18	GS 38	1912	BC	TRAWL		200	49 49. 39	125 00. 15		Tow AT 15m		1			TRAWL ONLY
18	GS 39	1954	BC	CTD		201	49° 47. 68	124° 56. 72	66			1			T: 7.70 S: 29.86
		1955	BO				49° 47. 67	124° 56. 68		55					BOTOM - SAL/CHL/NTS
		1958	EN				49° 47. 67	124° 56. 65							
		2000	BC	NET		202	49° 47. 69	124° 56. 66							BONGO
		2015	BC	TRAWL		203	49 48. 17	124 55. 82		Tow AT 45 m					TRAWL
18	GS 40	2113	BC	TRAWL		204	49 51. 04	124 48. 34		Tow AT 45 m					TRAWL ONLY

Cast Type:

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Bottle Firing Method:

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Notes:

Time Code:

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

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Month		Year		Ship		Cruise ID		Page		of					
MARCH		2014		W.E. RICKER		2014-16		23		of					
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
18	GS 41	2200	BC	CTD		205	49° 50.72	124° 43.22	148			1	H.M.		T: 7.66 S: 29.47
		2203	BO				49° 50.70	124° 43.23		140					BOT@ 10m SAL/CHL/HUTS
		2206	EN				49° 50.69	124° 43.23							
		2208	BC	NET		206	49° 50.70	124° 43.23							
		2224	BC	TRAWL		207	49° 50.15	124° 42.63							BONGO
											Tow AT	15m			TRAWL
	GS 42	2310	BC	TRAWL		208	49° 47.77	124° 41.77							
											Tow AT	SURFACE			TRAWL ONLY
19	GS 43	0033	BC	CTD		209	49° 44.10	124° 48.30	197			1			T: 7.74 S: 29.91
		0038	BO				49° 44.06	124° 48.28		185					BOT@ 10m SAL/CHL/HUTS
		0043	EN				49° 44.03	124° 48.28							
		0045	BC	NET		210	49° 44.05	124° 48.28							
		0104	BC	TRAWL		211	49° 43.51	124° 48.22							BONGO
											Tow AT	15m			TRAWL
19	GS 44	1400	BC	CTD		212	49° 41.01	124° 48.49	54			1			T: 7.60 S: 29.70
		1401	BO				49° 41.01	124° 48.48		45					BOT@ 10m SAL/CHL/HUTS
		1404	EN				49° 41.00	124° 48.45							
		1406	BC	NET		213	49° 41.00	124° 48.40							BONGO
		1442	BC	TRAWL		214	49° 40.23	124° 47.78							TRAWL
											Tow AT	SURFACE			

Cast Type:

BOT = Bottle cast, no CTD

USW = Sea Water Loop

MOP = Mooring

Bottle Firing Method:

Time Code:

Cast Type:

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SET = Fish Set

USW = Sea Water Loop
MOR = Mooring
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DRF = Drifter

Bottle Firing Method:

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Time Code:

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Notes:

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
19	GS 45	1508	BE	TRAWL		215	49° 37.19	124° 44.45		Tow AT 30m			H.M.		TRAWL ONLY
19	GS 46	1547	BE	CTD		216	49° 37.09	124° 41.63	144			1			T: 7.57 S: 29.75
		1556	BO				49° 37.10	124° 41.62		135					Bottle on SAL/CAL/NOTES
		1559	CH				49° 37.09	124° 41.66							
		1600	BE	NET		217	49° 37.10	124° 41.69							Bottle GO
		1618	BE	TRAWL		218	49° 37.26	124° 41.175			Tow AT 15m				TRAWL
19	GS 47	1701	BE	TRAWL		219	49° 40.36	124° 39.71			Tow AT 30m				TRAWL ONLY
19	GS 48	1748	BE	CTD		220	49° 43.04	124° 38.02	298			1			T: 7.58 S: 29.85
		1753	BO				49° 43.06	124° 38.11		250					Bottle on SAL/CAL/NOTES
		1758	CH				49° 43.11	124° 38.15							
		1800	BE	NET		221	49° 43.12	124° 38.15	284						Bottle GO
		1819	BE	TRAWL		222	49° 42.93	124° 37.35	238		Tow AT 30m				TRAWL 30 minutes
19	GS 49	1911	BE	TRAWL		223	49° 40.93	124° 32.84			Tow AT SURFACE				TRAWL ONLY

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Month MARCH				Year 2014			Ship W. E. RICKER				Cruise ID 2014-16				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
19	GS 50	1952	BE	CTD		224	49° 38.38	124° 29.78	324			1	H.M.		T: 7.56 S: 29.79
		1958	BO				49° 38.36	124° 29.81		250					BOTOM. SAL / CHL / NUTS
		2004	EN				49° 38.37	124° 29.87							
		2006	BE	NET		225	49° 38.37	124° 29.88							BONGO
		2025	BE	TRAWL		226	49 37.89	124 29.4			Tow AT	30m			TRAWL
19	GS 51	21:07	BE	TRAWL		227	49 35.2	124 26.2			Tow AT	15m			TRAWL ONLY
19	GS 52	2200	BE	CTD		228	49° 30.18	124° 26.13	178			1			T: 7.62 S: 29.70
		2204	BO				49° 30.20	124° 26.15		170					BOTOM. SAL / CHL / NUTS
		2208	EN				49° 30.21	124° 26.17							
*	SISTERS	2210	BE	NET		229	49° 30.22	124° 26.16			MARA STA *				BONGO *
		2230	BE	TRAWL		230	49 30 13	124 27.22			Tow AT	30m			TRAWL
19	GS 53	2314	BE	TRAWL		231	49 29.9	124 32.48			Tow AT	15m			TRAWL ONLY

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Month <u>MARCH</u>				Year <u>2014</u>			Ship <u>W.E. RICKER</u>			Cruise ID <u>2014-16</u>					
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
20	GS 54	0031	BE	CTD		232	49° 27. 70	124° 39. 24	70			1	H.M.		T: 7.68 S: 29.58
		00 33	BO				49° 27. 70	124° 39. 24		60					BOTOM. SAL/CHL/HUTS
		00 35	EN				49° 27. 76	124° 39. 24							
		00 37	BE	NET		233	49° 27. 72	124° 39. 25							BONGO
		00 52	BE	TRAWL		234	49 27. 73	124 38. 68			TOW AT	SURFACE			TRAWL
20	GS 55	14 00	BE	CTD		235	49° 25. 37	124° 35. 86	63			1			T: 7.45 S: 29.62
		14 02	BO				49° 25. 36	124° 35. 87		55					BOTOM. SAL/CHL/HUTS
		14 04	EN				49° 25. 35	124° 35. 87							
		14 06	BE	NET		236	49° 25. 35	124° 35. 87							BONGO
		14:21	BE	TRAWL		237	49 24. 86	124 35. 13			TOW AT	SURFACE			TRAWL
20	GS 56	15:09	BE	TRAWL		238	49 22. 79	124 29. 79			TOW AT	15m			
20	GS 57	15 49	BE	CTD		239	49° 22. 33	124° 26. 09	88			1			T: 7.45 S: 29.49
	GS 57	15 51	BO				49° 22. 33	124° 26. 07		80					BOTOM. SAL/CHL/HUTS
		15 54	EN				49° 22. 33	124° 26. 04							
		15 59	BE	NET		240	49° 22. 34	124° 25. 97							BONGO
		16:15	BE	TRAWL		241	49 22. 41	124 24. 70			TOW AT	15m			TRAWL

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Month				Year			Ship			Cruise ID					
MARCH				2014			W.E. RICKER			2014-16					
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
20	GS 58		BE	TRAWL		242	49 22.11	124 20.48	Tow	AT SURFACE			11.7		TRAWL ONLY
20	GS 59	1741	BE	CTD		243	49° 20.60	124° 16.15	156			1			T: 7.45 S: 29.45
		1744	BO				49° 20.60	124° 16.10		146					BOT 10 - SAL/CUL/ROS
		1748	EN				49° 20.61	124° 16.06							
		1750	BE	NET		244	49° 20.62	124° 16.01							BONGO
		18:09	BE	TRAWL		245	49 20.5	124 14.83	Tow	AT 30m					TRAWL
20	GS 60	1932	BE	TRAWL		246	49 19.56	124 9.79	Tow	AT SURFACE					TRAWL ONLY
20	GS 61	2010	BE	CTD		247	49° 18.33	124° 06.06	219			1			T: 7.54 S: 29.58
		2015	BO				49° 18.33	124° 06.07		210					BOT 10 - SAL/CUL/ROS
		2020	EN				49° 18.34	124° 06.05							
		2022	BE	NET		248	49° 18.41	124° 06.19							BONGO
		2040	BE	TRAWL		249	49 18.07	124 05.04		Tow	AT 15m				TRAWL
20	GS 62	21:23	BE	TRAWL		250	49 16.02	124 00.76		Tow	AT SURFACE				
	GS 63	22:04	BE	TRAWL		251	49 15.20	123 56.48		Tow	AT 15m				
							— END OF SURVEY —								

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