

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2014-60

DATE:

From: Sept 2/2014

to:

VESSEL:

J. P. Tully

PROJECT(S):

Strait of Georgia

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

WaterProperties.ca

Captain: Victor Gronmyr First Officer: Jim Garrett
Second Officer: Jodi Heske Third Officer: Karen
Fishing Master: _____

Mission Participants / Agencies: EEA

Scientific Personnel: Chief Scientist: Doug Molland

Name	Watch	Cabin	Name	Watch	Cabin
<u>Harve De</u>			<u>Marie Robert</u>		
<u>See</u>			<u>Margie Galbraith</u>		
<u>2014-22</u>			<u>Kelly Young</u>		
			<u>Scott Rose</u>		
			<u>Ron Lindsay</u>		
			<u>Ze</u>		
			<u>Tamara Fraser</u>		
			<u>Nina Nemcek</u>		
			<u>Jan Perry</u>		
			<u>Steve Page</u>		

Second leg of Mission: Chief Scientist: _____

Name	Watch	Cabin	Name	Watch	Cabin

Data logging computer: ~~Seasave~~
Data acquisition program: Seasave
CTD deck unit make: SBE model: 11+ serial number: 0471

Primary CTD
Make: SBE model: 9+ serial number: 0443
Primary temperature serial number: 2106
Primary conductivity serial number: 2240
Secondary temperature serial number: 2663
Secondary conductivity serial number: 2754
Transmissometer: Wetlabs Model: C-STAR s/n: 1396DR
Fluorometer: Model Seapoint Cable gain: 3X s/n: 3642 ☒ S or NO pump?
Oxygen sensor: SBE Model: 43 s/n: _____ ☒ S or NO pump?
PAR sensor: BIOSPHERICAL Model: QSP200LH5 s/n: 4615
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?

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

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Month				Year			Ship			Cruise ID					
SEPTEMBER				2014			TULLY			2014-60					
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	21	1406	BE	ROS	/	1	50° 1.88	125° 13.54	75		/	/	SR	✓	PAR CN 4615
		1408	BO				1.83	13.49	68						
		1409	EN				1.79	13.45		61					
2	16	1503	BO	ROS	US	2	49° 57.45	125° 8.80	147		1-11	11	SR	✓	
		1507	BO				57.44	8.76		143					
		1520	EN				57.33	8.57							
2	17	1556	BE	ROS	/	3	49° 58.86	125° 4.40	265		/	/	SR	✓	
		1601	BO				58.86	4.42		260					
		1605	EN				58.85	4.45							
2	18	1638	BE	ROS	/	4	49° 59.262	124° 58.93	143				SR	✓	
		1641	BO				59.27	58.94		137					
		1643	EN				59.26	58.95							
2	19	1724	BE	ROS	/	5	50° 1.23	124° 52.92	283				SR	✓	
		1726	BO				1.23	52.89		278					
		1733	EN				1.22	52.86							
2	13	1746	BE	ROS	/	6	49 55.34	124 55.18	249				SR	✓	
		1750	BO				55.36	55.19		233					
		1755	EN				55.38	55.18							

Cast Type:

BOT = Bottle cast, no CTD
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 SET = Fish Set

USW = Sea Water Loop

MOR = Mooring
 NET = Plankton Net Haul
 DRF = Drifter

Bottle Firing Method:

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

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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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Month <u>SEPT</u>				Year <u>2014</u>			Ship <u>JP TULLY</u>				Cruise ID <u>2014-60</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	14	1926	BE	ROS	US	7	49 52.98	124 59.56	316		12-26	15	MG	✓	RAIN
		1931	BO				52.97	59.49		306					
		1951	EN				50.99	59.42							
2	15	2017	BE	ROS	/	8	49 51.57	125 1.51	133		—	0	MG	✓	
		2020	BO				51.63	1.51		122					
		2022	EN				51.55	1.51							
2	10	2203	BE	ROS	/	9	49 40.69	124 47.29	98		—	0	MG	✓	
		2205	BO				40.70	47.27		88					
		2207	EN				40.70	47.27							
2	11	2235	BE	ROS	/	10	49 42.39	124 43.62	295		—	0	MG	✓	
		2240	BO				42.41	43.62		286					
		2245	EN				42.40	43.62							
2	11	2250	BE	NET	/	11	49 42.41	124 43.60	297				MG		Tape was cut off on descent
		23:11	BO				42.45	43.56		290					
		23:16	EN				42.45	43.50							
2	12	2341	BE	ROS	US	12	49 43.61	124 40.94	355		—	0	MG	✓	GREEN STREAKS AT SURFACE
		2347	BO				43.63	40.96		345					
3		0007	EN				43.73	40.87							

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Month				Year			Ship				Cruise ID				
SEPTEMBER				2014			J.P. TULLY				2014-60				
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	8	0059	BE	ROS	/	13	49' 39.31	124' 33.00	345		—	Ø	MR	✓	
		0105	BO				49' 39.31	124' 33.01		328					
		0110	EN				49' 39.33	124' 33.00							
3	9	0152	BE	ROS	US	14	49' 35.52	124' 38.21	171		43-54	12	MG	✓	BOTTLE 3 DID NOT FIRE
		0155	BO				35.53	38.20		164					LONGWARD ALIGNMENT?
		0209	EN				35.57	38.18							
3	7	0313	BE	ROS	/	15	49' 34.46	124' 24.13	354		—	0	MG	✓	
		0318	BO				34.45	24.14		348					FIRE BOTTLE 3 TO CHECK
		0324	EN				34.43	24.14							AND IT WORKED
3	6	0400	BE	ROS	US	16	49' 30.58	124' 27.75	196		55-67	13	MG	✓	
		0404	BO				30.58	27.77		188					
		0420	EN				30.59	27.26							
3	5	0451	BE	ROS	/	17	49' 27.38	124' 30.73	336		—	0	MG	✓	
		0456	BO				27.40	30.72		313					
		0502	EN				27.41	30.74							
3	5	0510	BE	NET		18	49' 27.43	124' 30.76	317				MG		
		5:21	BO				27.47	30.77		307					
		0527	EN				27.48	30.77							

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Month <u>SEPT</u>				Year <u>2014</u>			Ship <u>SP TULLY</u>				Cruise ID <u>2014-60</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	4	0616	BE	ROS	/	19	49 24.49	124 22.05	346		—	0	MG	✓	
		0622	BO				24.49	22.07		340					
		0628	EN				24.50	22.09							
3	3	0701	BE	ROS	US	20	49 26.61	124 20.22	324		68-83	16	SR	✓	
		0707	BO				26.61	20.20							
		0726	EN				26.62	20.25							
3	1	0828	BE	ROS	/	21	49° 20.27	124° 12.16	245		—	/	SR	✓	
		0833	BO				20.28	12.15		240					
		0837	EN				20.29	12.18							
3	2	0917	BE	ROS	US	22	49° 24.05	124° 9.43	284		84-98	15	SR	✓	
		0922	BO				24.08	9.43		278					
		0939	EN				24.13	9.46							
3	25	1020	BE	ROS	/	23	49° 27.63	124° 7.59	319		—	/	SR	✓	
		1027	BO				27.64	7.59		314					
		1032	EN				27.64	7.58							
3	24	1104	BE	ROS	/	24	49° 30.31	124° 5.92	426		—	/	SR	X	
		1111	BO				30.30	5.88		418					
		1118	EN				30.30	5.89							

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Month <u>September</u>		Year <u>2014</u>		Ship <u>J.P. Tully</u>		Cruise ID <u>2014-60</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	22	1254	BE	ROS	/	25	49° 40.17	124° 16.28	350		/	/	SR	/	
		1259	BO				40.17	16.27		345					
		1305	EN				40.17	16.28							
3/9	22	0615	BE	NET	/	26	49° 40.172	124° 16.297	350		/	/	SR	/	340 m bongo
		0628	BO				49° 40.16	124° 16.30	350.57	340					
		0636	EN		/		49° 40.17	124° 16.30	350.57		/	/		/	
3	28	1627	BE	ROS	/	27	49° 24.15	123° 45.39	134		/	/	SR	/	
		1629	BO				24.14	45.43		128					
		1631	EN				24.15	45.43							
3	27	1717	BE	ROS	US	28	49° 19.09	123° 47.94	350		99-114	16	SR	/	
		1723	BO				19.10	47.94		340					
		1742	EN				19.13	47.95							
3	26	1833	BE	ROS	/	29	49° 14.32	123° 50.72	260						
		1837	BO				14.32	50.72		257	/	Ø			
		1842	EN				14.32	50.73							
3	40	1955	BE	ROS	/	30	49 8.53	123 36.72	163				MG	/	
		1958	BO				8.54	36.72		160	/	Ø			
		2001	EN				8.55	36.71							

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Month <u>SEPT</u>				Year <u>2014</u>			Ship <u>IP TULLY</u>				Cruise ID <u>2014-60</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	39	2032	BE	ROS	US	31	49 9.75	123 32.94	376		115-131	17	MG	✓	
		2038	BO				9.75	32.97		373					
		2102	EN				9.78	33.04							
3	38	2140	BE	ROS	—	32	49 12.02	123 26.44	308				MG	✓	FLOOR OVER 65 @ 10m
		2145	BO				12.02	26.44		304	—	Ø			
		2151	EN				12.00	26.45							
3	37	22 28	BE	ROS	—	33	49 13.57	123 20.76	216				MG	✓	SALINITY 23 @ SURFACE
		2231	BO				13.58	20.78		211	—	Ø			
		2235	EN				13.58	20.81							
3	108	2343	BE	ROS	—	34	49 4.42	123 19.10	89				MG	✓	SALINITY 23 @ SURFACE
		2344	BO				4.43	19.11		85	—	Ø			
		2346	EN				4.43	19.13							
13	41	0008	BE	NET	—	35	49 03 32	123 22 23	238				MG	—	Bottle to 233
		0015	BO				49 03 32	123 22 20		233					
		0020	EN				49 03 33	123 22 20							
34	41	0027	BE	ROS	—	36	49 03 35	123 22 22	236				MR	✓	
		0031	BO				49 03 35	123 22 20		231	—	Ø			
		0036	EN				49 03 34	123 22 18							

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Month <u>SEPTEMBER</u>				Year <u>2014</u>			Ship <u>TULLY</u>				Cruise ID <u>2014-19</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	42	0105	BE	ROS	US	37	49 1.79	123 26.16	320		132-147	16	MG	✓	SALINITY ~21 @ SURFACE
		0110	BO				1.79	26.14		315					FLUOR >6 @ 9M
		0132	EN				1.78	26.09							
4	43	0201	BE	ROS	/	38	49 0.19	123 30.16	192		—	0	MG	✓	FLUOR ~7 @ 7M
		0204	BO				0.20	30.15		189					SALINITY ~23 @ SURFACE
		0208	EN				0.21	30.14							
4	107	0305	BE	ROS	/	39	48 58.40	123 17.91	181		—	0	MG	✓	SALINITY ~23 @ SURFACE
		0308	BO				58.38	17.92		176					
		0312	EN				58.38	17.91							
4	46	0411	BE	ROS	US	40	48 51.28	123 10.79	189		148-159	12	MG	✓	SALINITY ~22 @ SURFACE
		0414	BO				51.27	10.78		184					
		0428	EN				51.27	10.75							
4	45	0456	BE	ROS	/	41	48 53.85	123 8.31	130		—	0	MG	✓	SALINITY ~21 @ SURFACE
		0458	BO				53.85	8.28		124					
		0501	EN				53.86	8.28							
4	44	0530	BE	ROS	/	42	48 56.75	123 6.06	120		—	0	MG	✓	SALINITY ~22 @ SURFACE
		0531	BO				56.74	6.06		115					
		0534	EN				56.74	6.06							

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Month <u>SEPT</u>			Year <u>2014</u>				Ship <u>IPYOLLY</u>				Cruise ID <u>2014-60</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	49	0612	BE	ROS	/	43	48 55.05	122 59.58	132		—	0	MG	✓	
		0615	BO				55.05	59.59		127					
		0618	EN				55.06	59.59							
4	48	0657	BE	ROS	/	44	48° 51.65	123° 3.25	229		—	0	SR	✓	
		0702	BO				51.63	3.22		224					
		0706	EN				51.61	3.18							
4	47	0738	BE	ROS	/	45	48° 49.35	123° 6.10	188		—	0	SR	✓	
		0741	BO				49.34	6.08		183					
		0744	EN				49.33	6.07							
4	56	0832	BE	ROS	US	46	48° 46.31	123° 1.66	225		160-173	14	SR	✓	
		0836	BO				46.24	1.78		220					
		0853	EN				46.13	1.97							
4	57	0933	BE	ROS	/	47	48° 44.06	123° 8.31	159		—	—	SR	✓	
		0935	BO				44.05	8.34		156					
		0938	EN				44.05	8.35							
4	58	1018	BE	ROS	/	48	48° 43.13	123° 14.53	313		—	—	SR	✓	Closed all
		1024	BO				43.14	14.57		308					bottles @ surf
		1030	EN				43.13	14.61							for storage.
5	MICRO 59	0304	BE	LOOP		49	48 40.91	123 15.74	315						10 MIN

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Month <u>SEPTEMBER</u>			Year <u>2014</u>				Ship <u>TULEY</u>				Cruise ID <u>2014-60</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							
5	59	0328	BE	ROS	US	50	48° 37.77	123° 14.72	225		174-187	14	MR	✓	Depth in header?
		0332	BO				48° 37.79	123° 14.72		221					
		0347	EN				48° 37.75	123° 14.74							
5	60	0441	BE	ROS	—	51	48° 34.27	123° 14.40	217		—	Ø	MR	✓	1 mile off, too much traffic.
		0445	BO				48° 34.27	123° 14.41		215					
		0449	EN				48° 34.29	123° 14.39							
5	61	0536	BE	ROS	—	52	48° 29.21	123° 09.09	216		—	Ø	MR	✓	
		0540	BO				48° 29.22	123° 09.09		216					
		0544	EN				48° 29.23	123° 09.08							
5	62	0639	BE	ROS	US	53	48° 22.86	123° 02.67	150		200-210	11	MR	✓	
		0642	BO				48° 22.88	123° 02.66		144					
		0654	EN				48° 22.92	123° 02.61							
5	63	0807	BE	ROS	✓	54	48° 14.62	122° 58.53	154		—	—	SR	✓	Stopped @ 80db
		0810	BO				14.61	58.57		149					on downcast to
		0813	EN				14.61	58.58							correct the wire
5	64	0909	BE	ROS	—	55	48° 12.90	123° 6.11	117		—	—	SR	✓	angle
		0911	BO				12.90	6.13		112					
		0913	EN				12.91	6.15							

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Month <u>September</u>		Year <u>2014</u>		Ship <u>J.P. Tully</u>		Cruise ID <u>2014-60</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							
<u>5</u>	<u>65</u>	<u>0948</u>	<u>BE</u>	<u>ROS</u>	<u>US</u>	<u>56</u>	<u>48° 15.88</u>	<u>123° 9.97</u>	<u>128</u>		<u>211-220</u>	<u>10</u>	<u>SR</u>	<u>✓</u>	
		<u>0951</u>	<u>BO</u>				<u>15.88</u>	<u>9.99</u>		<u>123</u>					
		<u>1002</u>	<u>EN</u>				<u>15.87</u>	<u>10.17</u>							
<u>5</u>	<u>66</u>	<u>1041</u>	<u>BE</u>	<u>ROS</u>	<u>—</u>	<u>57</u>	<u>48° 19.31</u>	<u>123° 14.42</u>	<u>101</u>		<u>—</u>	<u>/</u>	<u>SR</u>	<u>✓</u>	
		<u>1043</u>	<u>BO</u>				<u>19.30</u>	<u>14.51</u>		<u>96</u>					
		<u>1045</u>	<u>EN</u>				<u>19.29</u>	<u>14.55</u>							
<u>5</u>	<u>67</u>	<u>1120</u>	<u>BE</u>	<u>ROS</u>	<u>—</u>	<u>58</u>	<u>48° 22.78</u>	<u>123° 17.92</u>	<u>108</u>		<u>—</u>	<u>/</u>	<u>SR</u>	<u>✓</u>	
		<u>1122</u>	<u>BO</u>				<u>22.79</u>	<u>17.99</u>		<u>103</u>					
		<u>1124</u>	<u>EN</u>				<u>22.79</u>	<u>18.03</u>							
<u>5</u>	<u>104</u>	<u>1152</u>	<u>BE</u>	<u>ROS</u>	<u>—</u>	<u>59</u>	<u>48° 19.93</u>	<u>123° 18.19</u>	<u>88</u>		<u>—</u>	<u>/</u>	<u>SR</u>	<u>✓</u>	
		<u>1154</u>	<u>BO</u>				<u>19.87</u>	<u>18.32</u>		<u>83</u>					
		<u>1156</u>	<u>EN</u>				<u>19.82</u>	<u>18.41</u>							
<u>5</u>	<u>ADCP</u>	<u>1242</u>	<u>BE</u>	<u>ROS</u>	<u>US</u>	<u>60</u>	<u>48° 14.54</u>	<u>123° 18.16</u>	<u>110</u>		<u>221-230</u>	<u>10</u>	<u>SR</u>	<u>✓</u>	
		<u>1244</u>	<u>BO</u>				<u>14.55</u>	<u>18.26</u>		<u>104</u>					
		<u>1254</u>	<u>EN</u>				<u>14.55</u>	<u>18.30</u>							
<u>5</u>	<u>105</u>	<u>1330</u>	<u>BE</u>	<u>ROS</u>	<u>—</u>	<u>61</u>	<u>48° 11.01</u>	<u>123° 19.13</u>	<u>87</u>		<u>—</u>	<u>/</u>	<u>SR</u>	<u>✓</u>	
		<u>1331</u>	<u>BO</u>				<u>11.02</u>	<u>19.18</u>		<u>82</u>					
		<u>1332</u>	<u>EN</u>				<u>11.02</u>	<u>19.21</u>							

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Month <u>Sept</u>				Year <u>2014</u>			Ship <u>Tully</u>			Cruise ID <u>2014-60</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							
5	68	1507	BE	ROS	—	62	48° 12.30	123° 43.29	138		—	—	SR	✓	
		1510	BO				12.29	43.38		133					
		1512	EN				12.31	43.40							
5	69	1545	BE	ROS	US	63	48° 15.71	123° 43.23			231-242	12	SR	✓	Stopped @ 167m to
		1548	BO				15.73	43.27							correct wire angle
		1605	EN				15.95	42.99							on upcast.
5	70	1634	BE	ROS	—	64	48° 19.23	123° 42.98	152		—	—	SR	✓	
		1637	BO				19.24	42.92		147					
		1639	EN				19.22	42.88							
5	71	1808	BE	ROS	—	65	48° 22.23	123° 59.38	110		—	—	SR	✓	Stopped @ 15m on the
		1815	BO				22.15	59.34		105					downcast for wire
		1817	EN				22.13	59.31							angle adjustment.
5	72	1856	BE	ROS	US	66	48° 18.67	124° 03.89	188		243-255	13	MR	✓	
		1900	BO				48° 18.67	124° 03.83		185					
		1913	EN				48° 18.58	124° 03.55							
5	73	1948	BE	ROS	—	67	48° 15.06	124° 06.57	162		—	0	MR	✓	
		1951	BO				48° 15.05	124° 06.49		158					
		1954	EN				48° 15.03	124° 06.42							

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Month SEPTEMBER				Year 2014				Ship TULLY				Cruise ID 2014-60			
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							
5	74	2219	BE	ROS	—	68	48 25.10	124 35.65	188		—	Ø	MR	✓	
		2224	BO				48 25.10	124 35.68		183					
		2227	EN				48 25.10	124 35.68							
5	101	2312	BE	ROS	—	69	48 25.44	124 44.83	237		—	Ø	MG	✓	2315. INBOUND STOP @ 107m TO ADJUST WIRE
		2322	BO				48 25.36	44.82		228					
		2326	EN				48 25.35	44.88							
6	75	0041	BE	ROS	US	70	48 28.24	124 32.82	222		28-269	14	MR	✓	
		0045	BO				48 28.24	124 32.80		217					
		0100	EN				48 28.22	124 32.85							
6	76	0130	BE	ROS	—	71	48 31.43	124 29.95	88		—	Ø	MR	✓	
		0132	BO				48 31.45	124 29.95		81					
		0133	EN				48 31.47	124 29.95							
6	103	0233	BE	ROS	—	72	48 32.98	124 43.10	124		—	Ø	MR	✓	
		0236	BO				48 32.99	124 43.13		119					
		0238	EN				48 33.01	124 43.14							
6	102	0305	BE	ROS	US	73	48 30.06	124 44.06	257		270-283	14	MR	✓	
		0310	BO				48 30.11	124 44.11		250					
		0327	EN				48 30.23	124 44.09							

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