

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2009-14

DATE:

From: 16 SEP 2009 to: 20 SEP 2009

VESSEL:

CCGS VECTOR

PROJECT(S):

STRAIT OF GEORGIA / JUAN DE FUCA
WATER PROPERTIES SURVEY

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

WaterProperties.ca

Captain: DAD LEE
 Second Officer: THERESA
 Fishing Master: _____
 First Officer: TODD
 Third Officer: THOMAS

Mission Participants / Agencies:

Scientific Personnel:		Chief Scientist:	
Name	Watch	Name	Watch
DARREN TURE	19-3	PETER CHANDLER	
SARA STATHAM	19-3		
ERIAN FOX	3-11		
MELISSA HANDEKS	11-19		
CHEZCA STANLEY	3-11		

[illegible]

Data logging computer:

Data acquisition program: _____
 CTD deck unit make: _____ model: _____ serial number: _____

Primary 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:

1

Other sensors:

1001

Other sensors:

1870

Other sensors:

10

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:

100

Other sensors:

100

Other sensors:

1003

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

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Month		Year		Ship		Cruise ID									
September		2009		Vector		2009-14									
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	SI	0007	BE	ROS		1	48 39 379	123 29 833	166			11	DT/SS	✓	2009-14-0001. hex
		0010	BO				48 39 356	123 29 837		100	1-10				
		0022	EN				48 39 320	123 29 746							
17	58	0157	BE	ROS		2	48 43 170	123 14 545	295				DT/SS	✓	changed Fluor multiplier cable
		0204	BO				48 43 288	123 14 632		278					
		0210	EN				48 43 261	123 14 660							
17	59	0253	BE	ROS		3	48 37 716	123 14 623	226			13	DT/SS	✓	
		0258	BO				48 37 648	123 14 660		214	11-23				
		0313	EN				48 37 334	123 14 882							
17	60	0351	BE			4	48 33 817	123 12 935	302				DT/SS	✓	
		0357	BO				48 33 643	123 12 869		290					
		0403	EN				48 33 503	123 12 839							
17	61	0436	BE			5	48 29 083	123 9 167	286				DT/SS	✓	
		0442	BO				48 29 009	123 9 092							
		0448	EN				48 29 904	123 9 118							
17	103	1231	BE	ROS		6	48 33.010	124 43.126	119				RE/CS	✓	
		1235	BO				48 33.018	124 43.115		115					
		1239	EN				48 33 025	124 43.106							

Cast Type:
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Notes:

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2009-14

This page is for any notes or observations

Sept 16, 2009

depart Port Bay 16:30 local proceed to Saanich Inlet test station

1707 Saanich Inlet Station - Seapoint fluor = 3x 0-50 ug/l cable

1800 - Swap fluor cable from 3x to 30x 0-5 ug/l for Juan de Fuca STNS

1816 - Changed config. file to reflect fluorometer cable change from 3x to 30x

2153 finish STN 61 - Run to STN 103 $\approx$ 7 hr run

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Month SEPT			Year 2009			Ship VECTOR			Cruise ID 2009-14						
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	102	13:10	BE	ROS		7	48 29.953	124 44.000	255		24-37	14	RF/CS	✓	
		13:23	BO				48 29.947	124 43.997		250					
		13:45	EN				48°29.860	124-44.064							
17	101	14:20	BE	ROS		8	48°25.406	124°45.188	233				RF/CS	✓	
		14:29	BO				48°25.410	124°45.250		218					
		14:36	EN				48°25.399	124°45.245							
17	74	15:28	BE	ROS		9	48°25.145	124°35.635	187				RF/CS	✓	
		15:33	BO				48°25.146	124°35.639		183					
		15:38	EN				48°25.168	124°35.626							
17	75	16:09	BE	ROS		10	48°28.216	124°32.798	220		38-51	14	RF/CS	✓	
		16:15	BO				48°28.224	124°32.766		216					
		16:33	EN				48°28.267	124°32.690							
17	76	17:06	BE	ROS		11	48°31.429	124°30.071	88				RF/CS	↓	
		17:09	BO				48°31.426	124°30.060		84					
		17:12	EN				48°31.420	124°30.042							
17	73	19:29	BE			12	48 15 133	124 6.850	164				RF/MA	✓	
		19:34	BO				48 15 064	124 6.700		159					
		19:37	EN				48 15 006	124 6.596							

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
17	72	20 08	BE	ROS	US	13	48 18.407	124 4.116	190		52 - 65	13	RD/MH	✓	phyto sampled
		20 12	BO				48 18.430	124 4.110		185					extra HPLC sampled
		20 26	EN				48 18 304	124 4.009							
17	71	21 06	BE	ROS		14	48 22.025	123 59.284	112				RD/MH	✓	
		21 09	BO				48 22.058	123 59 239		108					
		21 11	EN				48 22.016	123 59 185							
17	70	22 12	BE	ROS		15	48 19.226	123 43.135	150				RD/MH	✓	
		22 16	BO				48 19.196	123 43.070		146					
		22 19	EN				48 19.183	123 43.022							
17	69	22 44	BE	ROS	US	16	48 15.707	123 43 118	180		66 - 77		RD/MH	✓	
		22 49	BO				48 15.730	123 43 068		175					
		23 02	EN				48 15 786	123 42 976							
17	68	23 37	BE	ROS		17	48 12.372	123 42.986	142				RD/MH	✓	
		23 41	BO				48 12.362	123 43 021		137					
		23 44	EN				48 12.359	123 42 020							
18	105	01 16	BE	ROS		18	48 11.003	123 19 010	85				RD/MH	✓	
		01 21	BO				48 11.020	123 19 007		81					
		01 23	EN				48 11.021	123 19.012							

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							Latitude	Longitude							
18	ADCP	01:49	BE	ROS	US	19	48 13.942	123 18.115	118		78-87	10	RS/HH	✓	
		01:52	BO				48 13.937	123 18.190		113					
		02:02	EN				48 14.032	123 18.380							
18	104	02:45	BE			20	48 19.877	123 18.079	89				SS DT	✓	
		02:47	BO				48 19.840	123 18.108		83					
		02:50	EN				48 19.828	123 18.124							
18	67	03:20	BE			21	48 22.709	123 18.382	108				SS DT	✓	
		03:24	BO				48 22.700	123 18.473		100					
		03:26	EN				48 22.699	123 18.512							
18	66	04:05	BE			22	48 19.310	123 14.178	101				SS DT	✓	
		04:07	BO				48 19.296	123 14.198		96					
		04:10	EN				48 19.265	123 14.221							
18	65	04:50	BE	ROS		23	48 15.874	123 9.997	127			10		✓	
		05:00	BO				48 15.826	123 10.022		119	88-97		SS DT		
			EN				48 15.763	123 10.073							
18	64	05:43	BE			24	48 12.779	123 5.908	114				SS DT		Caught kelp
		05:50	BO				48 12.791	123 6.024		107					@ Surface, brought
		05:53	EN				48 12.776	123 6.029							out of water
															re start

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Month <i>Sept</i>				Year <i>2009</i>			Ship <i>Vector</i>				Cruise ID <i>2009-14</i>				
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							
<i>18</i>	<i>63</i>	<i>0631</i>	<i>BE</i>			<i>25</i>	<i>48 14 582</i>	<i>122 58 567</i>	<i>154</i>				<i>SS</i>	<i>DT</i>	
		<i>0635</i>	<i>BO</i>				<i>48 14 611</i>	<i>122 58 534</i>		<i>143</i>					
		<i>0638</i>	<i>EN</i>				<i>48 14 621</i>	<i>122 58 517</i>							
<i>18</i>	<i>62</i>	<i>0745</i>	<i>BE</i>	<i>ROS</i>		<i>26</i>	<i>48 22 854</i>	<i>123 2 708</i>	<i>148</i>		<i>98-108</i>	<i>11</i>	<i>SS</i>	<i>DT</i>	<i>✓</i>
		<i>0750</i>	<i>BO</i>				<i>48 22 914</i>	<i>123 2 731</i>		<i>142</i>					
		<i>0802</i>	<i>EN</i>				<i>48 23 112</i>	<i>123 2 797</i>							
<i>18</i>	<i>54</i>	<i>0928</i>	<i>BE</i>			<i>27</i>	<i>48 26 615</i>	<i>122 44 345</i>	<i>79</i>				<i>SS</i>	<i>DT</i>	<i>✓</i>
		<i>0931</i>	<i>BO</i>				<i>48 26 621</i>	<i>122 44 368</i>		<i>74</i>					
		<i>0933</i>	<i>EN</i>				<i>48 26 620</i>	<i>122 44 374</i>							
<i>18</i>	<i>S3</i>	<i>10:20</i>	<i>BE</i>	<i>ROS</i>		<i>28</i>	<i>48°33.277</i>	<i>122°45.042</i>	<i>64.</i>				<i>CS</i>	<i>RF</i>	<i>✓</i>
		<i>10:21</i>	<i>BO</i>				<i>48°33.280</i>	<i>122°45.041</i>		<i>59</i>					
		<i>10:22</i>	<i>EN</i>				<i>48°33.300</i>	<i>122°45.058</i>							
<i>18</i>	<i>52</i>	<i>11:02</i>	<i>BE</i>	<i>ROS</i>		<i>29</i>	<i>48°38.979</i>	<i>122°43.168</i>	<i>83</i>						
		<i>11:04</i>	<i>BO</i>				<i>48°38.935</i>	<i>122°43.162</i>		<i>78</i>			<i>CS</i>	<i>RF</i>	<i>✓</i>
		<i>11:06</i>	<i>EN</i>				<i>48°38.936</i>	<i>122°43.151</i>							
<i>18</i>	<i>51</i>	<i>12:21</i>	<i>BE</i>	<i>ROS</i>		<i>30</i>	<i>48°46.738</i>	<i>122°51.680</i>	<i>165</i>				<i>CS</i>	<i>RF.</i>	
		<i>12:25</i>	<i>BO</i>				<i>48°46.736</i>	<i>122°51.686</i>		<i>160</i>					<i>✓</i>
		<i>12:28</i>	<i>EN</i>				<i>48°46.740</i>	<i>122°51.685</i>							

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Month <u>SEPT</u>				Year <u>2009</u>			Ship <u>VELOR</u>				Cruise ID <u>2009-14</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
17	56	13:27	BE	ROS	US	31	48° 46.333	123° 01.607	222		109-122	14	CS er	✓	
		13:32	BO				48° 46.307	123° 01.610		227					
		13:47	EN				48° 46.213	123° 01.605							
18	57	14:18	RE	ROS		32	48° 44.100	123° 07.955	150					✓	
		14:20	BO				48° 44.098	123° 08.029		145			CS RF		
		14:23	EN				48° 44.088	123° 08.107							
18	47	15:59	RE	ROS		33	48° 49.285	123° 06.199	183					✓	
		16:05	BO				48° 49.272	123° 06.220		177			CS RF		
		16:16	EN				48° 49.285	123° 06.208							
18	48	16:40	BE	ROS		34	48° 51.685	123° 03.113	216				CS RF	✓	
		16:44	BO				48° 51.662	123° 03.138		210					
		16:48	EN				48° 51.624	123° 03.137							
18	49	17:24	BE	ROS		35	48° 54.997	122° 59.580	BO				CS RF	✓	
		17:26	BO				48° 54.988	122° 59.597		125					
		17:29	EN				48° 54.969	122° 59.591							
19	50	17:59	BE	ROS		36	48° 57.691	122° 56.060	26						
		18:00	BO				48° 57.695	122° 56.058		20			CS RF	✓	
		18:01	EN				48° 57.698	122° 56.051							

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Month SEP				Year 2009			Ship VECTOR				Cruise ID 2009-14					
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	44	18 48	BE	ROS		37	48 56.810	123 5.880	121				RE/MH	✓		
		18 51	BO				48 56.843	123 5.915		115						
		18 55	EN				48 56.862	123 5.900								
18	45	19 29	BE	ROS		38	48 54.029	123 8.323	126				RE/MH	✓		
		19 32	BO				48 54.018	123 8.316		121						
		19 34	EN				48 54.014	123 8.293								
18	46	20 53	BE	ROS	US	39	48 51.478	123 10.766	172		123-136		RE/MH	✓		emergency stations
		20 57	BO				48 51.473	123 10.796		167						drill 1300-1345
		21 09	EN				48 51.456	123 10.866								
18	43	22 40	BE	ROS		40	49 0.227	123 30.052	202				RE/MH	✓		
		22 44	BO				49 0.271	123 30.139		197						
		22 47	EN				49 0.299	123 30.192								
18	42	23 14	BE	ROS	US	41	49 1.722	123 26.297	321		137-152		RE/MH	✓		
		23 21	BO				49 1.690	123 26.350		317						
		23 41	EN				49 1.620	123 26.519								
19	41	00 12	BE	ROS		42	49 2.324	123 22.480	248				RE/MH	✓		
		00 17	BO				49 3.254	123 22.492		243						
		00 22	EN				49 3.251	123 22.502								

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							Latitude	Longitude							
19	37	0143	BE	ROS		43	49 13 580	123 20 678	214				FEH/HH	✓	
		0148	BO				49 13 580	123 20 729		206		/			
		0152	EN				49 13 560	123 20 809							
19	38	0221	BE			44	49 12 030	123 26 220	304				SS DT	✓	
		0226	BO				49 12 012	123 26 150				/			
		0233	EN				49 12 984	123 26 093							
19	39	0309	BE	ROS		45	49 9 887	123 32 921	375				SS DT		
		0316	BO				49 9 931	123 32 912		363	153-169	17			
		0338	EN				49 10 026	123 32 904							
19	40	0437	BE			46	49 8 654	123 36 827	135				SS DT	✓	Work on pri temp
		0440	BO				49 8 677	123 36 815		133		/			
		0443	EN				49 8 693	123 36 809							
19	26	0553	BE			47	49 14 308	123 50 664	260				SS DT	✓	
		0558	BO				49 14 344	123 50 626		257		/			
		0603	EN				49 14 366	123 50 582							
19	27	0642	BE	ROS		48	49 19 146	123 48 092	345		170-185	16	SS DT	✓	
		0652	BO				49 19 355	123 48 222		347					bad temp diff
		0712	EN				49 19 490	123 48 758							

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STN 39 - temp sensor crashed @ 100m during up cast. Again @ top 3 bottles
- maybe from hard deck landings, there's been a few!
- worked on psi temp. flushed + removed tube @ inlet

STN 40 - temps seemed better except @ surface on up + down cast? to be expected?

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							Latitude	Longitude							
19	28	0751	BE	ROS		49	49 24 119	123 45 263	133				SS DT	✓	
		0753	BO				49 24 157	123 45 227		128					
		0756	EN				49 24 197	123 45 204							
19	24	0935	BE	ROS		50	49 30 331	124 5 958	425				SS DT	✓	
		0945	BO				49 30 323	124 5 828		412					
		0953	EN				49 30 343	124 5 726							
19	25	1023	BE	ROS		51	49° 27.743	124° 07.487	200				CS RF	✓	
		1026	BO				49° 27.748	124° 07.821		215					
		1032	EN				49° 27.758	124° 07.632							
19	2	1108	BE	ROS		52	49° 24.081	124° 09.386	279		186-200	15	CS RF	✓	
		1114	BO				49° 24.080	124° 09.385		2741					
		1130	EN				49° 24.116	124° 09.366							
19	1	1205	BE	ROS		53	49 20 351	124 12 214	248				CS RF	✓	
		1212	BO				49 20 336	124 12 245		243					
		1219	EN				49 20 328	124 12 245							

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Bottle Firing Method:

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

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MR = Messenger Release Time
RE = Recover Mooring Time

Notes:

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 06 March 2008

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month SEPT				Year 2009				Ship VECTOR				Cruise ID 2009-14				
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	4	1313	BE	ROS		54	49 24 484	124 22 160	339				CSRF	✓		
		1320	BO				49 24 445	124 22 265		334						
		1328	EN				49 24 445	124 22 344								
19	3	1344	BE	ROS	US	55	49 26.563	124 20 300	327		201-216	16	CSRF	✓		
		1356	BO				49 26.641	124 20.340		322						
		1417	EN				49 26.915	124 20.448								
19	5	1503	BE	ROS		56	49 27404	124 30 724	317				CSRF	✓		
		1516	BO				49 27 427	124 30 826		312						
		1517	EN				49 27 448	124 30 901								
19	6	1546	BE	ROS	US	57	49 30 644	124 21 906	192		217-229	13	CSRF	✓		
		1551	BO				49 30 641	124 21 934		187						
		1604	EN				49 30 640	124 21 968								
19	7	1640	BE	ROS		58	49 34 397	124 24 181	350				CSRF	✓		
		1648	BO				49 34 450	124 24 212		343						
		1656	EN				49 34 465	124 24 218								
19	9	1755	BE	ROS	US	59	49 35.478	124 38.270	167				CSRF	✓		
		1759	BO				49 35 462	124 38 352		163	230-241	12				
		1812	EN				49 35 477	124 38.366								

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month SEPT				Year 2009			Ship VECTOR			Cruise ID 2009-14					
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	8	1850	BE	ROS		60	49 39 258	124 33 178	335					✓	
		1858	BO				49 39 281	124 33 158		330					
		1904	EN				49 39 301	124 33 110							
19	10	20 05	BE	ROS		61	49 40 696	124 47 182	95				RD/HA	✓	
		20 08	BO				49 40 708	124 47 203		90					
		20 10	EN				49 40 722	124 47 219							
19	11	20 36	BE	ROS		62	49 42 430	124 43 576	300				RD/HA	✓	
		20 43	BO				49 42 517	124 43 566		295					
		20 49	EN				49 42 547	124 43 564							
19	12	21 07	BE	ROS	US	63	49 43 612	124 40 842	355		242-259	19	RD/HA	✓	
		21 18	BO				49 43 781	124 40 763		350					
		21 38	EN				49 43 950	124 40 484							
20	21	01 19	BE	ROS		64	50 2 080	125 13 637	84				RD/HA	✓	
		01 21	BO				50 2 106	125 13 685		77					
		01 23	EN				50 2 122	125 13 703							
20	13	0304	BE			65	49 55 327	124 55 348	234				SS DT	✓	
		0310	BO				49 55 301	124 55 279		227					
		0314	EN				49 55 274	124 55 252							

DAILY SCIENCE LOG

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Month <i>Sept</i>				Year <i>2009</i>			Ship <i>Vector</i>				Cruise ID <i>2009-14</i>					
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								
<i>20</i>	<i>14</i>	<i>0347</i>	<i>BE</i>	<i>ROS</i>		<i>66</i>	<i>49 53 029</i>	<i>124 59 527</i>	<i>315</i>				<i>SS DT</i>	<i>✓</i>		
			<i>Bo</i>				<i>49 53 937</i>	<i>124 59 708</i>								
			<i>EN</i>				<i>49 52 668</i>	<i>124 59 765</i>								
<i>20</i>	<i>15</i>	<i>0436</i>	<i>BE</i>			<i>67</i>	<i>49 51 630</i>	<i>125 1 513</i>	<i>135</i>				<i>SS DT</i>	<i>✓</i>		<i>Power watch</i>
			<i>Bo</i>				<i>49 51 608</i>	<i>125 1 534</i>								
			<i>EN</i>				<i>49 51 589</i>	<i>125 1 536</i>								
<i>20</i>	<i>16</i>	<i>0536</i>	<i>BE</i>			<i>68</i>	<i>49 57 595</i>	<i>125 8 900</i>	<i>149</i>		<i>276-286</i>	<i>11</i>	<i>SS DT</i>	<i>✓</i>		
			<i>Bo</i>				<i>49 57 640</i>	<i>125 8 958</i>								
			<i>EN</i>				<i>49 57 658</i>	<i>125 9 211</i>								
<i>20</i>	<i>17</i>	<i>0621</i>	<i>BE</i>			<i>69</i>	<i>49 58 786</i>	<i>125 4 429</i>	<i>266</i>				<i>SS DT</i>	<i>✓</i>		
			<i>Bo</i>				<i>49 58 781</i>	<i>125 4 409</i>								
			<i>EN</i>				<i>49 58 788</i>	<i>125 4 397</i>								
<i>20</i>	<i>18</i>	<i>0703</i>	<i>BE</i>			<i>70</i>	<i>49 59 212</i>	<i>124 59 011</i>	<i>145</i>				<i>SS DT</i>	<i>✓</i>		
			<i>Bo</i>				<i>49 59 216</i>	<i>124 59 064</i>								
			<i>EN</i>				<i>49 59 222</i>	<i>124 59 011</i>								

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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_____ = _____

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Version: 06 March 2008

Notes: _____

Station 14 - Oxygens sampled in reverse order 16 thru 1. Fixing bottles 10, 11, 12 had bubbles in Alk. Iod. Changed Iod with new batch #072289, - no rinse -

Sept 19

Z310 - Bottle #10 bottom end cap closes at times due to bungy stretch. Flag ALL bottle 10

Page _____ of _____

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