

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2012-50

DATE:

From: 16 JUN 12 to: 04 JUL 12

VESSEL:

F/V Viking Storm

PROJECT(S):

HIGH SEAS SALMON

Book 1 of 3

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

WaterProperties.ca

Random pH sensor calibration samples will be collected during this trip for Wiley Evans, at Univ of Alaska - Fairbanks.

CTD & Bongo depths will be measured by block counter. Discrepancies between recorded depth and CTD sensor depth are likely.

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Month JUN

Year 2012

Ship F/V VIKING STORM

Cruise ID 2012-50

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	JF01	13:06	BE	CTD		001	48 17.3	123 39.5	169	150		1	MT	NA	B E A C H E Y
		:17	EN				17.3	39.8							BOT @ 10m
		13:19	BE	NET		002	48 17.3	123 39.8	165	150					NUTS, SAL & CHL
		:29	EN				17.3	40.1							
		13:40	BE	SET		003	48 17.5	123 41.3	SURFACE						
		14:10	EN				18.2	46.0							
	JF02	14:42	BE	NET		004	48 20.3	123 50.6	128	115					S H E R I N G H A M
		:49	EN				20.4	50.7							
		14:55	BE	CTD		005	48 20.4	123 50.9	127	115		1	MT	NA	BOT @ 10m
		15:02	EN				20.4	51.3							NUTS, SAL & CHL
		15:14	BE	SET		006	48 20.7	123 52.7	15 METERS						
		:44	EN				21.4	56.6							

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

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Month JUN

Year 2012

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							Latitude	Longitude							
17	JF03	16:32	BE	CTD		007	48 23.4	124 05.1	97	90		1	MT	NA	JORDAN R.
		16:37	EN				23.4	05.1							BOT @ 10m NUTS, SAL & CHL
		16:41	BE	NET		008	48 23.4	124 05.1	99	85					
		16:46	EN				23.4	05.3							
		16:55	BE	SET		009	48 23.6	124 05.8	SURFACE						
		17:25	EN				24.9	09.4							
	JF04	17:48	BE	NET		010	48 25.5	124 12.1	91	80					MAGDALENA
		17:53	EN				25.6	12.1							
		17:58	BE	CTD		011	48 25.6	124 12.1	88	75		2	MT	NA	* BOT @ 10m NUTS, SAL & CHL
		18:03	EN				25.6	12.0							* BOT @ 75m pH cal
		18:17	BE	SET		012	48 25.7	124 13.1	30 metres						
		18:47	EN				26.3	16.3							

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This page is for any notes or observations

* Both 10m & 75m bottles were sampled for pH calibration.

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Month JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
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	JF05	19:30	BE	CTD		013	48 28.4	124 70.7	77	65		1	MT	NA	SOMBRIO
		19:35	EN				28.4	70.6							BOT @ 10m NUTS, CHL & SAL
		19:37	BE	NET		014	48 28.4	124 70.5	77	65					
		19:43	EN				28.4	70.4							
		19:54	BE	SET		015	48 28.7	124 21.0	SURFACE						
		20:24	EN				29.9	23.1							
17	JF06	21:16	BE	NET		016	48 32.0	124 30.3	51	40					PORT SAN JUAN
		21:20	EN				32.0	30.2							
		21:25	BE	CTD		017	48 31.9	124 30.1	51	40		1	MT	NA	BOT @ 10m NUTS, CHL & SAL
		21:27	EN				31.8	30.0							
		21:35	BE	SET		018	48 31.9	124 30.4	SURFACE						
		22:05	EN				32.1	32.9							

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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	UI 01	23:09	BE	CTD		019	48 34.1	124 42.0	63	50		1	MT	NA	CALMANAH
		12	EN				33.9	41.9							BOT @ 10m NUTS, CHL & SAL
		23:14	BE	NET		020	48 33.9	124 41.8	65	55					
		18	EN				33.8	41.7							
		23:26	BE	SET		021	48 33.9	124 42.3	SURFACE						
		41	EN				34.1	43.7							
END OF DAY															
18	IVIO1	13:02	BE	CTD		022	48 57.8	125 06.9	88	80		1	MT	NA	IMPERIAL EAGLE
		107	EN				57.8	06.9							BOT @ 10m NUTS, CHL & SAL
		13:10	BE	NET		023	48 57.8	125 06.9	90	75					
		:15	EN				57.8	06.9							
		13:26	BE	SET		024	48 57.7	125 06.9	SURFACE						
		:56	EN				55.9	09.2							

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							Latitude	Longitude							
18	IVIO2	14:19	BE	NET		025	48 54.7	125 12.4	91	80					IMPERIAL EAGLE
		:24	EN				54.7	12.4							
		14:29	BE	CTD		026	48 54.7	125 12.4	91	80		1	MT	NA	BOT@10m NUTS, CHL & SAL
		:34	EN				54.7	12.4							
		14:45	BE	SET		027	48 54.2	125 13.1	15 METERS						
		15:15	EN				52.2	15.0							
18	VID2	15:40	BE	CTD		028	48 50.3	125 16.2	90	80		1	MT	NA	IMPERIAL EAGLE BOT@10m NUTS, CHL & SAL
		:45	EN				50.2	16.1							
		15:48	BE	NET		029	48 50.2	125 16.1	90	80					
		:53	EN				50.2	16.1							
		16:02	BE	SET		030	48 49.7	125 16.2	SURFACE						
		:32	EN				47.6	16.7							

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							Latitude	Longitude							
18	VID3	17:08	BE	NET		031	48 47.7	125 22.0	83	70					OUTSIDE FORMS.
		:13	EN				47.6	22.1							
		17:18	BE	CTD		032	48 47.5	125 22.1	83	70		1	MT	NA	BOT@10m NUTS, CHL & SAL
		:23	EN				47.4	22.1							
		17:34	BE	SET		033	48 47.2	125 23.2	30 METERS						
		18:04	EN				46.4	26.5							
END OF DAY															
19	VI04	13:01	BE	CTD		034	49 06.0	126 00.4	41	35		1	MT	NA	LEONARD BOT@10m NUTS, CHL & SAL
		:04	EN				06.0	00.5							
		13:07	BE	NET		035	49 06.0	126 00.6	41	30					
		:10	EN				05.9	00.6							
		13:20	BE	SET		036	49 05.7	126 01.5	SURFACE						
		:50	EN				04.4	04.7							

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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							
<u>18</u>	<u>V105</u>	<u>14:08</u>	<u>BE</u>	<u>NET</u>		<u>037</u>	<u>49 03.4</u>	<u>126 06.0</u>	<u>51</u>	<u>40</u>					<u>LEONARD</u>
		<u>11</u>	<u>EN</u>				<u>03.4</u>	<u>06.0</u>							
		<u>14:16</u>	<u>BE</u>	<u>CTD</u>		<u>038</u>	<u>49 03.4</u>	<u>126 06.1</u>	<u>52</u>	<u>40</u>		<u>1</u>	<u>MT</u>	<u>NA</u>	<u>BOT @ 10m</u>
		<u>19</u>	<u>EN</u>				<u>03.4</u>	<u>06.1</u>							<u>NUTS, CHL & SAL</u>
		<u>14:26</u>	<u>BE</u>	<u>SET</u>		<u>039</u>	<u>49 03.1</u>	<u>126 06.6</u>	<u>SURFACE</u>						
		<u>:56</u>	<u>EN</u>				<u>01.7</u>	<u>09.4</u>							
<u>18</u>	<u>V106</u>	<u>15:24</u>	<u>BE</u>	<u>CTD</u>		<u>040</u>	<u>48 59.6</u>	<u>126 12.0</u>	<u>87</u>	<u>75</u>		<u>1</u>	<u>MT</u>	<u>NA</u>	<u>LEONARD</u>
		<u>:29</u>	<u>EN</u>				<u>59.6</u>	<u>12.1</u>							<u>BOT @ 10m</u>
		<u>15:32</u>	<u>BE</u>	<u>NET</u>		<u>041</u>	<u>48 59.6</u>	<u>126 12.1</u>	<u>88</u>	<u>75</u>					<u>NUTS, CHL & SAL</u>
		<u>37</u>	<u>EN</u>				<u>59.7</u>	<u>12.1</u>							
		<u>15:49</u>	<u>BE</u>	<u>SET</u>		<u>042</u>	<u>48 59.3</u>	<u>126 13.0</u>	<u>15 METERS</u>						
		<u>16:19</u>	<u>EN</u>				<u>58.1</u>	<u>16.6</u>							

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							Latitude	Longitude							
19	VID7	17:54	BE	NLS		043	48 55.4	126 18.9	135	120					LEONARD
		18:03	EN				55.4	18.9							
		18:08	BE	CTD		044	48 55.5	126 19.0	137	125		1	MT	NA	
		:15	EN				55.5	19.0							
		18:24	BE	SET		045	48 55.2	126 19.5	SURFACE						
		:54	EN				53.4	21.4							
19	VID8	19:22	BE	CTD		046	48 51.5	126 24.2	172	160		2	MT	NA	LEONARD
		:33	EN				51.5	24.2							* BOT@10m NUTSCHLKA
		19:38	BE	NET		047	48 51.5	126 24.1	172	150					* BOT@160: pH cal
		:50	EN				51.4	24.0							
		20:01	BE	SET		048	48 50.9	126 24.7	30 m ETROS.						
		31	EN				49.6	27.2							

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This page is for any notes or observations

* Both 10m & 160m bottles were sampled for pH calibration

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							Latitude	Longitude							
19	V1 09	22:46	BE	NET		049	49 01.6	126 24.7	136	125					
		22:52	EN				01.7	24.7							
		22:57	BE	CTD		050	49 01.7	126 24.7	136	125		1	MT	NA	BOT @ 10m
		23:02	EN				01.6	24.6							NUTS, CHL & SAL
		22:02	BE	SET		051	48 59.0	126 26.6	SURFACE						
		23:32	EN				49 01.2	25.1							
20	V1 10	00:21	BE	CTD		052	49 09.1	126 21.1	81	70		1	MT	NA	BOT @ 10m
		00:25	EN				09.1	21.0							NUTS, CHL & SAL
		00:28	BE	NET		053	49 09.1	126 21.1	81	70					
		00:32	EN				09.1	21.1							
		23:37	BE	SET		054	49 06.4	126 22.5	SURFACE						
		00:07	EN				08.8	21.2							
= END OF DAY															

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VI09: Fish trawl conducted first, then bongo & CTD. Consecutive numbers not changed. (Crew had to rig new bongo/CTD winch set up).

VI10: Fish trawl conducted first, then CTD & bongo. Consecutive numbers not changed.

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							Latitude	Longitude							
20	EP01	13:05	BE	CTD		055	49 20.3	126 32.8	45	35		1	MT	NA	
		13:07	EN				20.3	32.8							BOT@10m NUTS, CHL & SAL
		13:10	BE	NET		056	49 20.3	126 32.8	46	35					
		13:12	EN				20.3	32.8							
		13:22	BE	SET		057	49 20.0	126 33.3	SURFACE						
		13:52	EN				18.5	36.4							
20	EPD2	14:05	BE	NET		058	49 18.6	126 37.1	90	80					
		14:10	EN				18.6	37.1							
		14:13	BE	CTD		059	49 18.6	126 37.1	91	80		1	MT	NA	BOT@10m NUTS, CHL & SAL
		14:17	EN				18.5	37.1							
		14:28	BE	SET		060	49 18.5	126 37.8	15 METRES						
		14:58	EN				17.1	40.4							

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							Latitude	Longitude							
20	EPO3	15:14	BE	CTD		061	49 16.9	126 41.2	110	100		1	MT		BOT@10m
		:18	EN				16.9	41.1							NUTS, CHL & SAL
		15:21	BE	NET		062	49 16.8	126 41.1	110	100					
		:26	EN				16.8	41.1							
		15:34	BE	SET		063	49 16.5	126 41.7	SURFACE						
		16:04	EN			063	15.1	44.5							
20	EPO4	16:17	BE	NET		064	49 14.7	126 45.3	118	105					
		:23	EN				14.7	45.4							
		16:29	BE	CTD		065	49 14.7	126 45.4	119	110		1	MT		BOT @ 10m
		:34	EN				14.7	45.4							NUTS, CHL & SAL
		16:44	BE	SET		066	49 44.3	126 46.3	30 meters						
		17:14	EN				13.2	49.4							

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 DRF = Drifter

Bottle Firing Method:

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

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

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

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Month JUNE				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
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	EP05	17:28	BE	CTD		067	49 13.1	126 50.1	139	125		1	MT		BOT@10m
		:35	EN				13.1	50.1							NUTS, CHL & SAL
		17:37	BE	NET		068	49 13.1	126 50.1	139	126					
		:44	EN				13.1	50.2							
		17:51	BE	SET		069	49 12.8	126 50.8	Surface						
		18:21	EN				11.2	53.4							
20	EP06	18:35	BE	NET		070	49 10.7	126 54.4	182	180					
		:43	EN				10.7	54.4							
		18:46	BE	CTD		071	49 10.7	126 54.4	182	170		2	MT		BOT@10m
		:56	EN				10.7	54.3							NUTS, CHL & SAL
		19:09	BE	SET		072	49 10.5	126 54.8	Surface						pH cal samples @
		:39	EN				09.4	57.6							10m & 170m

Cast Type:

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

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Month JUNE				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
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	EP07	19:59	BE	CTD		073	49 08.3	126 59.1	433	190		1	MT	NA	BOT@10m
		20:08	EN				08.3	59.0							NUTS, CHL & SAL
		20:10	BE	NET		074	49 08.3	126 59.0	433	150					
		:19	EN				08.3	58.9							
		20:29	BE	SET		075	49 08.1	126 59.9	15 metres						
		:59	EN				08.2	03.1							
21	VI11	00:25	BE	NET		076	49 28.6	127 14.1	240	150					
		:33	EN				28.6	14.0							
		00:37	BE	CTD		077	49 28.5	127 14.1	253	190		1	MT	NA	BOT@10m
		:47	EN				28.5	14.1							NUTS, CHL & SAL
		23:42	BE	SET		078	49 26.8	127 17.0	Surface						
		00:12	EN				28.4	14.5							
END OF DAY															

Cast Type:

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This page is for any notes or observations

VII: Fishing set conducted first, then bongo & CTD. Consecutive numbers not changed

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Month JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				Page 14 of 65	
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								
21	VI12	13:00	BE	CTD		079	49 38.2	126 57.0	45	35		1	MT	NA	BOT@10m	
		1:02	EN				38.2	57.0							NUTS, CHL & SAL	
		13:04	BE	NET		080	49 38.1	126 57.0	45	35						
		06	EN				38.1	57.0								
		13:15	BE	SET		081	49 37.9	126 57.7	SURFACE							
		15	EN				36.4	127 00.8								
21	VI13	14:00	BE	NET		082	49 35.6	127 02.3	105	95						
		1:06	EN				35.6	02.4								
		14:10	BE	CTD		083	49 35.6	127 02.4	105	95		1	MT	NA	BOT@10m	
		1:15	EN				35.6	02.5							NUTS, CHL & SAL	
		14:24	BE	SET		084	49 35.3	127 03.2	15 METERS.							
		1:54	EN				34.2	06.3								

Cast Type:

BOT = Bottle cast, no CTD
CTD = CTD without Rosette
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Month JUNE			Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50				
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							
21	VI14	15:26	BE	CTD		085	49 32.2	127 08.6	136	125		1	MT	NA	BOT@10m
		:32	EN				32.2	08.7							NUTS, CHL & SAL
		15:34	BE	NET		086	49 32.2	127 08.7	136	125					
		:42	EN				32.2	08.7							
		15:49	BE	SET		087	49 32.0	127 09.4	SURFACE						
		16:19	EN				30.7	12.6							
21	VI15	19:16	BE	NET		088	49 55.4	127 19.4	57	45					
		:19	EN				55.3	19.4							
		19:22	BE	CTD		089	49 55.4	127 19.4	57	50		1	MT	NA	BOT@10m
		:24	EN				55.4	19.3							NUTS, CHL & SAL
		19:33	BE	SET		090	49 55.2	127 20.0	SURFACE						
		20:03	EN				54.5	23.1							

Cast Type:

BOT = Bottle cast, no CTD
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Month JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
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							
21	VI16	20:31	BE	CTD		091	49 52.5	127 26.2	68	60		1	MT	NA	BOT@10m
		:34	EN				52.5	26.3							NUTS, CHL & SAL
		20:37	BE	NET		092	49 52.5	127 26.3	68	55					
		:40	EN				52.5	26.3							
		20:48	BE	SET		093	49 52.1	127 26.7	SURFACE						
		21:18	EN				50.1	29.1							
21	VI17	21:40	BE	NET		094	49 48.7	127 31.7	84	75					
		:44	EN				48.6	31.8							
		21:48	BE	CTD		095	49 48.6	127 31.8	86	76		2	MT	NA	BOT@10m
		:54	EN				48.6	31.9							NUTS, CHL & SAL, pH
		22:05	BE	SET		096	49 48.1	127 32.7	30 meters						pH cal sample @ 75m
		35	EN				46.3	35.2							

Cast Type:

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

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Bottle Firing Method:

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Cast Type:

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Month JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
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							
22	IVIO4	14:11	BE	NET		103	50 27.7	127 32.3	186	150					
		:20	EN				27.8	32.4							
		14:24	BE	CTD		104	50 27.8	127 32.4	186	175		2	MT	NA	BOT@10m
		:34	EN				27.8	32.5							NUTS, CHL & SAL, pH
		14:45	BE	SET		105	50 28.5	127 39.9	15 metres						PH cal @175m
		15:15	EN				30.2	35.4							
22	IVIO5	15:39	BE	CTD		106	50 31.7	127 36.7	49	40		1	MT	NA	BOT@10m
		:41	EN				31.7	36.8							NUTS, CHL & SAL
		15:44	BE	NET		107	50 31.6	127 36.9	53	45					
		:47	EN				31.6	36.9							
		15:57	BE	SET		108	50 31.6	127 37.5	surfaces						
		:27	EN				30.7	41.4							

Cast Type:

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Month JUNE				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
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							
22	IVIO6	18:00	BE	NET		109	50 34.9	127 29.1	71	60					
		:04	EN				34.9	29.2							
		18:06	BE	CTD		110	50 34.9	127 29.2	70	60		2	MT	NA	BOT @ 10m
		:11	EN				34.9	29.3							NUTS, CHL & SAL, pH
		18:19	BE	SET		111	50 35.0	127 30.1	Surf free						pH cal @ 60m
		:49	EN				33.9	33.2							
22	IVIO7	21:55	BE	CTD		112	50 35.2	127 38.5	116	105		1	MT	NA	BOT @ 10m
		:00	EN				35.2	38.5							NUTS, CHL & SAL
		21:02	BE	NET		113	50 35.2	127 38.6	116	105					
		:08	EN				35.2	38.6							
		21:15	BE	SET		114	50 35.3	127 39.3	Surf free						
		:45	EN				35.6	43.3							

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THE WHARFINGER AT COAL HARBOUR SAID THAT THE MARINE ROSE ANCHORAGE WAS NOT ABLE
TO CATCH SUFFICIENT CHINOOK BROOD STOCK IN THE FALL, 2011 DUE TO HEAVY RAINS.
AND FLOODING. THIS IS PROBABLY WHY WE WERE NOT CATCHING ANY JOURNAL CHINOOK IN
PORTS, NO SOUND.

DAILY SCIENCE LOG

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Month JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
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							
23	IVI10	14:16	BE	NET		121	50 29.1	127 50.8	172	150					
		23	EN				29.1	50.8							
		14:27	BE	CTD		122	50 29.1	127 50.8	172	160		2	MT	NA	BOT @ 10m
		135	EN				29.1	50.8							NATS, CHL, SAL & pH
		14:46	BE	SET		123	50 28.0	127 51.6	Surface						pH cal @ 160m
		15:16	EN				28.5	55.9							
23	IVI11	15:30	BE	CTD		124	50 28.1	127 56.5	222	190		1	MT	NA	BOT @ 10m
		:40	EN				28	56							NATS, CHL & SAL
		15:43	BE	NET		125	50 28.0	127 56.6	217	150					
		:51	EN				28.0	56.8							
		16:02	BE	SET		126	50 27.9	127 56.9	Surface						
		:32	EN				25.5	57.0							

Cast Type:

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Month JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
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							
23	VI12	16:51	BE	NET		127	50 25.4	127 59.8	136	125					
		17:00	EN				25.4	59.8							
		17:04	BE	CTD		128	50 25.4	127 59.8	134	125		2	MT	NA	BOT@10m
		17:13	EN				25.3	59.8							NUTS, CHL, SAL & pH
		17:23	BE	SET		129	50 24.8	128 00.7	15 meters						pH cal @ 125m
		17:53	EN				23.2	03.1							
23	VI19	19:13	BE	CTD		130	50 21.6	128 06.1	84	75		1	MT	NA	
		19:17	EN				21.6	06.0							
		19:20	BE	NET		131	50 21.6	128 06.0	83	70					
		19:25	EN				21.7	06.0							
		19:33	BE	SET		132	50 21.4	06.6	surface						
		20:03	EN				19.7	09.0							

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Month JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
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							
23	VI20	20:31	BE	NET		133	50 18.1	128 12.1	176	150					
		:39	EN				18.1	12.0							
		20:43	BE	CTD		134	50 18.1	128 12.0	171	160		2	MT	NA	POT@10m
		:53	EN				18.1	11.8							NUTS, CHL, SAL & pH
		21:04	BE	SET		135	50 17.8	128 12.5	30m						pH cal @ 160m
		34	EN				16.2	14.8							
23	VI21	22:05	BE	CTD		136	50 14.6	128 18.2	900	190		1	MT	NA	
		:15	EN				14.5	18.1							
		22:17	BE	NET		137	50 14.5	128 18.0	900	150					
		:26	EN				14.5	17.8							
		22:33	BE	SET		138	50 14.4	128 18.4	SURFACE						
		:43	EN				13.3	21.5							

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Month <u>JUNE</u>				Year <u>2012</u>				Ship <u>F/V VIKING STORM</u>				Cruise ID <u>2012-50</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							
24	T06	15:09	BE			145	50 49.4	129 13.6	102	90					
		:15	EN				49.4	13.6							
		15:19	BE			146	50 49.4	129 13.6	102	95					
		:24	EN				49.4	13.6							
		15:31	BE			147	50 49.8	129 13.2							
		16:01	EN				51.4	11.1							
24	T05	17:18	BE			148	50 55.8	129 00.5	57	50					
		:20	EN				55.9	00.5							
		17:22	BE			149	50 55.9	129 00.5	57	55					
		:25	EN				56.0	00.5							
		17:33	BE			150	50 56.4	129 00.2							
		18:03	EN				58.6	58.1							

Cast Type:

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DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2012-50

DATE:

From: 16 JUNE 2012

to: 04 JULY 2012

VESSEL:

F/V VIKING STORM

PROJECT(S):

HIGH SEAS SALMON
Book 2 of 3

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

WaterProperties.ca

Captain: Chris Roberts
Second Officer: Flo Salim
Fishing Master: Chris Roberts

First Officer: Scott Murray
Third Officer: Rony Johnson

Mission Participants / Agencies: DEO/NOAA/CFA

Scientific Personnel:

Name	Watch	Cabin	Name	Watch	Cabin
			Chief Scientist: <u>Mary Thies</u>		

Name	watch	Cabin	Name	watch	Cabin
Deb Harstad			John Morris		
Nic Bedeluk			Jeongha Jung		
Taylor Nettles					

[illegible]

Second leg of Mission:

Name	Watch	Cabin	Name	Watch	Cabin
Chief Scientist:					

[illegible]

Data logging computer:

Data acquisition program: _____

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

Primary CTD
Make: SBE model: 25 serial number: 0404

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:
	Make:

CRY sensor:	Model:
PAR sensor:	Model:

Other sensors: PH MODEL:

Other sensors:

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:

Secondary conducting serial number: _____
Transmissometer: _____
Model: _____

Fluorometer: Model	Fluorometer: Model
Cable gain:	Cable gain:
Fluorometer: Model	Fluorometer: Model
Cable gain:	Cable gain:

Oxygen sensor:	Oxygen gam:
Oxymeter, model	Model:

Oxygen sensor:	Model:
PAR sensor:	Model:

Other sensors: _____

IAX sensor: _____

Model: _____

Other sensors:

Other sensors:

Other sensors:

Other sensors:

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

This page is for any notes or observations

⑦ See notes from beginning of Book 1

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Month JUNE				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
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							
24	T04	18:33	BE	NET		151	81 00.7	128 53.4	60	80					
		18:36	EN				00.8	53.4							
		18:40	BE	CTD		152	81 00.9	128 53.3	60	80		2	MT	NA	BOT@10m
		18:45	EN				01.0	53.3							NUTS, CHL & SAL, pH
		18:51	BE	SET		153	81 01.3	128 52.5	SURFACE						pH cal @ 50m
		19:21	EN				02.2	48.6							
24	T03	19:52	BE	CTD		154	81 04.7	128 43.9	58	50		1	MT	NA	BOT@10m
		19:55	EN				04.7	43.8							NUTS, CHL & SAL
		19:58	BE	NET		155	81 04.7	128 43.8	59	50					
		20:01	EN				04.8	43.8							
		20:08	BE	SET		156	81 05.0	128 43.2	SURFACE						
		20:38	EN				06.3	39.6							

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 JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
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							
24	T02	21:10	BE	NET		157	51 08.1	128 36.1	133	125					
		:17	EN				08.1	36.1							
		21:20	BE	CTD		158	51 08.1	128 36.1	133	125		1	MT	NA	BOT @ 10m
		:26	EN				08.1	36.0							NUTS, CHL & SAL
		21:37	BE	SET		159	51 08.7	128 34.9	30 meters						(*) →
		22:07	EN				10.6	37.2							
24	T01	22:30	BE	CTD		160	51 12.6	128 28.2	192	180		1	MT	NA	BOT @ 10m
		:46	EN				12.6	28.2							NUTS, CHL & SAL
		22:49	BE	NET		161	51 12.6	128 28.1	192	160					
		:57	EN				12.6	28.1							
		23:06	BE	SET		162	51 12.9	128 27.1	15 meters						
		:36	EN				14.2	24.0							

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:

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 UN = Up / No stop
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Notes:

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T02: One of the chl filters was installed incorrectly (marked on jar). Sample water ran through & some spilled out of the cup (through threaded section).

SI 23.01
128 46.01

27.5 09.3
2.5 BLACK

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Month JUNE				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
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							
24	QCSD01	00:03	BE	NET		163	51 16.2	128 20.5	79	70					
		:07	EN				16.2	20.5							
		00:11	BE	CTD		164	51 16.2	128 20.5	79	70		1	MT	NA	BOT @ 10m
		:15	EN				16.2	20.4							NUTS, CHL & SAL
		00:22	BE	SET		165	51 16.7	128 20.5	SURFACE						
		:32	EN				17.4	20.7							
= END OF DAY															
25	QCSD02	1300	BE	CTD		166	51 42.8	128 14.4	137	130		1	MT	NA	BOT @ 10m
		06	EN				42.8	14.4							NUTS, CHL & SAL
		1308	BE	NET		167	51 42.8	128 14.4	137	125					
		:15	EN				42.8	14.6							
		13:23	BE	SET		168	51 42.9	128 15.5	SURFACE						
		:43	EN				43.6	19.3							

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 JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
25	QCS003	14:25	BE	NET		169	51 44.0	128 25.6	142	130					
		14:27	EN				44.0	25.6							
		14:32	BE	CTD		170	51 44.0	128 25.7	142	135		1	MT	NA	BOT@10m
		14:38	EN				44.0	25.7							NUTS, CHL & SAL
		14:48	BE	SET		171	51 44.2	128 26.8	15	METER					
		14:18	EN				45.0	30.3							
25	QCS004	15:55	BE	CTD		172	51 44.9	128 36.6	98	90		1	MT	NA	BOT@10m
		16:00	EN				44.9	36.6							NUTS, CHL & SAL
		16:02	BE	NET		173	51 44.9	128 36.6	98	90					
		16:08	EN				44.8	36.6							
		16:14	BE	SET		174	51 44.9	128 37.3	SURFACE						
		16:44	EN				45.4	40.4							

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				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments	
							Latitude	Longitude								
25	GCSD05	18:07	BE	NET		175	51 53.5	128 36.3	131	120						
		:14	EN				53.5	36.3								
		18:18	BE	CTD		176	51 53.5	128 36.4	131	125		1	MT	NA	BOT@10m	
		:24	EN				53.5	36.4							NUTS, CHL & SAL	
		18:35	BE	SET		177	51 54.0	128 37.4	30 metres							
		19:05	EN				55.1	40.7								
25	GCSD06	19:41	BE	CTD		178	51 55.6	128 46.9	134	125		1	MT	NA	BOT@10m	
		:47	EN				55.7	46.9							NUTS, CHL & SAL	
		19:50	BE	NET		179	51 55.7	128 46.9	136	125						
		:59	EN				55.8	46.9								
		20:05	BE	SET		180	51 55.9	128 47.6	SURFACE							
		:35	EN				56	51.0								

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 JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
25	QCSD07	21:20	BE	NET		181	51 56.7	128 59.1	103	90					
		:27	EN				56.8	58.9							
		21:31	BE	CTD		182	51 56.8	128 58.9	103	95		2	MT	NA	BOT@10m
		:38	EN				56.8	58.7							NUTS, CAL, SAL & pH
		21:45	BE	SET		183	51 56.8	128 59.3	surface						pH cal @ 95m
		22:15	EN				56.7	129 02.8							
26	HOI	00:04	BE	CTD		184	52 12.0	129 08.3	161	150		1	MT	NA	BOT@10m
		:11	EN				12.0	08.3							NUTS, CAL & SAL
		00:13	BE	NET		185	52 12.0	129 08.3	161	150					
		:21	EN				12.0	08.4							
		00:28	BE	SET		186	52 12.2	129 09.2	surface						
		:58					13.0	13.0							
END OF DAY															

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 JUNE				Year 2012			Ship F/V VIKING STORM			Cruise ID 2012-50					
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
26	H02	12:58	BE	CTD		187	52 15.8	129 25.8	177	165		1	MT	NA	BOT@10m
		13:06	EN				15.9	25.7							NUTS, CHL & SAL
		13:08	BE	NET		188	52 15.9	129 25.7	177	150					
		1:16	EN				15.9	25.6							
		13:25	BE	SET		189	52 16.2	129 26.4	15 meter.						
		1:55	EN				16.9	29.7							
26	H03	14:53	BE	NET		190	52 19.0	129 41.0	209	150					
		15:02	EN				18.9	40.9							
		15:06	BE	CTD		191	52 18.9	129 40.9	210	190		1	MT	NA	BOT@10m
		1:14	EN				18.8	40.9							NUTS, CHL & SAL
		15:21	BE	SET		192	52 18.8	129 41.5	SURFACE						
		1:51	EN				19.3	44.9							

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 <u>JUNE</u>				Year <u>2012</u>			Ship <u>F/V VIKING STORM</u>				Cruise ID <u>2012-50</u>				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
26	H04	16:50	BE	CTD		193	52 21.6	129 57.8	168	160		1	MT	NA	BOT@10m
		17:04	EN				21.6	57.7							NUTS, CHL & SAL
		17:06	BE	NET		194	52 21.7	129 57.6	170	150					
		:14	EN				21.7	57.5							
		17:22	BE	SET		195	52 21.9	129 58.2	SURFACE						
		:52	EN				22.9	130 01.2							
26	H05	18:55	BE	NET		196	52 25.2	130 13.2	326	150					
		19:03	EN				25.3	13.1							
		19:07	BE	CTD		197	52 25.3	130 13.0	326	190		1	MT	NA	BOT@10m
		:16	EN				25.4	12.7							NUTS, CHL & SAL
		19:25	BE	SET		198	52 25.6	130 13.5	30 meters						
		:55	EN				26.3	16.6							

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 JUNE				Year 2012			Ship F/V VIKING STORM			Cruise ID 2012-50					
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
26	H06	21:00	BE	CTD		199	52 28.5	130 29.1	168	155		1	MT	NA	BOT @ 10m NUTS, CHL & SAL
		:07	EN				28.7	29.1							
		21:09	BE	NET		200	52 28.7	130 29.1	168	150					
		:18	EN				28.9	29.1							
		21:26	BE	SET		201	52 29.2	130 30.0	Surface						
		:56	EN				30.3	33.3							
26	H07	22:44	BE	NET		202	52 32.6	130 44.0	118	105					
		:50	EN				32.7	44.1							
		22:54	BE	CTD		203	52 32.7	130 44.1	118	110		1	MT	NA	BOT @ 10m NUTS, CHL & SAL
		23:01	EN				32.7	44.2							
		23:09	BE	SET		204	52 33.0	130 45.1	15 m ESTER.						
		:39	EN				33.9	49.0							
= END OF DAY															

Cast Type:

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

USW = Sea Water Loop

MOR = Mooring
NET = Plankton Net Haul
DRF = Drifter

Bottle Firing Method:

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

Time Code:

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

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

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Notes:

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Month JUNE				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
27	HS01	13:46	BE	CTD		205	53 46.3	130 43.4	123	115		1	MT	NA	BOT@10m
		13:50	EN				46.3	43.5							NUTS, CHL & SAL
		13:54	BE	NET		206	53 46.3	130 43.6	123	110					
		14:00	EN				46.3	43.6	1						
		14:10	BE	SET		207	53 46.5	130 44.2		SURFACE					
		14:40	EN				46.6	48.2							
27	HS02	15:10	BE	NET		208	53 48.9	130 52.5	96	80					
		15:17	EN				48.9	52.5							
		15:20	BE	CTD		209	53 49.0	130 52.5	94	80			MT	NA	BOT@10m
		15:24	EN				49.0	52.5							NUTS, CHL & SAL
		15:32	BE	SET		210	53 49.3	130 51.8		SURFACE					
		16:02	EN				51.4	49.5							

Cast Type:

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

USW = Sea Water Loop

MOR = Mooring
NET = Plankton Net Haul
DRF = Drifter

Bottle Firing Method:

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

Time Code:

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

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

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Month JUNE				Year 2012				Ship FN VIKING STORM				Cruise ID 2012-50			
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
27	HS03	16:36	BE	CTD		211	53 54.0	130 52.4	57	50		1	MT	NA	EOT @ 10m
		16:39	EN				54.1	52.5							NUTS, CHL & SAL
		16:41	BE	NET		212	53 54.1	130 52.6	57	45					
		16:44	EN				54.1	52.6							
		16:53	BE	SET		213	53 54.3	130 53.7	SURFACE						
		17:23	EN				55.0	57.7							
27	HS04	18:03	BE	NET		214	53 57.9	130 56.5	45	35					
		18:06	EN				57.9	56.5							
		18:10	BE	CTD		215	53 57.9	130 56.6	47	35		1	MT	NA	
		18:13	EN				57.9	56.6							
		18:19	BE	SET		216	53 58.2	130 55.8	SURFACE						
		18:49	EN				59.8	52.7							
= END OF DAY															

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 JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
28	1BC01	13:24	BE	CTD		217	54 11.7	130 23.1	78	65		1	MT	NA	BOT@10m
		13:27	EN				11.7	23.2							NUTS, CHL, & SAL
		13:30	BE	NET		218	54 11.8	130 23.3	74	65					
		13:34	EN				11.8	23.3							
		13:46	BE	SET		219	54 11.6	130 24.5	SURFACE						
		14:26	EN				12.2	31.0							
28	1BC02	14:57	BE	NET		220	54 10.5	130 34.1	107	100					
		15:02	EN				10.6	34.2							
		15:07	BE	CTD		221	54 10.6	130 34.2	107	100		1	MT	NA	BOT@10m
		15:11	EN												NUTS, CHL & SAL
		15:20	BE	SET		222	54 10.8	130 35.5	15 meters						
		15:50	EN				11.9	38.5							

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 JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
28	1BC03	16:26	BE	CTD		223	54 13.9	130 43.4	155	145		1	MT	NA	BOT@10m
		16:32	EN				13.9	43.4		140					NUTS, CHL & SAL
		16:36	BE	NET		224	54 13.8	130 43.4	155	140					
		16:42	EN				13.8	43.8							
		16:51	BE	SET		225	54 14.2	130 44.0	surface						
		17:21	EN												
28	1BC04	17:40	BE	NET		226	54 18.2	130 50.0	136	128					
		17:56	EN				18.3	49.9							
		18:01	BE	CTD		227	54 18.3	130 50.0	136	128		2	MT	NA	BOT@10m
		18:11	EN				18.4	50.0							NUTS, CHL & SAL, pH
		18:16	BE	SET		228	54 18.6	130 50.9	surface						pH cal sample @ 125m
		18:40	EN				19.3	55.1							

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 JUNE				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
28	DT01	19:43	BE	CTD		229	54 25.2	130 01.6	66	60		1	MT	NA	BOT@10m
		19:43	EN				25.	01.7							NUTS, CHL & SAL
		19:45	BE	NET		230	54 25.2	130 01.7	75	65					
		19:49	EN				25.1		7						
		19:56	BE	SET		231	54 25.2	130 02.4	SURFACE						
		20:26	EN				25.9	07.7							
28	DT02	20:59	BE	NET		232	54 25.9	131 12.8	167	150					
		21:07	EN				26.1	13.0							
		21:12	BE	CTD		233	54 26.2	131 13.1	180	140		1	MT	NA	BOT@10m
		21:18	EN				26.4	13.2							NUTS, CHL & SAL
		21:28	BE	SET		234	54 26.3	131 14.3	15 meters						
		21:58	EN				25.9	18.2							

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 JUNE				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
28	DT03	22:33	BE	CTD		235	54 26.7	131 24.3	271	190		1	MT	NA	BOT@10m
		:42	EN				26.9	24.3							NUTS, CHL & SAL
		22:45	BE	NET		236	54 26.9	131 24.3	271	150					(*)
		:53	EN				26.9	24.3							
		23:02	BE	SET		237	54 26.9	131 25.1	SURFACE						
		:32	EN				26.4	29.0							
29	DT04	00:04	BE	NET		238	54 27.6	131 33.7	285	150					
		:12	EN				27.7	33.5							
		00:16	BE	CTD		239	54 27.8	131 33.4	285	190		1	MT	NA	BOT@10m
		:26	EN				28.1	33.2							NUTS, CHL & SAL
		00:36	BE	SET		240	54 27.8	131 33.6	30m SURFACE						
		01:06	EN				26.2	35.1							
= END OF DAY															

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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⑤ DT03 Preserved plankton (jar) sample smashed on deck.

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Month JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
29	DE01	12:57	BE	CTD		241	54 13.6	131 43.6	113	105		1	MT	NA	BOT @ 10m
		13:03	EN				13.6	43.5							NUTS, CHL & SAL
		13:05	BE	NET		242	54 13.7	131 43.5	113	105					
		13:11	EN				13.7	43.3							
		13:18	BE	SET		243	54 13.5	131 44.0	Surface						
		13:48	EN				12.4	46.7							
29	DE02	14:47	BE	NET		244	54 09.3	131 57.1	56	45					
		50	EN				09.3	57.0							
		14:53	BE	CTD		245	54 09.3	131 57.0	56	45		1	MT	NA	BOT @ 10m
		15:55	EN				09.2	57.9							NUTS, CHL & SAL
		15:02	BE	SET		246	54 09.4	131 57.4	Surface						
		15:32	EN				10.2	132 00.4							

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 JUNE				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50				Page 42 of 65	
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments		
							Latitude	Longitude									
29	DE03	16:36	BE	CTD		247	54 09.7	132 12.7	58	45		1	MT	NA	BOT@10m		
		:38	EN				09.3	12.6							NUTS, CHL & SAL		
		16:41	BE	NET		248	54 09.3	132 12.5	56	45					⊗ →		
		:43	EN				09.3	12.4									
		16:51	BE	SET		249	54 09.0	132 13.0	SURFACE								
		17:21	EN				08.6	16.6									
29	DE04	18:13	BE	NET		250	54 07.9	132 27.8	49	40							
		:15	EN				07.9	27.7									
		18:20	BE	CTD		251	54 07.9	132 27.7	49	40		1	MT	NA	BOT@10m		
		:22	EN				07.9	27.7							NUTS, CHL & SAL		
		18:32	BE	SET		252	54 08.2	132 28.3	SURFACE								
		19:02	EN				08.3	32.6									

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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⊗ DE03: pH buffer bottle left on during cast.

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Month JUNE			Year 2012			Ship F/V VIKING STORM			Cruise ID 2012-50						
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
29	DE05	19:59	BE	CTD		253	84 10.6	132 48.7	83	45		1	MT	NA	BOT @ 10m
		20:01	EN				10.6	45.7							NUTS, CHL & SAL
		20:04	BE	NET		254	84 10.6	132 48.7	83	45					
		06	EN				10.5	45.7							
		20:13	BE	SET		255	84 10.7	132 46.4	SURFACE						
		48	EN				11.2	50.4							
29	DE06	21:18	BE	NET		256	54 13.8	132 54.4	150	140					
		25	EN				13.8	54.5							
		21:29	BE	CTD		257	54 13.7	132 54.5	148	140		2	MT	NA	BOT @ 10m
		39	EN				13.7	54.6							NUTS, CHL & SAL, pH
		21:47	BE	SET		258	54 14.3	132 54.9	15 METERS						pH cal sample @ 117m
		22:17	EN				16.5	56.3							

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 JUNE				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
29	QC101	23:53	BE	CTD		259	54 11.2	133 07.6	81	40		1	MT	NA	BOT@10m
		:56	EN				11.2	07.6							NUTS, CHL & SAL
		23:58	BE	NET		260	54 11.2	133 07.6	81	40					
		00:01	EN				11.2	07.6							
		00:09	BE	SET		261	54 11.0	133 08.2	SURFACE						
		139	EN				09.7	11.6							
END OF DAY															
30	QC102	13:00	BE	CTD		262	53 41.7	133 05.9	130	120		1	MT	NA	BOT@10m
		:05	EN				41.7	05.8							NUTS, CHL & SAL
		13:07	BE	NET		263	53 41.7	133 05.8	125	110					
		113	EN				41.6	05.8							
		13:21	BE	SET		264	53 41.1	133 05.7	SURFACE						
		:51	EN				38.7	04.1							

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 JUNE		Year 2012		Ship F/V VIKING STORM		Cruise ID 2012-50									
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
30	QC103	15:08	BE	NET		265	53 28.0	132 59.5	155	140					
		15:15	EN				28.0	59.5							
		15:20	BE	CTD		266	53 28.0	132 59.5	154	145		1	MT	NA	BOT @ 10m
		15:26	EN				28.0	59.4							NUTS, CHL & SAL
		15:35	BE	SET		267	53 27.3	132 58.9	15 meters						
		16:05	EN				28.0	57.2							
30	QC104	17:23	BE	CTD		268	53 15.7	132 46.7	195	185		1	MT	NA	BOT @ 10m
		17:32	EN				15.7	46.6							NUTS, CHL & SAL
		17:34	BE	NET		269	53 15.6	132 46.6	187	150					
		17:44	EN				15.6	46.5							
		17:51	BE	SET		270	53 15.3	132 46.1	SURFACE						
		18:21	EN				13.3	44.2							

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 JUNE				Year 2012			Ship F/V VIKING STORM			Cruise ID 2012-50					
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
30	QCI05	19:18	BE	NET		271	53 07.1	132 37.2	151	140					
		19:26	EN				07.1	37.2							
		19:30	BE	CTD		272	53 07.0	132 37.2	151	140		2	MT	NA	BOT@10m
		19:39	EN				07.0	37.1							NUTS, CHL & SAL, pH
		19:46	BE	SET		273	53 06.5	132 36.9	SURFACE						pH cal sample @ 118m
		20:16	EN				04.3	34.8							
30	QCI06	21:14	BE	CTD		274	52 58.5	132 28.3	342	190		1	MT	NA	BOT@10m
		21:23	EN				58.6	28.4							NUTS, CHL & SAL
		21:28	BE	NET		275	52 58.6	132 28.4	321	150					
		21:33	EN				58.6	28.3							
		21:42	BE	SET		276	52 58.1	132 27.8	30 meters						
		22:12	EN				56.3	26.0							

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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⊗ pH cal sample done @ 118m b/c wire has snags in it below this point which prevent messenger from sliding

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Month JUNE/JULY

Year 2012

Ship F/V VIKING STORM

Cruise ID 2012-50

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information		Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
							Latitude	Longitude							
30	QC107	22:57	BE	NET		277	52 53.0	132 19.6	161	150					
		23:06	EN				53.0	19.6							
		23:10	BE	CTD		278	52 53.0	132 19.7	181	170		1	MT	NA	BOT @ 10m
		:18	EN				53.1	19.6							NUTS, CHL & SAL
		23:25	BE	SET		279	52 52.6	132 19.5	SURFACE						
		23:55	EN				50.6	17.8							
01	QC108	00:29	BE	CTD		280	52 47.2	132 13.2	146	135		1	MT	NA	BOT @ 10m
		:36	EN				47.2	13.2							NUTS, CHL & SAL
		00:38	BE	NET		281	52 47.2	132 13.2	146	135					
		:46	EN				47.2	13.1							
		00:53	BE	SET		282	52 46.8	132 12.2	SURFACE						
		:23	EN				45.1	09.3							
END OF DAY															

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 JULY				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
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							
01	QCI09	13:02	BE	CTD		283	52 39.4	132 01.7	139	120		1	MT	NA	BOT@10m
		13:08	EN				39.4	01.6							NUTS, CHL & SAL
		13:11	BE	NET		284	52 39.4	132 01.6	138	125					
		:17	EN				39.4	01.7							
		13:25	BE	SET		285	52 39.0	132 01.1	surface						
		:55	EN				37.2	58.5							
01	QCI10	14:48	BE	NET		286	52 31.8	131 51.2	324	150					
		:57	EN				31.8	51.2							
		15:02	BE	CTD		287	52 31.8	131 51.2	324	190		1	MT	NA	BOT@10m
		:11	EN				31.8	51.2							NUTS, CHL & SAL
		15:19	BE	SET		288	52 31.4	131 50.4	15 meter						
		:49	EN				29.9	47.1							

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 JULY				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
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							
01	QCII1	16:45	BE	CTD		289	52 24.7	131 40.5	280	190		1	MT	NA	BOT@10m
		:58	EN				24.7	40.5							NUTS, CHL & SAL
		16:57	BE	NET		290	52 24.6	131 40.5	280	150					
		17:05	EN				24.6	40.4							
		17:12	BE	SET		291	52 24.2	131 39.9	SURFACE						
		:42	EN				22.1	37.5							
01	QCII2	18:30	BE	NET		292	52 16.5	131 31.5	157	140					
		:39	EN				16.4	31.4							
		18:42	BE	CTD		293	52 16.3	131 31.4	162	150		2	MT	NA	BOT@10m
		:52	EN				16.3	31.3							NUTS, CHL & SAL, pH
		18:58	BE	SET		294	52 16.0	131 30.7	SURFACE						pH cal sample @ 117m
		19:28	EN												

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 JULY				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
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							
01	QCI 13	20:24	BE	CTD		295	52 09.6	131 23.1	172	160		1	MT	NA	BOT@10m
		:31	EN				09.6	23.1							NUTS, CHL & SAL
		20:34	BE	NET		296	52 09.6	131 23.1	171	150					
		:42	EN				09.7	23.1							
		20:52	BE	SET		297	52 09.3	131 22.4	30 meters						
		21:22	EN												
01	QCI 14	22:18	BE	NET		298	52 03.4	131 15.7	185	150					
		:28	EN				03.4	15.7							
		22:31	BE	CTD		299	52 03.3	131 15.7	190	180		1	MT	NA	BOT@10m
		:39	EN				03.3	15.7							NUTS, CHL & SAL
		22:46	BE	SET		300	52 03.0	131 15.0	SURFACE						
		23:16	EN				01.1	11.7							
END OF DAY															

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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DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2012-50

DATE:

From: 16 JUN 12 - 04 JUL 12 to: 11 - 15 JUL 12

VESSEL:

F/V Viking Storm W.E. RICKER

PROJECT(S):

HIGH SEAS SALMON
Book 3 of 3

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

WaterProperties.ca

Captain: Chris Roberts
 Second Officer: Flo Salm
 Fishing Master: Chris Roberts
 First Officer: Scott Murray
 Third Officer: Rory Johnson

Mission Participants / Agencies: DEO/NOAA/CFIA

[illegible][illegible]

Data logging computer:

Data acquisition program: _____

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

Primary CTD
Make: SBE model: 25 serial number: 0404

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:

Oxygen sensor:	Model:	s/n:
----------------	--------	------

Only Gen sensor: _____ Model: _____ s/n: _____
 PAR sensor: _____ Model: _____ s/n: _____

Other sensors: 0A SPE 18 s/n: 0852

Other sensors: _____ s/n: _____

Other sensors: _____ s/n: _____

Other sensors:	s/n:
Other sensors:	s/n:

Secondary CTD

Make: _____ model: _____ serial number: _____

Primary temperature serial number:

Primary conductivity serial number:

Secondary temperature serial number:

Secondary conductivity serial number:

Transmissometer: _____ s/n: _____
Model: _____

Fluorometer: Model	Model:	s/n:
Cable gain:		

Oxygen sensor: _____ s/n: _____
 Model: _____ s/n: _____
 Make: _____ s/n: _____

PAR sensor:	Model:	s/n:
PAR sensor:	Model:	s/n:

Other sensors: _____ s/n: _____

Other sensors:	s/n:
----------------	------

Other sensors:	s/n:
----------------	------

Other sensors: _____
s/n: _____

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

See notes from book 1.

Switched ships: Viking Storm ended 04 JUL 12
W.E. Ricker started 12 JUL 12 → con file 443 Ricker July 2012

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Month JULY				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
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							
02	1BC05	13:01	BE	CTD		301	52 15.3	128 27.2	135	125		1	MT	NA	BOT@10m
		:07	EN				15.4	27.2							NUTS, CHL & SAL
		13:10	BE	NET		302	52 15.4	128 27.3	114	100					
		:16	EN				15.4	27.4							
		13:24	BE	SET		303	52 15.4	128 26.7	SURFACE						
		:54	EN												
02	1BC06	14:33	BE	NET		304	52 14.5	128 16.6	127	100					
		:39	EN				14.6	16.6							
		14:43	BE	CTD		305	52 14.6	128 16.7	250	190		1	MT	NA	BOT@10m
		:51	EN				14.7	16.9							NUTS, CHL & SAL
		15:00	BE	SET		306	52 14.4	128 16.2	15 meter						
		:30	EN				13.4	12.8							

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 JULY				Year 2012				Ship F/V VIKING STORM				Cruise ID 2012-50			
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							
02	1BC07	16:53	BE	CTD		307	52 05.9	128 07.5	155	145		1	MT	NA	BOT @ 10m
		:59	EN				05.9	07.5							NUTS, CHL & SAL
		17:02	BE	NET		308	52 05.9	128 07.5	178	150					
		:10	EN				05.9	07.5							
		17:17	BE	SET		309	52 05.8	128 07.0	SURFACE						
		:47	EN				04.4	03.7							
02	1BC08	18:48	BE	NET		310	52 06.8	127 53.9	288	150					
		:56	EN				06.8	53.9							
		18:59	BE	CTD		311	52 06.8	127 54.0	340	190		1	MT	NA	BOT @ 10m
		19:00	EN				06.8	54.0							NUTS, CHL, SAL
		19:17	BE	SET		312	52 06.2	127 54.4	30 metres						
		:47	EN				04.0	55.5							

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:

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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 <u>JULY</u>				Year <u>2012</u>			Ship <u>F/V VIKING STORM</u>				Cruise ID <u>2012-50</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							
02	1BC09	20:29	BE	CTD		313	51 59.4	127 56.7	245	190		1	MT	NA	BOT@10m
		1:37	EN				59.2	56.6							NUTS, CHL & SAL
		20:40	BE	NET		314	51 59.2	127 56.6	229	150					
		47	EN				59.1	56.7							
		20:55	BE	SET		315	51 58.5	127 56.8	SURFACE						
		1:28	EN				58.9	57.6							
02	1BC10	22:14	BE	NET		316	51 58.9	127 49.5	106	95					
		19	EN				58.8	49.6							
		22:23	BE	CTD		317	51 58.7	127 49.7	106	95		2	MT	NA	BOT@10m
		1:30	EN				58.6	49.8							NUTS, CHL & SAL, pH
		22:37	BE	SET		318	51 58.2	127 50.7	SURFACE						pH cal sample @ 95m
		23:07	EN				58.6	53.8							

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 <u>JULY</u>				Year <u>2012</u>				Ship <u>F/V VIKING STORM</u>				Cruise ID <u>2012-50</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							
02	IBC 11	23:51	BE	CTD		319	51 49.6	127 54.9	309	190		1	MT	NA	BOT @ 10m
03		00:00	EN				49.6	55.0							NUTS, CHL & SAL
		00:03	BE	NET		320	51 49.6	127 55.0	308	150					
		:11	EN				49.6	54.9							
		00:19	BE	SET		321	51 49.1	127 55.0	15m						
		:49	EN				46.9	55.0							
END OF DAY															
03	IBC 12	13:00	BE	CTD		322	51 39.4	127 57.0	323	190		1	MT	NA	BOT @ 10m
		:09	EN				39.4	57.0							NUTS, CHL & SAL
		13:11	BE	NET		323	51 39.4	127 57.1	319	150					
		:19	EN				39.4	57.2							
		13:28	BE	SET		324	51 39.0	127 56.7	SURFACE						
		:58	EN				36.8	54.8							

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 JULY				Year 2012			Ship F/V VIKING STORM				Cruise ID 2012-50				
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							
03	IBC13	14:39	BE	NET		325	51 32.8	127 49.9	174	150					
		:47	EN				32.7	49.9							
		14:51	BE	CTD		326	51 32.8	127 49.8	172	160		2	MT	NA	BOT@10m
		15:00	EN				32.7	49.8							NUTS, CHL & SAL, pH
		15:07	BE	SET		327	51 32.3	127 49.3							pH cal@118m
		:37	EN												
03	QCSD08	16:35	BE	CTD		328	51 23.2	127 52.3	114	105					
		:40	EN				23.2	52.2							
		16:42	BE	NET		329	51 23.2	127 52.2	113	100		1	MT	NA	BOT@10m
		:47	EN				23.2	52.0							NUTS, CHL & SAL
		16:55	BE	SET		330	51 22.7	127 52.2	SURFACE						
		17:25	EN				20.4	53.3							

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 JULY				Year 2012				Ship F/N VIKING STORM / RICKER		Cruise ID 2012-50						Page 56 of 65	
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									
03	QCSD09	18:02	BE	NET		331	81 15.5	127 53.5	135	125							
		:09	EN				15.5	53.4									
		18:13	BE	CTD		332	51 15.5	127 53.4	135	125		1	MT	NA	BOT@10m		
		:18	EN				15.5	53.3							NUTS, CHL & SAL		
		18:25	BE	SET		333	51 15.0	127 53.2	SURFACE								
		:55	EN				12.5	53.5									
END OF DAY																	
SWITCH TO RICKER 12 JUL 12																	
12	QCSD10	1302	BE	CTD		334	51°04.45	127°46.19	97						T: 9.989		
		1304	BO				51°04.42	127°46.21		87					S: 30.657		
		1306	EN				51°04.40	127°46.22				1	MT	NA	BOT@10m		
		1309	BE	NET		335	51°04.34	127°46.27	94	84					NUTS, CHL & SAL		
		1329	BE	SET		336	51°03.72	127°47.25	97						SURFACE		

Cast Type:

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

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

Bottle Firing Method:

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

Time Code:

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

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

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03 JUL 12: End Viking Storm portion of survey. (SBE 25)

12 JUL 12: Start WE Ricker portion of survey (SBE 911)
No pH sensor on Ricker CTD.

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Month <u>JULY</u>				Year <u>2012</u>				Ship <u>W.E. RICKER</u>				Cruise ID <u>2012-50</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							
12	QCSD11	1430	BE	CTD		337	51°00.46	127°52.92	138						T: 9.44 S: 31.35
		1433	BO				51°00.43	127°52.89		128					(*) Archiving started @ 84m on down cast.
		1435	EN				51°00.42	127°52.89				1	MT	NA	BOT @ 10m NUTS, CHL & SAL
		1439	BE	NET		338	51°00.41	127°52.87	142	132					
		1459	BE	SET		339	50°59.97		141						15m
12	QCST01	1602	BE	CTD		340	50°57.73	127°44.76	150						T: 10.3 S: 31.09
		1605	BO				50°57.72	127°44.78		140					
		1609	EN				50°57.71	127°44.83				1	MT	NA	BOT @ 10m NUTS, CHL & SAL
		1612	BE	NET		341	50°57.71	127°44.88	195	150					
		1632	BE	SET		342	50°57.27	127°44.16	304						SURFACE
12	QCST02	1742	BE	CTD		343	50°53.12	127°36.62	408						T: 10.37 S: 30.62
		1747	BO				50°53.12	127°36.72		250					
		1752	EN				50°53.14	127°36.79				1	MT	NA	BOT @ 10m NUTS, CHL & SAL
		1757	BE	NET		344	50°53.14	127°36.86	436	150					
		1816	BE	SET		345	50°53.83	127°37.77	437						30m

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 JULY

Year 2012

Ship W.E. RICKER

Cruise ID 2012-50

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							
12	QCST03	1937	BE	CTD		346	50°57.74	127°33.30	113			1	MT	NA	BOT@10m
		1939	BO				50°57.72	127°33.31		103					NUTS, CHL & SAL
		1942	EN				50°57.70	127°33.32							T: 9.96 S: 30.88
		1946	BE	NET		347	50°57.68	127°33.31	106	96					
		2003	BE	SET		348	50°57.21	127°32.53	133						
															SURFACE
12	QCST04	2142	BE	CTD		349	50°51.38	127°17.90	140			1	MT	NA	BOT@10m
		2145	BO				50°51.35	127°17.94		130					NUTS, CHL & SAL
		2148	EN				50°51.33	127°17.97							T: 10.6 S: 30.4
		2151	BE	NET		350	50°51.31	127°17.97	120	110					
		2210	BE	SET		351	50°50.96	127°18.68	135						15m
12	QCST05	2303	BE	CTD		352	50°49.08	127°22.48	169			1	MT	NA	T: 10.3 S: 30.3
		2307	BO				50°49.07	127°22.52		159					
		2311	EN				50°49.05	127°22.58							BOT@10m
		2313	BE	NET		353	50°49.02	127°22.59	175	175 (!)					NUTS, CHL & SAL
		2335	BE	SET		354	50°48.34	127°23.70	257						* Just lucky it didn't hit bottom!
															SURFACE
END OF DAY															

Cast Type:

BOT = Bottle cast, no CTD
CTD = CTD without Rosette
ROS = Rosette plus CTD
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Bottle Firing Method:

US = Up / Stop
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Notes:

Time Code:

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BO = Bottom Time of Cast
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Transmissometer to be cleaned before each cast, do not use Ammonia products

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Month JULY				Year 2012				Ship W.E. RICKER				Cruise ID 2012-50				
Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Latitude	Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments	
13	QCST06	1310	BE	CTD		355	50°47.25	127°30.32	360			2	MT	NA	T: 11.06 S: 30.70	
		1317	BO				50°47.23	127°30.38		250					pH cal sample @ 250m	
		1322	EN				50°47.20	127°30.42							BOT @ 10m	
		1327	PE	NET		356	50°47.18	127°30.47	353	150					NUTS, CHL & SAL, pH	
		1346	BE	SET		357	50°47.46	127°31.73	356						SURFACE	
13	QCST07	1458	BE	CTD		358	50°49.91	127°41.41	354			1	MT	NA	T: 10.50 S: 31.04	
		1503	BO				50°49.90	127°41.49		250					BOT @ 10m	
		1508	EN				50°49.87	127°41.51							NUTS, CHL & SAL	
		1511	BE	NET		359	50°49.85	127°41.53	348	150						
		1529	BE	SET		360	50°49.72	127°40.52	351						15m	
13	QCST08	1721	BE	CTD		361	50°44.86	127°19.23	246			1	MT	NA	T: 10.80 S: 30.38	
		1725	BO				50°44.86	127°19.21		236					BOT @ 10m	
		1729	EN				50°44.86	127°19.18							NUTS, CHL & SAL	
		1732	BE	NET		362	50°44.87	127°19.18	250	150						
		1751	BE	SET		363	50°45.35	127°18.00	249						SURFACE	

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DRF = Drifter

Bottle Firing Method:

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

Notes:

Time Code:

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BO = Bottom Time of Cast
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Transmissometer to be cleaned before each cast, do not use Ammonia products

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 16 April 2010

pH sensor was re-installed prior to start of work 13 JUL 12 (thanks Scott Rose!)
Serial # 0852, con file: 443 Ricker July 2012 with pH.xml con

QCST06: Water bottle attached ~5 m above sensor, so sample actually taken @ ~245 m

pH@10m ~8.51

pH@245m ~8.20

DAILY SCIENCE LOG

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Month JULY				Year 2012				Ship W.E. RICKER				Cruise ID 2012-50			
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							
13	QCST09	1908	BE	CTD		364	50°47.72	127°12.09	147			1	MT	NA	T: 10.52 S: 29.64
		1912	BO				50°47.71	127°12.08		137					
		1915	EN				50°47.69	127°12.11							BOT@10m NUTS, CHL & SAL
		1918	BE	NET		365	50°47.62	127°12.19	147	137					30m
		2006	BE	SET		366	50°47.90	127°11.07	160						
13	QCST10	2057	BE	CTD		367	50°50.53	127°09.27	124			2	MT	NA	T: 10.97 S: 29.81
		2100	BO				50°50.50	127°09.28		115					⊗ pH cal sample @ 115m
		2104	EN				50°50.47	127°09.28							BOT@10m NUTS, CHL & SAL, pH
		2109	BE	NET		368	50°50.46	127°09.24	145	135					
		2127	BE	SET		369	50°50.08	127°08.56	153						SURFACE
13	QCST11	2230	BE	CTD		370	50°47.15	126°59.59	129			1	MT	NA	T: 10.40 S: 29.50
		2233	BO				50°47.13	126°59.62		119					
		2237	EN				50°47.10	126°59.64							BOT@10m NUTS, CHL & SAL
		2239	BE	NET		371	50°47.07	126°59.66	131	121					
		2258	BE	SET		372	50°46.47	127°00.59	167						SURFACE
END OF DAY															

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Notes:

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QCST09: Fire & boat drill after CTD & bongo, before fishing.

pH@10m ~ 8.37

pH@110m ~ 8.28

QCST10: Fishing tow ended after 15min due to porpoises in the area.

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Month JULY				Year 2012				Ship W.E. RICKER				Cruise ID 2012-50			
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							
14	QCST12	1311	BE	CTD		373	50°39.78	127°12.29	30			1	MT	NA	T: 9.28 S: 30.91
		1311	BO				50°39.78	127°12.29		20					
		1312	EN				50°39.79	127°12.29							BOT@10m NUTS, CHL & SAL
		1315	BE	NET		374	50°39.80	127°12.32	30	20					
		1330	BE	SET		375	50°40.47	127°11.28	73						SURFACE
14	QCST13	1427	BE	CTD		376	50°43.60	127°05.85	172			1	MT	NA	T: 10.79 S: 29.65
		1430	BO				50°43.58	127°05.82		162					
		1434	EN				50°43.57	127°05.79							BOT@10m NUTS, CHL & SAL
		1436	BE	NET		377	50°43.57	127°05.77	173	150					
		1456	BE	SET		378	50°43.39	127°04.83	165						15m
14	QCST14	1559	BE	CTD		379	50°41.94	126°57.08	198			2	MT	NA	T: 11.09 S: 29.64
		1604	BO				50°41.89	126°57.04		190					pH cal sample @190m
		1608	EN				50°41.88	126°57.02							BOT@10m NUTS, CHL & SAL, pH
		1613	BE	NET		380	50°41.89	126°56.87	205	150					
		1633	BE	SET		381	50°42.19	126°55.98	201						SURFACE

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Bottle Firing Method:

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Notes:

Time Code:

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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

pH @ 10m ~ 8.42
pH @ ~187m ~ 8.27

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Month <u>JULY</u>				Year <u>2012</u>				Ship <u>W.E. RICKER</u>				Cruise ID <u>2012-50</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							
14	QCST15	1737	BE	CTD		382	50°45.87	126°50.63	169			1	MT	NA	T: 10.52 S: 29.05
		1740	BO				50°45.87	126°50.70		159					
		1744	EN				50°45.88	126°50.75							BOT@10m NUTS, CHL & SAL
		1746	BE	NET		383	50°45.89	126°50.80	177	150					
		1805	BE	SET		384	50°45.41	126°50.24	176						30m
14	QCST16	1909	BE	CTD		385	50°42.07	126°46.64	143			1	MT	NA	T: 9.71 S: 30.20
		1913	BO				50°42.07	126°46.66		133					
		1916	EN				50°42.07	126°46.69							BOT@10m NUTS, CHL & SAL
		1919	BE	NET		386	50°42.08	126°46.69	146	136					
		1939	BE	SET		387	50°41.45	126°46.89	157						SURFACE
14	QCST17	2034	BE	CTD		388	50°38.59	126°48.34	163			2	MT	NA	T: 10.95 S: 29.93
		2037	BO				50°38.52	126°48.34		153					pH cal sample @ 153m
		2041	EN				50°38.47	126°48.33							BOT@10m NUTS, CHL & SAL, pH
		2047	BE	NET		389	50°38.38	126°48.22	162	150					
		2139	BE	SET		390	50°40.85	126°51.52	192						15m

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Bottle Firing Method:

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 DN = Down / No stop

Notes:

Time Code:

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 EN = End Time of Cast
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Transmissometer to be cleaned before each cast, do not use Ammonia products

Produced by the Water Properties Group, IOS

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QCST17: Porpoises postponed fishing. Ran back from CTS/pongo location then fished back to it.
pH@10m ~8.48
pH@148m ~8.29

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Month <u>JULY</u>				Year <u>2012</u>			Ship <u>W.E. RICKER</u>				Cruise ID <u>2012-50</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							
14	QCST18	2325	BE	CTD		391	50°36.25	126°53.08	97			1	MT	NA	T: 16.12 S: 30.55
		2327	BO				50°36.24	126°53.08		87					
		2330	EN				50°36.23	126°53.09							BOT@10m NUTS, CHL & SAL
		2333	BE	NET		392	50°36.20	126°53.05	98	88					
		2237	BE	SET		393	50°36.63	126°49.56	97						SURFACE
END OF DAY															
15	JSO1	1311	BE	CTD		394	50°33.53	126°49.18	349			2	MT	NA	T: 10.45 S: 29.12
		1316	BO				50°33.53	126°49.25		250					SAL pH cal sample @ 250m
		1322	EN				50°33.51	126°49.30							BOT@10m NUTS, CHL & SAL, pH
		1327	BE	NET		395	50°33.52	126°49.29	332	150					
		1346	BE	SET		396	50°33.31	126°48.18	402						SURFACE @ 15 min.
15	JSO2	1454	BE	CTD		397	50°31.10	126°37.98	436			1	MT	NA	T: 9.95 S: 29.82
		1458	BO				50°31.12	126°37.14		250					
		1505	EN				50°31.15	126°37.28							BOT@10m NUTS, CHL & SAL
		1508	BE	NET		398	50°31.19	126°38.43	442	150					
		1527	BE	SET		399	50°30.91	126°37.52	440						15m @ 15 min.

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

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 Version: 16 April 2010

QCST 18: Fished first, then CTD, bongo. Consecutive numbers not changed.

⊗ JSOI Note deep salinity sample taken.
pH@10m ~8.52
pH@245m ~8.38

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Month JULY				Year 2012				Ship W.E. RICKER				Cruise ID 2012-50			
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							
15	JS03	1633	BE	CTD		400	50°29.46	126°26.16	366			1	MT	NA	T: 10.43 S: 29.59
		1638	BO				50°29.46	126°26.21		250					
		1643	EN				50°29.45	126°26.27							BOT @ 10m NUTS, CHL & SAL
		1645	BE	NET		401	50°29.44	126°26.30	360	150					
		1705	BE	SET		402	50°29.62	126°24.69	414						SURFACE @ 15min
15	JS04	1805	BE	CTD		403	50°29.54	126°14.69	325			1	MT	NA	T: 10.00 S: 29.69
		1811	BO				50°29.54	126°14.77		250					
		1817	EN				50°29.54	126°14.68							BOT @ 10m NUTS, CHL & SAL
		1820	BE	NET		404	50°29.51	126°14.61	328	150					
		1907	BE	SET		405	50°29.36	126°13.24	344						15m @ 15min.
15	JS05	2012	BE	CTD		406	50°27.08	126°03.60	222			2	MT	NA	T: 10.28 S: 29.24
		2017	BO				50°26.98	126°03.51		210					pH cal sample @ 210m
		2024	EN				50°26.90	126°03.43							BOT @ 10m NUTS, CHL & SAL, pH
		2029	BE	NET		407	50°26.89	126°03.34	195	150					
		2055	BE	SET		408	50°26.81	126°02.85	133						SURFACE @ 15min

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Notes:

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Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 16 April 2010

JS04: Long lead under boat w/ CTD. Corrected ship's position & CTD sat @ ~255m for ~30sec.
while doing so.
Lunch break prior to fishing set.

JS05: CTD on edge of bank, depth shallowed during cast
pH@10m ~8.51
pH@205m ~8.38

