DAILY SCIENCE LOG BOOK

MISSION NUMBER: 2010-17

DATE: From: June 16, 2010 to: July 7, 2010

VESSEL: CFV Viking Storm

PROJECT(S): H. GH Seas Salmon

Book 1 of 2

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

ng Captain: Chris Roberts | Cook/Deck ~~First Officer~~: Flo Salm
eck ~~Second Officer~~: Scott Murray | Third Officer: ______
~~Fishing Master~~: Rory Johnson

Mission Participants / Agencies: DFO, U.Vic, NMFS

Scientific Personnel: Chief Scientist: John Morris

Name	Watch	Cabin	Name	Watch	Cabin
Mary Thiess	PBS				
Tyler Zubkowski	PBS				
Yeongha Jung	PBS				
Strahan Tucker	PBS	June 21 - Jul 3			
Kanaa Ek-Sabarwi	U.Vic.	June 16 - 21			
Deborah Harstad	NMFS				

Second leg of Mission: Chief Scientist: ______

Name	Watch	Cabin	Name	Watch	Cabin

Data logging computer: ______
Data acquisition program: ______
CTD deck unit make: ______ model: ______ serial number: ______

Primary CTD
Make: Seabird model: SBE 25 serial number: 2543784-0404
Primary temperature serial number: 043184
Primary conductivity serial number: 034484
Secondary temperature serial number: —
Secondary conductivity serial number: —
Transmissometer: ______ Model: Wetlabs s/n: 498
Fluorometer: Model SBE 29 Cable gain: ______ s/n: 290573 **P**, **S** or **NO** pump?
Oxygen sensor: ______ Model: SBE 5T s/n: 054472 2KV (**P**), **S** or **NO** pump?
PAR sensor: ______ Model: ______ s/n: ______
Other sensors: ______ s/n: ______ **P**, **S** or **NO** pump?
Other sensors: ______ s/n: ______ **P**, **S** or **NO** pump?
Other sensors: ______ s/n: ______ **P**, **S** or **NO** pump?
Other sensors: ______ s/n: ______ **P**, **S** or **NO** pump?

Secondary CTD
Make: ______ model: ______ serial number: ______
Primary temperature serial number: ______
Primary conductivity serial number: ______
Secondary temperature serial number: ______
Secondary conductivity serial number: ______
Transmissometer: ______ Model: ______ s/n: ______
Fluorometer: Model ______ Cable gain: ______ s/n: ______ **P**, **S** or **NO** pump?
Oxygen sensor: ______ Model: ______ s/n: ______ **P**, **S** or **NO** pump?
PAR sensor: ______ Model: ______ s/n: ______
Other sensors: ______ s/n: ______ **P**, **S** or **NO** pump?
Other sensors: ______ s/n: ______ **P**, **S** or **NO** pump?
Other sensors: ______ s/n: ______ **P**, **S** or **NO** pump?
Other sensors: ______ s/n: ______ **P**, **S** or **NO** pump?

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE **Year** 2010 - 17 **Ship** CCG. VIKING STORM **Cruise ID** 2010 - 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
16	GEOH	21:06	BE	BONGO		—	49 17.12	123 46.24	403	50.				✓	DR. BONGOS
		21:11	EN			—	49 17.07	123 46.18							PLANKTON STATION
16	GS04	21:21	BE	BONGO		—	49 17.05	123 46.07	402	230.					NO CONDS RECORDED
		21:44	EN.			—	49 17.03	123 45.94							
16	GS01	22:21	BE	CTD		1	49 12.37	123 41.81	350	230.		1			SAL + NUTS + CHL
		22:48	EN				49 12.385	123 41.84							@10m
16	GS01	22:52	BE	BONGO		2	49 12.39	123 41.86	348.	150.					
		23:05	EN.				49 12.44	123 41.92	353						
17	GS02	00:09	BE.	BONGO		3.	49 12.62	123 31.56.	347	150.					
		00:23	EN.				49 12.59	123 31.56							
17.	GS02	00:28	BE	CTD		4.	49 12.6	123 31.56 -	347	230.		1			SAL + NUTS + CHL
		00:50	EN				49 12.67	123 31.49.							@10m.
17	GS03	01:39	BE	CTD		5	49 13.00	123 20.42.	185	175.		1			SAL + NUTS + CHL
		01:57	EN				49 12.97	123 20.389.	185						@10m
		2:07	BE	BONGO		6.	49 12.75	123 20.273	185	150.					
		2:15	EN				49 12.785	123 20.21	184						

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

Notes: _____

- NET RECOMMENDATION — 2 BRIDAL NET, SPECTRA (NYLON) BRIDLES ... SWAM. NETS, SPECTRA
  - LESS RESISTANT, SMALLER PODS REQUIRED, ∴ FUEL SAVINGS
  - SPECTRA = DYNEX. SET BACK 5 m, 12 m SET BACKS
  - SHORTER COD END

Note: For this cruise, bongo stations from regional sampling areas (i.e., non-transect) were shared between taxonomic analysis & a UVic grad student project (Dan Bevan). Stations where there is no preserved sample for taxonomic analysis have been noted.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CFV Viking Storm **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
17	JF01	13:27	BE	CTD.		7	48 17.2	123 39 3	173	160		1		✓	SAL + NUTS + CHLORO
		13:37	EN				48 17 21	123 39 25							@ 10m
		13:40	BE	Bongo.		8.	48 17 185	123 39 22.	174	150					
		13:49	EN.				48 17 14	123 39 17							
		13:58	BE.	Trawl.		9	48 17 25	123 39 45	175						SURFACE TOW
		14:28	EN				48 17 80	123 42.19							
17.	JF02	15:20	BE	Bongo.		10	48 20 23	123 51.30	134	125					No preserved sample — prepped for Dan Bevan's project
		15:27	EN				48 20 34	123 51 32							
		15:31	BE	CTD.		11	48 20 40	123 51 47	129	120.		1			SAL + NUTS + CHLORO
		15:40	EN				48 20 49	123 51 45							@ 10m
		15:46	BE	TRAWL.		12.	48 20 61	123 52.17	125						[illegible] SPEED 5.2, GOOD SPEED-
		16:16	END.				48 21.00	123 55.96.	130						SURFACE TOW
17	JF03	17:04	BE	CTD		13	48 23.256	124 04.66	111	100		1			SAL + NUTS + CHL
		17:08	EN				48 23.25	124 04.69	111						@ 10m
		17:13	BE.	Bongo		14	48 23 24	124 04.71	111	100.					
		17:20	EN.				48 23 24	124 04.74							
		17:26	BE	TRAWL.		15.	48 23 39	124 05.41	111						SURFACE TOW
		17:56	EN				48 24.31	124 09.19	112						

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

Notes: ______________________________

Produced by the Water Properties Group, IOS

This page is for any notes or observations

J(?)0(— JUAN DE FUCA / BEECHY HD., LOW SWELL, RIPPLED SEAS, EBB TIDE, NW 15-25 KNOTS

J(?)03 – RIVER JORDAN

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCG Viking Storm **Cruise ID** 2010 - 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
17	JF04	1816	BE	Bongo		16	48 25.8	124 12.0	84	75					No preserved sample - prepped for Dan Bevan's project
		18:21	EN				48 25.77	124 12.14	87						
		18:25	BE	CTD		17	48 25.76	124 12.15	87	75		1			SAL + NUTS + CHL
		18:30	EN				48 25.74	124 12.21	90						@ 10m
		19:38	BE	Trawl		18	48 25.68	124 13.08	87						SURFACE TOW
		19:08	EN				48 26.51	124 17.68	111						
17	JF05	1928	BE	CTD		19	48 28.3	124 20.36	65	50		1			SAL + NUTS + CHL
		1932	EN				48 28.3	124 20.38							@ 10m
		19:34	BE	Bongo		20	48 28.35	124 20.397	65	85					
		19:37	EN				48 28.36	124 20.44	70						
		19:46	BE	Trawl		21	48 28.62	124 21.19	79						SURFACE TOW
		20:16	EN				48 29.796	124 24.87	99						
17	JF06	2047	BE	Bongo		22	48 32.1	124 30.1	36	25					No preserved sample - prepped for Dan Bevan's project
		20:50	EN				48 32.16	124 30.11	31						
		20:55	BE	CTD		23	48 32.15	124 30.18	34	20		1			* CTD not turned →
		20:58	EN				48 32.14	124 30.22							SAL + NUTS + CHL @ 10 m
		21:04	BE	Trawl		24	48 32.19	124 30.94	46						SURFACE TOW
		21:34	EN				48 32.52	124 34.89	70						

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NET = Plankton Net Haul
DRF = Drifter
____ = _____

Bottle Firing Method:
US = Up / Stop
UN = Up / No stop
DN = Down / No stop

Time Code:
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Notes: _____

JF04 - Monterey Pt.

JF06 - San Jose

→ off between this station & JF07. Both casts in one file.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Viking Storm **Cruise ID** 2010 – 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
17	JF01	2219	BE	CTD		25	48 33.8	124 41.9	75	65		1			* See comment from
		2223	EN				48 33.9	124 41.9							SAL + CHL + NUTS
		2227	BE	Bongo		26	48 34.0	124 41.86	70	60					@ 10m
		2231	RO				48 34.0	124 41.85							
		2239	BE	Tow		27	48 34.12	124 42.51	66						SURFACE TOW
		2309	RE				48 34.65	124 45.55							
17	VI01	2353	BE	Bongo		28	48 36.1	124 53.3	62	50					No preserved sample – prepped for Dan Bevan's project
		2357	EN				36.2	53.3							
18		0002	BE	CTD		29	48 36.2	124 53.4	61	50		1			SAL + CHL + NUTS
		0005	BO				36.2	53.4							@ 10m
18		0011	BE	Tow		30	48 36.3	124 53.9	59						SURFACE TOW
		0041	EN				48 36.91	124 56.64	66						
18	IV01	1305	BE	CTD		31	48 57.87	125 06.9	96	85		1		✓	IMPERIAL ESSAY CA.
		1306	EN				48 57.87	125 06.9	96						SAL + CHL + NUTS
		1311	BE	Bongo		32	48 57.88	125 6.92	96	85					@ 10m
		1317	EN				48 57 89	125 6.91							
		1327	BE	Tow		33	48 57 78	125 7.13	96						SURFACE TOW
		1358	RE				48 55 75	125 8.86	92						

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Notes: _____

JF06.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE **Year** 2010 **Ship** CFV Viking Storm **Cruise ID** 2010 – 17

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	VIO2	14:28	DE	Borgo		34	4854.3	125 12.2	97	85					IMPERIAL EAGLE CH.
		14:34	EN				4854.3	125 12.3							No preserved sample – prepped for Dan Bevan's project
		14:39	BE	CTD		35	4854.3	125 12.35	98	85		1			SAL + CHL + NUTS
		14:44	EN				4854.3	125 12.4							@ 10m
		14:51	BE	TOW		36	48 54 46	125 12.82	98						SURFACE TOW
		15:21	EN				48 52 42	125 14.84	91						
18	VIO2	1550	BE	CTD		37	4860.3	125 16.1	96	85		1			SAL + CHL + NUTS
		1555	EN				4850.32	125 16.18							@ 10m
		1558	BE	Borgo		38	4850 32	125 16.185	96						
		16:04	EN				4850 32	125 16 24							
		16:09	BE	TOW		39	48 49 92	125 16 34	94						SURFACE TOW
		16:39	EN				48 47 66	125 17.126	88						
18	VIO3	17:10		Borgo		40	4847.18	125 22.10	90	80					No preserved sample – prepped for Dan Bevan's project
		17:15					47.2	22.1							
		17:19		CTD		41	4847.2	125 22.06	90	80		1			SAL + CHL + NUTS
		17:24					47.2	22.03							@ 10m
		17:32		TOW		42	4846.8	125 22.56	87						SURFACE TOW
		18:02					48 45.40	125 25.64	104						

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DAILY SCIENCE LOG Ocean Sciences Division, Institute of Ocean Sciences

Month June	**Year** 2010	**Ship** C/V Viking Storm	**Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
18	VI04	18:56	BE	CTD.		43	48 41.06	125 34.32	170.	160		1			
		19:06	EN				48 40.98	125 33.30.							SAL + NUTS + CHL
		19:08	BE	Bongo		44	48 40.98	125 34.29	178	150					@ 10m
		19:18	EN				48 40.99	125 33.34							
		19:26	BE	TRAWL.		45	48 40.77	125 35.17	170						} 30 m TOW
		19:54	EN.				48 39.21	125 38.18.							150 f WARP LET
18	VI05	20:43	BE	Bongo		46	48. 35.37	125 43 55	65.	55					OUT, NORMALLY 68f
		20:45	EN				48 35.4	125 43 55.							(A) No preserved sample– prepped for Dan Bevan's project
		20:51	BE	CTD		47	48 35.43	125 43 55	65	55		1			
		20:55	EN				48 35.45	125 43 54	65						SAL, NUTS, CHL @ 10m
		21:01	BE	TRAWL.		48.	48 35 18	125-43 98	67						SURFACE TOW
		21:31	EN				48 33 55	125 45 78							
18	VI06	22:22		CTD		49	48 28.9	125 51.27	114	105		1			SAL + NUTS + CHLORO
		22:29					28.9	51.2							@ 10m
		22:32		Bongo		50	48 28.9	125 51.2	117	105					
		22:38					28.9	51.1							
		22 45		Tow		51	48 28.5	125 51.8	125						15 metres TOW
		23:16					48 26.56	125 53.78	150						

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Notes: ___

This page is for any notes or observations

WEATHER SEA CONDITIONS – BRIGHT, 1/4 SWELL, RIPPLED SEAS WINDS NW 15 KNOTS.

U102 → U104 WAREHOUSE TRANSECT.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Viking Storm. **Cruise ID** 2010 - 17

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	VI07	00:03	BE	Bongo		52	48 22.43	125 58.76	376	150					No preserved sample - prepped for Ian Bevan's project
		00:13	EN				4822.8	125 58.6							
		00:18	BE	CTD		53	4822.40	125 58.49	521	230		1			SAL + NUTS + CHL
		00:33	EN				48 22.44	125 58.33							@ 10m
		00:40	BE	Tow		54	48 22.11	125 58 73	558						SURFACE TOW
		01:10	EN				48 20 12	126 0.68	>900						
19	VI08	13:08	BE	CTD		55	49 06.163	126 00.178	45	35		1		V	OFF TOFINO.
		13:11	EN				49 06.187	126 00.184	46						SAL + NUTS + CHL.
		13:13	BE	Bongo		56	49 06.211	126 00.187	45	35					@ 10m
		13:17	EN				49 06.248	126 00.209							
		13:23	BE	TOW		57	49 05.92	126 00.861	47						SURFACE TOW
		13:53	EN				49 4.51	126 03.357	55						
19	VI09	14:28	BE	Bongo		58	49 03.2	126 06.0	60	50					No preserved sample - prepped for Ian Bevan's Project
		14:31	EN				49 03.2	126 06.1							
		14:36	BE	CTD		59	49 03.3	126 06.1	60	50		1			SAL + NUTS + CHL
		14:39	EN				49 03.3	126 06.1							@ 10m
		14:47	BE	TOW		60	49 03.103	126 06.639	60						SURFACE TOW
		15:17	EN				49 01.514	126 08.961							

Cast Type:
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____ = _____

Bottle Firing Method:
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Time Code:
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Transmissometer to be cleaned before each cast, do not use Ammonia products

Notes: _____

This page is for any notes or observations

V108 - OFF TOFINO, SKIES BRIGHT, 1/2 M SWELL, RIPPLED SEAS.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CGV Viking Storm **Cruise ID** 2010-17.

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
19	VI10	15:49	BE	CTD		61	48 59.4	126 12.2	93	80		1			OFF TOFINO
		15:52	EN				48 59.42	126 12.255	93						SAL + NUTS + CHL.
		15:57	BE	Bongo		62	48 59.42	126 12.269	93	80					@ 10m.
		16:01	EN				48 59.41	126 12.306							
		16:09	BE	Trawl.		63	48 59.13	126 12.963	99						
		16:39	EN.				48 54.65	126 15.57							SURFACE TOW
19	VI11	17:06	BE	Bongo		64	48 55.6	126 18.7	136	125					No preserved sample - prepped for Dan Bevan's project
		17:13	EN				48 55.51	126 18.48							
		17:18	BE	CTD		65	48 55.45	126 18.43	136	125.		1			
		17:26	EN				48 55.38	126 18.43							SAL + NUTS + CHL @ 10m
		17:36	BE	Trawl.		66	48 54.85	126 19.175	142						
		18:06	EN.				48 53.17	126 21.72	158						30 m TOW
19	VI12	18:34	BE	CTD		67	48 52.55	126 24.214	172	165		1			SAL + CHL + NUTS
		18:44	EN				48 51.576	126 24.202							@ 10m
		18:48	BE	Bongo		68	48 51.59	126 24.263	172	150					
		18:56	EN				48 51 62	126 24.200							
		19:04	BE	Trawl		69	48 51 34	126 24.72	174						SURFACE TOW
		19:34	EN				48 49 603	126 26.901	193						

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
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Time Code:
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Notes: ________________

This page is for any notes or observations

VIII – 2m SWELL, OCCASIONAL WHITE CAPS, BRIGHT SKIES

30 METRE TOWS – 14m VERTICAL × 28m HORIZONTAL OPENING

250 - 713 - 2193 STRAHAN TUCKER ~~Sunday~~ MONDAY.
SAT PHONE PRESS "5"

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCV Viking Storm **Cruise ID** 2010-17

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							
	VI	~~20:55~~	~~BE~~	~~BOTTLE~~		XXX	~~48 58 80~~	~~126 26.73~~	152	140					~~X~~ ? cancelled
		~~21:04~~	~~EN~~				~~48 58 78~~	~~126 26.285~~							
19	VI13	21:06	BE	BOTTLE		70	48 58 77	126 26.26	152	140					REPEATED BOTTLE.
		21:15	EN				48 58 76	126 26 24.							NO preserved sample - Dan Bevan's project
		21:19	BE	CTD		71	48 58 ~~73~~	126 26 19	152	140		1			SAL + NUTS + CHL @ 10m
		21:29	~~EN~~				48 58 71	126 26.11							
		21:35	BE	TROUGH		72	48 59 15	126 25.97	150						
		22:05	EN				49 01.414	126 25.208	140						
19	VI14	22:46	BE	CTD		73	4905.43	126 23.127	113	105		1			SAL + NUTS + CHL @ 10m
		~~22:59~~	EN				49 05.382	126 23.000							
		22:54	BE	BOTTLE		74	49 05.376	126 23.000	113	100					
		23:01	EN				49 05.331	126 22.964							
		23:08	BE	TROUGH		75	49 05.75	126 22.700	107						
		23:38	EN				49 07.91	126 21.55							

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

Notes: _____

VI 13. Bongo chain hung up on hardware - did not sample properly on upcast. Reset and re-deployed under same cons #.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vector Storm **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
20	EP01	13:23	BE	CTD		76	49 20.51	126 32.84	44	35		1		✓	Sal + Nuts + Chloro
		13:25	EN				49 20.54	126 32.855							@ 10m
		13:26	BE	Bongo		77	49 20.54	126 32.85	44	35					Preserved samples kept on transects.
		13:28	EN				49 20.57	126 32.86							
		13:37	BE	Trawl		78	49 20.33	126 33.55							Surface Tow
		14:07	EN			55	49 18.980	126 36.448	86						
20	EP02	14:21	BE	Bongo		79	49 18.8	126 37.0	93	80					
		14:27	EN				49 18.8	126 37.1							
		14:31	BE	CTD		80	49 18.8	126 37.2	94	85		1			Sal + Nuts + Chloro
		14:36	EN				49 18.8	126 37.2							@ 10m
		14:43	BE	Tow		81	49 18.5	126 37.8	100						
		15:13	EN				49 16.89	126 40.48							Surface Tow
20	EP03	15:30	BE	CTD		82	49 16.6	126 41.3	115	105		1			Sal + Nuts + Chloro
		15:36	EN				49 16.6	126 41.3							@ 10m
		15:38	BE	Bongo		83	49 16.6	126 41.4	115	105					
		15:45	EN				49 16.5	126 41.4							
		15:52	BE	Tow		84	49 16.235	126 41.9	118						Surface Tow
		16:22	EN				49 14.71	126 44.307	116						

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

Notes: ___

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

E901 – 1m SWELL, RIPPLED SEAS, OVERCAST

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vector **Cruise ID** 2010-77

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
20	EP04	~~16:37~~				~~85~~	~~49 14.4~~	~~126 44.9~~	~~120~~	~~110~~					
		~~16:44~~					~~14.3~~	~~44.9~~							
20	EP04	16:49	BE	Bongo		85	49 14.2	126 44.9	122	110					⊛ →
		16:57	EN				49 14.1	126 44.9							
		17:02	BE	CTD		86	49 14.2	126 45.1	124	110		1			
		1707	EN				49 14.0	126 45.1							SAL + NUTS + CHLORO
		1711	BE	Trawl		87	49 13.906	126 48.606	125						@ 10m
		1744	EN				49 12.912	126 48.982							SURFACE TOW
20	EP05	1758	BE	CTD		88	49 12.5	126 49.3	141	130		1			
		1805	EN				49 12.4	126 49.2							SAL + NUTS + CHLORO
		1809	BE	Bongo		89	49 12.4	126 49.2	141	130					@ 10m
		1818	EN				49 12.3	126 49.1							
		1825	BE	Trawl		90	49 12.2	126 49.7	148						
		1855	EN				49 11.56	126 52.99							SURFACE TOW

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

Notes: ____________________

EP04: Bongo not hung up on frame during upcast. Reset & redeployed under same cons#.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vicount Tupper **Cruise ID** 2010 - 17

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	EP06	1913	BE	BONGO		91	49 10.6	126 54.4	186	150					
		1924	EN				49 10.5	126 54.4							
		1927	BE	CTD		92	49 10.5	126 54.4	186	175		1			SAL + NUTS + CHLORO.
		1938	EN				49 10.4	126 54.3							@ 10m
		1947	BE	TOW		93	49 9.91	126 54.97	200						SURFACE TOW
		2017	EN				49 8.43	126 57.63	360						
20	EP02	2039	BE	CTD		94	49 08.1	126 59.0	463	230		1			SAL + NUTS + CHLORO.
		2053	EN				49 08.0	126 58.7							@ 10m
		2057	BE	BONGO		95	49 8.027	126 58.811	467						⊛
		21:07	EN				49 7.998	126 58.800	473						
		21:17	BE	TOW		96	49 7.74	126 59.894	554						15m Tow
		21:47	EN				49 6.41	126.2.213	973						
20	VI5	2317	BE	BONGO		97	49 17.726	126 59.07	153	145					
		2327	EN				49 17.73	126 58.806	153						
		2331	BE	CTD		98	49 17.72	126 58.71	153	145		1			SAL + NUTS + CHLORO.
		2339	EN				49 17.704	126 58.47	153						@ 10m
		2346	BE	TOW		99	49 18.09	126 57.96	150						15m Tow
21		00:10	EN				49 20.05	126 55.78	150						

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

Notes: _____

This page is for any notes or observations

⊗ EP07: weight hung up on frame — untangled & rinsed well.

VI15 — OFF SHARP OUT NOOTKA SD. 1/2 M SWELL, RIPPLED SEAS, OVERCAST.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Viking Storm **Cruise ID** 2010-17

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	VE16	00:43	BE	CTD		100	49 22.48	126 53.58	133	123		1			SAL+NUTS+CHLORO.
		00:51	EN				49 22.53	126 53.52							@10m
		00:52	BE	BONGO		101	49 22.54	126 53.58	132	122					
		01:01	EN				49 22.57	126 53.44							
		01:07	BE	TRAWL		102	49 23.11	126 53 15.	128						15m TOW
		01:37	EN				49 25.36	126 52.044	109						
21	VE17	14:12	BE	CTD		103	49 38.098	126 56.854	46	35.		1		✓	SAL+NUTS+CHLORO
		14:14	EN				49 38.102	126 56.858							@10m
		14:16	BE	BONGO		104	49 38.109	126 56.856	46	35.					
		14:20	EN				49 38.123	126 56.858	45						
		14:26	BE	TRAWL		105	49 37.944	126 57.438	49						SURFACE TOW
		14:56	EN				49 36.881	127 00.609	91						
21	VE18	15:15	BE	BONG		106	49 35.8	127 02.7	108	100					No preserved sample - prepped for Dan Ewart's project
		15:17	EN				49 35.8	127 02.7							
		15:26	BE	CTD		107	49 35.9	127 02.7	108	100		1			SAL + NUTS + CHLORO
		15:32	EN				49 35.95	127 02.817							@10m
		15:38	BE	TOW		108	49 35.71	127 03.33	112						SURFACE TOW
		16:08	EN				49 34.19	127 05.556	122						

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

Notes: _____

This page is for any notes or observations

VIA - V4 M SWELL, CALM, RIPPLED SEAS, SKIES BRIGHT
SMOOTH, OFF MOOTEA SD.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCG Viking Storm **Cruise ID** 2010 – 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
21	VI19	16:37	BE	CTD		109	49 32.3	127 08.2	138	130		1			(*) SAL, NUTS + CHLORO
		16:45	EN				49 32.3	127 08.2							@ 10m
		1647	BE	Bongo		110	4932.3	127 08.2	138	130					
		16 56	EN				4932 3	127 08. 2							
		17.04	BE	Trawl		111	4932.05	127 08. 8	138						SURFACE TOW.
		17:34	EN				49 30.45	127 11.25.	153						
21	VI20	1755	BE	Bongo		112	49 29.1	127 14.3	265	150					No preserved sample – prepped for Dan Bryan's project
		18 04	BM				49 29.0	127 14.3							
		18 09	BE	CTD		113	49 28.9	127 14.2	280	230		1			SAL, NUTS + CHLORO
		1825	BM				49 28.79	127 14.285	266						@ 10m
		18:31	BE	Trawl		114	49 28.6	127 14.82	420						SURFACE TOW
		19:01	EM				49 27 05	127 17.291	700						
22	VI21	13:14	BE	CTD		115	49 55.9	127 19.258	62	50		1		✓	SAL, NUTS, CHL @ 10m
		13:17	EM				49 55.93	127 19.261							
		13:19	BE	Bongo		116	49 55.95	127 19.275	62	56					
		13:23	BM				49 55.98	127 19.277							
		13:31	BE	Trawl		117	49 55.699	127 19.798	60						SURFACE TOW
		14:01	EM				49 54.179	127 22.275							

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

Notes: _____

⊛ Taigon tubing to salinometer not well attached – bracket tightened & sensor realigned.

NI21 – FLAT CALM, HAZY, SMOOTH SURFACE, GENTLE ROLL, CLOUDY SKIES OFF KYUQUOT.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCG Vickers Siam **Cruise ID** 2010-17

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	VI22	14:25	BE	Bong		118	49 52.6	127 25.2	66	55					No preserved sample prepped for Dan Bevan's project
		14:29	EN				49 52.6	127 25.2							
		14:33	BE	CTD		119	49 52.7	127 25.3	66	55		1			SAL + NUTS + CHARO - 6 10m
		14:36	EN				49 52.7	127 25.3							
		14:42	BE	Tow		120	49 52.4	127 25.8	68						SURFACE TOW
		15:12	EN				49 50.8	127 28.0							
22	VI23	15:45	BE	CTD		121	49 48.3	127 31.6	85	75		1			SAL + NUTS + CHLOR 6 10m
		15:50	EN				49 48.3	127 31.6							
		15:52	BE	Bong		122	49 48.3	127 31.6	85	75					
		15:59	EN				49 48.4	127 31.5							
		16:06	BE	Tow		123	49 48.1	127 31.9	87						SURFACE TOW
		16:34	EN				49 46.40	127 34.335	153						
22	VI24	17:06	BE	Bong		124	49 44.6	127 37.3	550	150					No preserved sample prepped for Dan Bevan's project
		17:16	EN				49 44.4	127 37.2							
		17:20	BE	CTD		125	49 44.4	127 37.1	560	230		1			SAL + NUTS + CHLO 6 10m
		17:35	EN				49 44.2	127 37.0							
		17:42	BE	Tow		126	49 44.0	127 37.5	650						SURFACE TOW
		18:12	EN				49 43.1	127 40.3	700						

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

Notes: _____

This page is for any notes or observations

VI22 - OFF KYUQUOT
VI23 - OFF KYUQUOT
VI24 - OFF KYUQUOT

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE | **Year** 2010 | **Ship** CFV Viking Storm | **Cruise ID** 2010-17

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	VI25	21:10	BE	CTD		127	50 5.72	127 56.707	54	45		1			CHL + NUTS + CHLOR @ 10m
		21:13	EN				50 5.70	127 56.71							
		21:16	BE	Bongo		128	50 5.71	127 56.686	45	25					
		21:19	EN				50 5.69	127 56.688	49						
		21:27	BE	Trawl		129	50 5.41	127 57.165	93						SURFACE TOW
		21:57	EN				50 04.21	128 00.202	199						
22	VI26	22:14	BE	Bongo		130	50 02.9	128 03.1	1200	150					No preserved sample — prepped for Dan Bevan's project
		22:33	EN				50 02.8	128 03.2							
		22:38	BE	CTD		131	50 02.8	128 03.2	1200	230		1			SAL + NUTS + CHLORO @ 10m
		22:52	EN				50 02.9	128 03.2							
		22:59	BE	Tow		132	50 02.6	128 03.8	1150						SURFACE TOW
		23:29	EN				50 01.2	128 06.9							
22	VI27	23:56	BE	CTD		133	50 00.0	128 10.0	720	230		1			SAL + NUTS + CHLORO @ 10m
23		00:10	EN				50 00.7	128 10.0							
		00:13	BE	Bongo		134	50 00.3	128 10.1	720	150					
		00:22	EN				50 00.4	128 10.1							
		00:30	BE	Tow		135	50 00.1	128 10.7	850						SURFACE TOW
		01:00	EN				49 59.153	128 13.83							

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

Notes: _____

This page is for any notes or observations

UI25 — OFF SOLIMDER, (BROOKS FINISH)
/M SMALL, RIPPED SEAMS, OCCASIONAL WHITE CAPS

UI26 - OFF SOLIMDAR

UI27 - OFF SOLIMDAR.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vicking Storm **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
23	JUL03	13:04	BE	CTD		136	50 24 441	127 29.514	131	115		1		✓	SAL, DO, CHLORO @ 10m
		13:11	BO				50 24 485	127 29 53							
		13:15	BE	Bongo		137	50 24 496	127 29 537	130	120					
		13:21	EN				50 24 523	127 29 554	130						
		13:26	BE	TRAWL		138	50 24 93	127 29.884							SURFACE TOW
		13:58	EN				50 27.001	127 31.793	185						
23	JUL04	14:17	BE	Bongo		139	50 27.4	127 31.7	190	150					NO preserved samples prepped for Dan Bevans project
		14:26	EN				50 27.4	127 31.8							
		14:31	BE	CTD		140	50 27.4	127 31.8	190	180		1			SAL, DO, CHLORO @ 10m
		14:42	BO				50 27.4	127 31.8							
		14:48	BE	TOW		141	50 27.7	127 32.3	187						SURFACE TOW
		15:18	EN				50 29.63	127 34.410							
23	JUL05	15:44	BE	CTD		142	50 31.7	127 36.9	59	50		1			SAL, DO, CHLORO @ 10m
		15:47	BO				50 31.7	127 36.9							
		15:52	BE	Bongo		143	50 31.7	127 36.9	60	50					
		15:56	EN				50 31.7	127 36.8							
		16:03	BE	TOW		144	50 31.7	127 36.4	60						SURFACE TOW
		16:33	EN				50 31.5	127 40.98	121						

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

Notes: _____

This page is for any notes or observations

IVI03 - Quatsino, Neroutsos Inlet, East arm.
IVI04 - Quatsino, Neroutsos Inlet.
IVI05 - Quatsino CA — 11. Drake 13.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vincent Strachan **Cruise ID** 2010-17

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	JUL06	17:17	BE	Bongo		145	50 29.9	127 44.4	116	105					No preserved sample - prepped for Dan Bevan's project
		17:24	EN				50 29.9	127 44.4							
		17:28	BE	CTD		146	50 29.9	127 44.4	117	105		1			SAL, NUTS, CHLORO @ 10m
		17:34	EN				50 29.9	127 44.3							
		17:41	BE	Towed		147	50 29.8	127 44.9	114						SURFACE TOW
		18:11	EN				50 28.67	127 48.38	97						
23	JUL07	18:46	BE	CTD		148	50 29.3	127 51.0	66	50		1			SAL, NUTS, CHLORO @ 10m
		18:49	EN				29.3	127 51.1							
		18:51	BE	Bongo		149	50 29.3	127 51.1	67	55					
		18:55	EN				29.3	127 51.1							
		19:01	BE	Towed		150	50 29.1	127 51.7	178						SURFACE TOW
		1931	EN				50 28.43	127 55.01	191						
23	JUL08	2012	BE	Bongo		151	50 24.9	128 00.0	165	160					No preserved sample - prepped for Dan Bevan's project
		2021	EN				50 24.9	00.1							
		2026	BE	CTD		152	50 25.0	128 00.1	176	160		1			SAL, NUTS, CHLORO @ 10m
		2034	EN				50 24.984	128 00.229	182						
		2042	BE	Towed		153	50 24.77	128 00.745	156						SURFACE TOW
		2112	EN				50 23.73	128 02.98	120						

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

Notes: _____

This page is for any notes or observations

IV106. – Quatsino,

IV107 – Quatsino, Koskimo Bay

VI28 – off Quatsino, 1m SWAN, RIPPLED SEAS, OVERCAST.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vicinia Strait **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
13	VI29	21:45	BE	CTD		154	50 21.6	128 05.9	86	75		1			SAL, NUTS, CHLOR @ 10m
		21:49	EN				50 21.6	128 06.1							
		21:52	BE	Bongo		155	50 21.6	128 06.1	88	75					
		21:58	EN				50 21.6	128 06.1							
		22:01	BE	Tow		156	50 21.38	128 06.736	96						SURFACE TOW
		22:37	EN				50 19.91	128 09.38	148						
23	VI30	2306	BE	Bongo		157	50 18.0	128 12.1	177	150					
		2316	EN				18.0	12.1							
		2320	BE	CTD		158	50 18.0	128 12.2	178	165		1			SAL, NUTS, CHL @ 10m
		2330	EN				18.0	12.0							
		—		Tow		—	Cancelled. SE		25						
24	TOS	1308	BE	CTD		159	50 42.5	129 28.5	2300	230		1		V	SAL, NUTS, CHL @ 10m
		1323	EN				50 42.58	129 28.403	2300						
		1325	BE	Bongo		160	50 42.61	129 28.398	2300	150					
		1335	EN				50 42.61	129 28.321		50					
		1347	BE	Tow		161	50 43.09	129 27.488	1700						SURFACE TOW
		1416	EN				50 44.47	129 24.462							

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

Notes: _____

This page is for any notes or observations

VI29 — 2m swell, occasional whitecaps, onshore SE 25 forecast MW 10-25

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Viking Storm **Cruise ID** 2010-17

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	T07	15:14	BE	Bongo		162	50 49.14	129 14.25	106	100					
		15:22	EN				50 49 32	129 14.155							
		15:25	DE	CTD		163	50 49385	129 14.115	112			1			SAL, NUTS, CHL @ 10M
		15:31	EN				50 49515	129 14.027	105						
		15:37	DE	Trawl		164	50 49 86	129 13.464	94						SURFACE TOW
		16:07	EN				50 51 61	129 09.984	72						
24	T06	16:55	DE	CTD		165	50 55.495	129 00.48	60	50		1			SAL, NUTS, CHL @ 10M
		16:58	EN				50 55.516	129 00.38	61						
		17:00	BE	Bongo		166	50 55.53	129 00.309	61	50					
		17:04	EN				50 55.56	129 00,187	60						
		17:12	BE	Trawl		167	50 55.895	128 59.47	59						SURFACE TOW
		17:42	EN				50 57.97	128 56.595	73						
24	T05	18:05	DE	Bongo		168	50 59.9	128 52.8	65	55					
		18:09	EN				50 59.8	128 52.8							
		18:13	DE	CTD		169	50 59.875	128 52.74	65	55		1			SAL, NUTS, CHL @ 10M
		18:16	EN				50 59.92	128 52.66							
		18:23	BE	TOW		170	51 00.18	128 52.04							SURFACE TOW
		18:53	EN				51 01.553	128 48.66	54						

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

Notes:

This page is for any notes or observations

To7 - 1/2 M SWELL, RIPPLED SEAS, PARTLY CLOUDY HW 5-10.

To7 - DRIFTING 1.5 KTS HAKE

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vikling Storm **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
24	T04	19:32	BE	CTD		171	51 04.308	128 44.066	65	55		1			SAL, NUTS, CHL @ 10m
		1937	EN				51 4.25	128 44.07	65						
		1938	BE	Bongo		172	51 04.25	128 44.075	65						
		1942	EN				51 4.175	128 44.066	67						
		1949	BE	Tow		173	51 4.33	128 43.6	64						SURFACE TOW
		2013	EN				51 5.356	128 41.792	69						
24	T03	2056	BE	Bongo		174	51 8.45	128 36.82	141	130					
		21:04	EN				51 8.42	128 35.98	142						
		21:09	BE	CTD		175	51 8.405	128 35.91	142	130		1			SAL, NUTS, CHL @ 10m
		21:16	EN				51 8.38	128 35.81							
		21:27	BE	Tow		176	51 8.41	128 34.71	155						15m TOW *
		21:57	EN				51 10.33	128 32.15	185						
24	T02	22:40	BE	CTD		177	51 12.56	128 27.59	192	180		1			SAL, NUTS, CHL @ 10m
		22:51	EN				51 12.55	128 27.55							
		22:53	BE	Bongo		178	51 12.54	128 27.55	191	150					
		23:03	EN				51 12.51	128 27 583	192						
		23:10	BE	Tow		179	51 12.75	128 27 082							SURFACE TOW
		23:40	EN				51 14.007	128 24.409	139						

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 06 March 2008

T04 – HAULED BACK EARLY DUE TO PORPOISES in vicinity.

* T03 – TOWED AT 5K IN AN EFFORT TO AVOID PORPOISES.
AT END OF TOW: POORS NET GO TO FIX TWISTED WRAPS OR WARP.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Viking Storm **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	T01	00:11	BE	Bongo		180	51 16.327	128 20.16.	79	70					
		00:16	EN				51 16.302	128 20.12	78						
		00:20	BE	CTD		181	51 16 30	128 20.108	78	70		1			SAL, NUTS, CHLORO @ 10M.
		00:24	BO				51 16 30	128 20.09.	78						
		00:30	BE	Trawl		182	51 16.702	128 20.135	79.						SURFACE TOW
		01:00	EN				51 18.93	128 20.937	74.						
25	H01	13:13	BE	CTD		183	52 13.058	129 8.207	171	160		1		V	SAL, NUTS & CHL @ 10m
		13:15	BO				52 13.050	129 8.156							
		13:18	BE	Bongo		184	52 13.042	129 8.118	169	150		1			
		13:28	BO				52 13.005	129 7.944							
		13:35	BE	Trawl		185	52 12.934	129 8.587	170						SURFACE TOW
		14:05	BO				52 13.213	129 12.25.	166						
25	H02	15:12	BE	Bongo		186	52 15.38	129 26.09	180	150					
		15:19	BO				52 15.35	129 26.15							
		15:22	BE	CTD		187	52 15.34	129 26.18	182	170		1			SAL, NUTS, + CHL @ 10m
		15:34	BO				52 15.36	129 26.21	182						
		15:39	BE	Trawl		188	52 15.54	129 26.77	195						SURFACE TOW
		16:09	BO				52 16 48	129 30.43	194						

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

Notes: _____

H01 - 1/4 m SWELL, RIPPLED SEDC, LIGHT WIND, HAZY SUNNY.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGV Viking Storm **Cruise ID** 2010 - 17

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	403	13:06	BE	CTD		189	52 18.86	129 41.56	208	200		1			SAL, NUTS, CHL @ 10m
		17:18	EN				52 19.08	129 41.44							
		17:20	BE	Bongo		190	52 19.095	129 41.43	211	150					
		17:31	EN				52 19.276	129 41.31	211						
		17:36	BE	Tow		191	52 19.47	129 41.23	211						SURFACE TOW
		18:06	EN				52 20.014	129 45.22	211						
25	404	19:04	BE	Bongo		192	52 22.1	129 57.0	192	150					No preserved sample - prepped for Dan Bevan's project
		19:14	EN				52 22.18	129 56.94	197						
		19:17	BE	CTD		193	52 22.22	129 56.903	202	190		1			SAL, NUTS, CHL @ 10m.
		19:30	EN				52 22.35	129 56.756	207						
		19:34	BE	Tow		194	52 22.51	129 57.35	215						SURFACE TOW
		20:04	EN				52 23.15	130 00.71	259						
26	405	21:09	BE	CTD		195	52 25.602	130 13.32	330	230		1			SAL, NUTS, CHLORO @ 10m
		21:23	EN				52 25.66	130 13.039	328						
		21:27	BE	Bongo		196	52 25 67	130 12.97	328	150					
		21:36	EN				52 25 66	130 12 87	328						
		21:41	BE	Tow		197	52 25 789	130 13.509	328						SURFACE TOW
		22:11	EN				52 24 63	130 16.81	331						

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 06 March 2008

This page is for any notes or observations

HOY — 1/8 m swell, no ripples, milky smooth, overcast but bright.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vilkitsky **Cruise ID** 2010 - 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
25	H06	23:10	BE	Bongo		198	52 28.74	130 28.84	175	150					⊛
		23:18	EN				52 28.76	130 28.81	175						
		23:20	BE	CTD		199	52 28.79	130 28.805	175	165		1			SALINITY, CHL @ 10m
		23:36	EN				52 28.79	130 28.72	176						
		23:42	BE	Trawl		200	52 28.81	130 29.39							SURFACE TOW
26		00:12	EN				52 28.88	130 33.14	134						
26	HS01	13:14	BE	CTD		201	53 20.99	131 4.52	48	40		1		✓	SALINITY, CHL @ 10m
		13:18	EN				53 20.997	131 4.39	50						
		13:23	BE	Bongo		202	53 20.972	131 4.277	50	40					
		13:36	EN				53 20.991	131 4.23	50						
		13:34	BE	Trawl		203	53 21.30	131 3.79	49						SURFACE TOW
		14:04	EN				53 23.24	131 3.073	50						
26	HS02	14:54	BE	BONGO		204	53 28.98	131 00.264	52	40					NO preserved sample — prepped for Dan Bevan's project
		14:59	EN				53 28.912	131 00.353							
		15:02	BE	CTD		205	53 28.864	131 00.363	53	40		1			SALINITY, CHL @ 10m
		15:07	EN				53 28.83	131 00.449							
		15:11	BE	TRAWL		206	53 29.144	131 00.283	48						SURFACE TOW
		15:41	EN				53 59.576	130 59.58	53						

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 06 March 2008

⊗ H06: Both bongo nets hung up on frame. Untangled & rinsed well. Some sample obtained.

HS01 - OVERCAST, SE 25, 2m SWELL, WIDE SPREAD WHITECAPS.
HS02 - SLACK WATER.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCG Vancouver **Cruise ID** 2010-17

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	DT01	13:04	BE	CTD		207	54 25.23	131 01.839	82	70		1		✓	SAL, NUTS, CHL @ 10m
		13:08	EN				54 25.28	131 1.996							1.9 Kts TIDE EBB.
		13:11	BE	BONGO		206	54 25.32	131 2.17	88	75					
		13:17	EN				54 25.42	131 2.457							
		13:25	BE	TRAWL		209	54 25.585	131 3.65	134						SURFACE TOW
		13:55	EN				54 26.05	131 8.431	135						
27	DT02	14:19	BE	BONGO		210	54 25.7	131 11.92	150	140					No preserved sample - prepped for Ian Bevans project
		14:28	EN				54 25.87	131 12.09							
		14:34	BE	CTD		211	54 25.937	131 12.17	159	150		1			SAL, NUTS, CHL @ 10m
		14:41	EN				54 26.016	131 12.299							
		14:48	BE	TRAWL		212	54 25.988	131 13.100	170						SURFACE TOW
		15:16	EN				54 25.88	131 16.48							
27	DT03	15:57	BE	CTD		213	54 26.34	131 23.37	273	230					
		16:03	EN				54 26.44	131 23.186	266						FLOOD @ 0.3 Kts.
		16:14	BE	BONGO		244	54 26.44	131 23.183	266	150					
		16:23	EN				54 26.477	131 23.106	270						
		16:30	BE	TRAWL		215	54 26.55	131 23.855	275						SURFACE TOW
		17:00	EN				54 26.8	131 27.82							

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

Notes: _____

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

DAILY SCIENCE LOG BOOK

MISSION NUMBER: 2010-17

DATE: From: JUNE 16, 2010 to: JULY 7, 2010

VESSEL: CFV VIKING STORM

PROJECT(S): HIGHSEAS SALMON

Book 2 of 2

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

WaterProperties.ca

Captain: Chris Roberts
~~First Officer~~ Cook/Deck: Flo Salm
Eng ~~Second Officer~~: Scott Murray
Third Officer:
Deck ~~Fishing Master~~: Rory Johnson

Mission Participants / Agencies: HIGH SEAS SALMON

Scientific Personnel: Chief Scientist: JOHN MORRIS

Name	Watch	Cabin	Name	Watch	Cabin
JOHN MORRIS	→ 03-JUL				
TYLER ZUBKOWSKI	→ 03-JUL				
MARY THIESS	→ 07-JUL				
JOHAN JUNG	→ 03-JUL				
DEB HARSTAD	→ 03-JUL				
STRAHAN TUCKER	→ 03-JUL				

Second leg of Mission: Chief Scientist: Neville/Thiess (03-07JUL10)

Name	Watch	Cabin	Name	Watch	Cabin
CHRYS NEVILLE	03-06JUL				
MARY THIESS	03-07JUL				
CAROL COOPER	03-06JUL				
DAN CURTIS	03-06JUL				
DAN BEVAN (UVic)	03-07JUL				
NICKY HAIGH (Ind Contr)	07JUL				

Data logging computer:
Data acquisition program:
CTD deck unit make: model:

Believe T+C s/n's reversed
Don't have cals for DO 4472

Primary CTD
Make: Seabird model: SBE 25 serial nu (T s/n 573)
Primary temperature serial number: 043184
Primary conductivity serial number: 034484
Secondary temperature serial number: —
Secondary conductivity serial number: —
Transmissometer: Model: Wetlabs s/n: 498
Fluorometer: Model SBE 29 Cable gain: s/n: 290573 **P, S or NO** pump?
Oxygen sensor: Model: SBE 5T s/n: 054472 (P), S or NO pump?
PAR sensor: Model: s/n:
Other sensors: s/n: **P, S or NO** pump?
Other sensors: s/n: **P, S or NO** pump?
Other sensors: s/n: **P, S or NO** pump?
Other sensors: s/n: **P, S or NO** pump?

Secondary CTD
Make: model: serial number:
Primary temperature serial number:
Primary conductivity serial number:
Secondary temperature serial number:
Secondary conductivity serial number:
Transmissometer: Model: s/n:
Fluorometer: Model Cable gain: s/n: **P, S or NO** pump?
Oxygen sensor: Model: s/n: **P, S or NO** pump?
PAR sensor: Model: s/n:
Other sensors: s/n: **P, S or NO** pump?
Other sensors: s/n: **P, S or NO** pump?
Other sensors: s/n: **P, S or NO** pump?
Other sensors: s/n: **P, S or NO** pump?

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vikina Storm **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
27	DT04	1734	BE	Bongo		216	54 27.25	131 34.67	288	150					No preserved sample - pipped for Dan Bevans project
		1743	EN				54 27.32	131 34.84	287						
		1747	BE	CTD		217	54 27.344	131 34.863	284	230		1			SAL, NUTS, CHLOR @ 10m
		18:01	EN				54 27.481	131 35.01	284						
		18:05	BE	Trawl		218	54 27.54	131 35.51	285						SURFACE TOW
		18:38	END				54 27.55	131 39.57	286						
27	DT05	1908	BE	CTD		219	54 28.05	131 45.77	334	230		1			SAL, NUTS, CHL @ 10m
		1923	END				54 28.286	131 44.046	338						
		19:26	BE	Bongo		220	54 28.35	131 46.10	338	150					
		19:35	EN				54 28.54	131 46.21	341						
		19:42	BE	Trawl		221	54 28.05	131 47.17	348						TOW AT 15m
		20:12	EN				54 29.271	131 50.59	346						
27	DT06	20:48	BE	Bongo		222	54 28.455	131 56.57	286	150					No preserved sample - pipped for Dan Bevans project
		20:58	END				54 28.417	131 56.596	288						
		21:01	BE	CTD		223	54 28.42	131 56.62	286	230		1			SAL, NUTS, CHL @ 10m
		21:16	END				54 28 47	131 56 72	289						
		21:21	BE	Trawl		224	54 28 46	131 57.474	298						
		21:51	END				54 28.682	131 1.355	320						

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

Notes: _____

DT04 – RIPPLED SEAS, LOW GROUND SWELL, BRIGHT SKIES, CUMULUS CLOUDS.

DT06 – OCCASIONAL WHITECAPS, LOW SWELL, BRIGHT SKIES.

Note: For this cruise, bongo stations from regional sampling areas (ie non-transect) were shared between taxanomic analysis & a UVic grad student project (Dan Bysan). Stations where there is no preserved sample for taxanomic analysis have been noted.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vector Storm **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
27	DT07	2227	BE	CTD		225	54 29.13	132 08.1	294	230		1			SAL, NUT, CHL @ 10m
		2241	EN				54 29.19	132 08.08							
		2244	BE	Bongo		226	54 29.20	132 08.07	292	150					
		2253	EN				54 29.20	132 08.1	[illegible]						
		22:59	BE	Trawl		227	54 29.26	132 08.67	328						SURFACE TOW
		23:24	EN				54 29.78	132 12.23	348						
28	DT08	00 02	BE	Bongo		228	54 28.5	132 19.11	362	150					No preserved sample - prepped for Dan Bevan's project
		00 12	EN				54 28.3	132 19.2							
		00 16	BE	CTD		229	54 28.3	132 19.3	360	230		1			SAL, NUTS, CHL @ 10m.
		00 30	EN				54 28.2	132 19.7							
		00 38	BE	Tow		230	54 27.6	132 19.8	356						SURFACE TOW
		01 08	EN				54 24.65	132 20.275	306						
28	DE02	13:21	BE	CTD		231	54 8.55	131 58.23	47	40		1		✓	SAL, NUTS, CHL @ 10m.
		13:23	EN				54 8.86	131 58.25							
		13:27	BE	Bongo		232	54 8.56	131 58.26	47	40					
		13:29	EN				54 8.6	131 58.27							
		13:38	BE	Trawl		233	54 8.76	131 57.37	54						SURFACE TOW
		14:08	EN				54 9.45	131 54.05							

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

Notes:

DE02 - M.S. COMMUNICATION SHOULD HAVE STARTED AT DE01 AT Rock Spit
NEXT STATION ORDER — DE02, DE01, DE03.

DE02 - OVERCAST, 1M CHOP, SCATTERED WHITE CAPS SE-15-25.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE **Year** 2010 **Ship** CCGS VICTOR STEDMAN **Cruise ID** 2010 - 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
26	DE01	15:15	BE	BONGO		234	54 14.385	131 42.104	118	110					
		15:22	EN				54 14.385	131 42.046	120						
		15:27	BE	CTD		235	54 14.34	131 42.006	120	110		1			SAL, NUTS, CHL @ 10m
		15:33	EN				54 14.343	131 41.94	120						
		15:39	BE	TRAWL		236	54 14.07	131 42.43	118						SURFACE TOW
		16:09	EN				54 12.55	131 45.63	107						
28	DE03	18:05	BE	CTD		237	54 9.55	132 4.98	39	30		1			SAL, NUTS, CHL @ 10m
		18:08	EN				54 9.56	132 4.95	39						
		18:11	BE	BONGO		238	54 9.58	132 4.90	39	30					
		18:13	EN				54 9.55	132 4.86	39						
		18:19	BE	TRAWL		239	54 9.47	132 5.38	40						
		18:49	EN				54 9.05	132 8.45	43						SURFACE TOW
26	DE04	20:14	BE	BONGO		240	54 7.74	132 27.94	52	40					
		20:20	EN				54 7.714	132 27.93	52						
		20:24	BE	CTD		241	54 7.69	132 27.926	52	40		1			SAL, NUTS, CHL @ 10m
		20:29	EN				54 7.66	132 28.045	52						
		20:40	BE	TRAWL		242	54 8.062	132 29.115	56						SURFACE TOW
		21:10	EN				54 9.037	132 32.98	74						

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

Notes: _____

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

This page is for any notes or observations

DEOY — GROUNDSWELL, ½ METER SWELL, RIPPLED SEAS, OCCASIONAL WHITECAPS, OVERCAST

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vincent Strom **Cruise ID** 2010 - 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
28	DE05	2206	BE	CTD		243	54 10.71	132 45.62	63	55		1			SAL, CHL, NUTS @10m
		2210	EN				54 10.72	132 45.73							
		2212	BE	Bongo		244	54 10.73	132 45.81	64	55					
		2216	EN				54 10.74	132 45.9							
		2232	BE	Trawl		245	54 10.84	132 46.76							SURFACE TOW
		2251	EN				54 11 31	132 50.52	100						
28	DE06	2331	BE	Bongo		246	54 14.5	132 55.3	147	140					
		2340	EN				54 14.35	132 55.34	153						
		2344	BE	CTD		247	54 14.263	132 55.38	137	125		1			SAL, CHL, NUTS @10m
		2351	EN				54 14.165	132 55.47							
		2359	BE	Trawl		248	54 14.42	132 55.53	142						SURFACE TOW
29		0029	EN				54 15.814	132 54.826	400						
29	QCI01	13:02	BE	CTD		249	53 54.954	133 22.10	69	60		1		✓	SAL, CHL, NUTS @ 10m
		13:04	EN				53 54.945	133 22.125	68	60					
		13:08	BE	Bongo		250	53 54.95	133 22.149	68						
		13:12	EN				53 54.95	133 22.210	73						
		13:21	BE	Trawl		251	53 54.402	133 21.977	70						SURFACE TOW
		13 51	EN				53 52.33	133 20.197	71						

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

Notes: _____

This page is for any notes or ***observations***

DE06 - 1.5 KT TIDE ; LEARMONTH BK

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CFV Viking Storm **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
29	QCI07	14:58	BE	BONGO		252	53 43.417	133 15.157	221	150					No preserved sample - prepped for Dan Bevan project
		15:06	EN				53 43.375	133 15.271	?						
		16:11	BE	CTD		253	53 43.373	133 15.307	222	210		1			SAL, NUTS, CHL @ 10m
		15:24	BO				53 43.375	133 15.388	223						
		15:31	BE	TRAWL		254	53 43.077	133 15.035	222						SURFACE TOW
		16:01	EN				53 40.899	133 12.91	215						
29	QCI03	17:18	BE	CTD		255	53 32.20	133 03.269	174	165		1			SAL, NUTS, CHL @ 10m
		17:28	EN				53 32.16	133 03.25	176						
		17:29	BE	BONGO		256	53 32.15	133 03.245	176	150					
		17:40	EN				53 32.124	133 03.23	180						
		17:46	BE	TRAWL		257	53 31.71	133 03.17	193						SURFACE TOW
		18:10	EN				53 29.03	133 00.51	216						
29	QCI04	19:10	BE	BONGO		258	53 25.236	132 51.56	144	135					No preserved sample - prepped for Dan Bevan's project
		19:19	EN				53 25.25	132 51.53	148						
		19:23	BE	CTD		259	53 25.25	132 51.51	148	140		1			SAL, NUTS, CHL @ 10m
		19:31	EN				53 25.273	132 51.477	150						
		19:36	BE	TRAWL		260	53 24.914	132 51.397	168						SURFACE TOW
		20:06	EN				53 22.785	132 50.31	138						

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

Notes:

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

This page is for any notes or observations

QCI02 – low ground swell, rippled seas, partly sunny, southerly 5 kt winds.

QCI01 – Frederick Is.
QCI02 Tian
QCI03 – Hippa Is.
QCI04 – Renner Sd.
QCI05 – Marble Is.
QCI06 –

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vickers Storm **Cruise ID** 2010 - 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
29	QCI05	21:37	BE	CTD		261	53 13.52	132 44.224	197	190		1			SAL, NUTS, CHL @ 10m
		21:49	EN				53 13.695	132 44.285	187						
		21:52	BE	Bongo		262	53 13.724	132 44.293	187	150					
		22:02	EN				53 13.787	132 44.177	171						
		22:10	BE	Trawl		263	53 13.426	132 43.61	177						SURFACE TOW
		22:40	EN				53 11.704	132 41.62	153						
29	QCI06	23:58	BE	Bongo		264	53 03.095	132 33.124	167	150					No preserved sample prepped for Dan Bevan's project
30		00:02	EN				53 03.037	132 33.121							
		00:06	BE	CTD		265	53 03.02	132 33.105	175	165		1			SAL, NUTS, CHL @ 10m
		00:16	EN				53 03.01	132 32.996	171						
		00:22	BE	Trawl		266	53 02.53	132 32.91	190						SURFACE TOW
		00:52	EN				53 00.47	132 30.41	74						
30	QCI07	13:03	BE	CTD		267	52 43.095	132 07.72	158	150		1		V	SAL, NUTS, CHL @ 10m
		13:12	EN				52 43.034	132 07.82	158						
		13:13	BE	Bongo		268	52 43.023	132 07.832	158	150					
		13:24	EN				52 42.952	132 07.957	163						
		13:31	BE	Trawl		269	52 42.673	132 07.459	162						SURFACE TOW
		14:01	EN				52 40.944	132 04.45	141						

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

Notes: _____

This page is for any notes or observations

QC105 – off Cartwright Sd., sunny, rippled seas, ground swell.

QC107 – Bright skies, low ground swell, rippled seas.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CFV Viking Storm **Cruise ID** 2010 - 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
30	QCI08	15:03	BE	Bongo		270	52 34	131 54	184	150					No preserved sample - prepped for Dan Bevans project.
		15:15	BO				52 34.38	131 55.001							
		15:19	BE	CTD		271	52 33.377	131 55.013	195	185		1			SAL, NUTS, CHL 6 10m
		15:30	BO				52 34.354	131 55.02							
		15:37	BE	Trawl		272	52 34.011	131 54.513							
		16:07	EO				52 32.28	131 51.585	178						SURFACE TOW
30	QCI09	17:03	BE	CTD		273	52 26.63	131 42.57	213	200		1			SAL, NUTS, CHL 6 10m
		17:15	BO				52 26.57	131 42.38	208						
		17:17	BE	Bongo		274	52 26.56	131 42.34	206	150					
		17:28	BO				52 26.52	131 42.21							
		17:34	BE	Trawl		275	52 26.11	131 41.71	191						SURFACE TOW
		18:04	EO				52 23.87	131 39.29	198						
30	QCI10	19:14	BE	Bongo		276	52 15.923	131 30.714	164	150					
		19:24	BO				52 15.87	131 30.698	170						
		19:28	BE	CTD		277	52 15.86	131 30.69	170	160		1			SAL, NUTS, CHL 6 10m
		19:37	BO				52 15.85	131 30.60	170						
		19:44	BE	Trawl		278	52 15.47	131 30.18	168						
		20:14	EO				52 13.44	131 27.34	120						

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

Notes: _____

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

OCT 09 – 2 HUMPBACK WHALES.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month June **Year** 2010 **Ship** CCGS Vikings Storm **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
30	QCI 11	21:35	BE	CTD		279	52 4.476	131 17.24	186	175		1			SAL, NUTS, CHL @ 10m
		21:46	EN				52 5.079	131 17.248							
		21:48	BE	BONGO		280	52 5.09	131 17.24	172	150					
		21:56	EN				52 5.204	131 17.11	161						
		22 05	BE	TRAWL		281	52 4.98	131 16.71	158						SURFACE TOW
		22 35	EN				52 7.17	131 14.95	163						
30	QCI 12	23 41	BE	BONGO		282	51 56.143	131 6.126	215	150					
		23 51	EN				51 56.012	131 5.99	215						
		23 54	BE	CTD		283	51 55.97	131 5.924	215	205		1			SAL, NUTS, CHL @ BOT
1		00 07	EN				51 55.82	131 5.633							
		00:14	BE	TRAWL		284	51 55.45	131 4.96	215						SURFACE TOW
		00:44	EN				51 52.8	131 1.896	206						
1	Q10	13:00	BE	CTD		285	51 41.5	130 06.00	330	230		1		✓	SAL, NUTS, CHL @ 10m
		13:16	EN				51 41.52	130 06.196							
		13:17	BE	BONGO		286	51 41.525	130 06.231	330	150					
		13:28	EN				51 41 538	130 06.408	330						
		13:35	BE	TRAWL		287	51 41 394	130 05.898	337						SURFACE TOW
		14:04	EN				51 40 43	130 2.73	353						

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

Notes:

This page is for any notes or observations

QCI 16 – 1.8 Kts NORTH FLOWING TIDE

QCI 12 – CAPE St. JAMES

Q10 -> Q01 CAPE St. JAMES TO EGG ISLAND TRANSECT, ACROSS QUEEN CHARLOTTE SOUND

Q10 -> LOW GROUND SWELL, RIPPED SEAS, 40 WIND, BRIGHT SKIES, LOW CLOUD COVER

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month July **Year** 2010 **Ship** CCG. Vancouver Station **Cruise ID** 2010 - 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
1	Q09	15:03	BE	Bongo		288	51 37.19	129 51.696	213	150					No preserved sample - prepped for Dan Bryan's project.
		15:14	EN				51 37.043	129 51.894	213						
		15:17	BE	CTD		289	51 37.002	129 51.954	213	205		1			SAL, NUTS, CHL @ 0m
		15:31	EN				51 36.868	129 52.261	213						
		15:36	BE	Trawl		290	51 36.67	129 51.691	213						SURFACE TOW
		16:06	EN				51 35.77	129 48.655	194						
1	Q08	17:09	BE	CTD		291	51 32.96	129 37.13	133	125		1			SAL, NUTS, CHL @ 0m
		17:17	EN				51 32.94	129 37.136	133						
		17:19	BE	Bongo		292	51 32.94	129 37.15	133	105					
		17:27	EN				51 32.92	129 37.20	133						
		17:35	BE	Trawl		293	51 32.69	129 36.395	126						TOW # 1 5m
		18:05	EN				51 31.912	129 33.28	106						
1	Q07	19:06	BE	Bongo		294	51 28.47	129 23.211	80	70					Too much phyto for Bryan project, preserved sample kept instead.
		19:14	EN				51 28.472	129 23.195							
		19:15	BE	CTD		295	51 28.467	129 23.21	80	70		1			SAL, NUTS, CHL @ 10m
		19:19	EN				51 28.46	129 23.234							
		19:30	BE	Trawl		296	51 28.17	129 22.37	80						SURFACE TOW.
		20:00	EN				51 28.88	129 19.22							

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

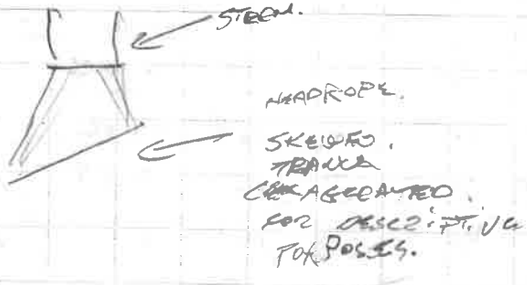
Time Code:
BE = Beginning Time of Cast
BO = Bottom Time of Cast
EN = End Time of Cast
DE = Deployment Time
MR = Messenger Release Time
RE = Recover Mooring Time

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

Notes: _____

This page is for any notes or observations

Q08 – SENSOR INDICATES -0.3 KTS ± FLOW RATE, SENSOR IS LOCATED 5m IN FRONT OF CODEND LINER.
– NET IS SKEWED (+0.8)



Q07 – SENSOR PLACED ON FOOTROPE – 2.8 KTS. FLOW RATE
SENSOR PROPERLY FACING DOWN AT AND ANGLE
– NOT SHOWING TRUE SPEED

CHRIS ROBERTS RECOMMENDS 3/4" COD END AND 1/2 THE LENGTH OF EXISTING COD-END.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month July **Year** 2010 **Ship** CCGS Viking Storm **Cruise ID** 2010-A

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							
1	Q06	20:55	BE	CTD		297	51 24.11	129 8.97	150	140		1			SAL, NUT, CHL @ 10m
		21:05	BO				51 24.07	129 8.86	154						
		21:06	BE	Bongo		298	51 24.07	129 8.83	145	135					
		21:16	EN				51 24.02	129 8.75	158						
		21:22	BE	Tow		299	51 23.806	129 8.21	172						SURFACE TOW
		21:52	EN				51 22.84	129 4.814	213						
1	Q05	22:45	BE	Bongo		300	51 20.20	128 55.14	242	150					No preserved sample - prepped for Dan Bevan's project.
		22:55	EN				51 20.08	128 55.07	241						
		22:56	BE	CTD		301	51 20.05	128 55.05	241	230					SAL, NUT, CHL @ 10m
		23:12	BO				51 19.90	128 54.94	241						
		23:18	BE	Tow		302	51 19.688	128 54.407	241						
		23:48	EN				51 18.64	128 51.28	229						
2	Q04	0024	BE	Tow		305	51 17.38	128 45.60	196						(*)
		0051	EN				51 16.44	128 42.601	192						
		0105	BE	CTD		303	51 16.24	128 42.18	192	180					
		0116	EN				16.08	42.27	192						
		0118	BE	Bongo		304	51 16.05	128 42.29	192	150					
		0124	EN				15.95	42.52	193						

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
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RE = Recover Mooring Time

Notes: _____

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

Q6 - 2

Q5 - 4

Q4 - 6

⊛ Q04: Ops at this station were conducted out of usual order, but consecutive numbers were not changed. (ie. tow first, then CTD & bongo, but cons numbers were kept as if the ops had been done CTD, bongo, tow).

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month July **Year** 2010 **Ship** CFV Viking Storm **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
2	QO2	13:00	BE	CTD		306	51 01.517	127 56.86	140	130		1		✓	SAL, NUTS, CHL @ 10m
		13:07	EN				51 01.457	127 56.756							
		13:09	BE	Bongo		307	51 01.446	127 56.738	140	130					
		13:18	EN				51 01.421	127 56.634							
		13:24	BE	Trawl		308	51 01.24	127 55.979	135						SURFACE TOW
		13:54	EN				51 00.201	127 53.008	139						
2	QO1	14:36	BE	Bongo		309	50 57.944	127 45 877	175	150					Too much phyto — NO Bevan sample.
		14:46	EN				50 57.58	127 45.872							
		14:49	BE	CTD		310	50 57.576	127 45.796	200	190		1			SAL, NUTS, CHL @ 10m
		15:01	EN				50 57.546	127 45.758	225						
		15:07	BE	Trawl		311	50 57.28	127 45.237	360						
		15:37	EN				50 55.74	127 42.63	343						
2	QCST01	16:42	BE	CTD		312	50 51.50	127 32.063	125	115		1			SAL, NUTS, CHL @ 10m
		16:49	EN				50 51 31	127 32.15	129						
		16:52	BE	Bongo		313	50 51 31	127 32.21	118	100					
		16:58	EN				50 51 36	127 32.3	113						
		17:04	BE	Trawl		314	50 51.266	127 31.75	191						SURFACE TOW
		17:34	EN				50 50.52	127 29.19	192						

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Notes: _____

This page is for any notes or observations

QO2 - TOP NORTH END OF GORDON CK ON APPROACH TO QCST

QCST01 — GORDON CK.

QCST01 — BRIGHT, SUNNY, SCATTERED CUMULUS CLOUDS, BLUE SKY, LOW ½ M. GROUND SWELL, RIPPLED SEAS, WINDS NW - 10-20

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE **Year** 2010 **Ship** CCG Vikings Storm **Cruise ID** 2010 - 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
2	QCSTO2	1815	BE	BONGO		315	50 53.03	127 22.2	147	140					
		1824	EN				50 53.09	127 22.19							
		1828	BE	CTD		316	5053.08	127 22.15	149	140		/			SAL, NUTS, CHL @ 10m
		1836	EN				50 53.07	127 22.08							
		1843	BE	TRAWL		317	5052.8	12721.63	137						SURFACE TOW
		1913	EN				50 50.966	127 19.68	132						
2	QCSTO3	1948	BE	CTD		318	50 47.86	127 22.67	217	205		/			SAL, NUTS, CHL @ 10m
		2001	EN				50 47.835	127 22.524							
		2002	BE	Bongo		319	50 47.832	127 22.500	206	150					
		2013	EN				50 47.784	127 22.415							
		2019	BE	TOW		320	50 47 425	127 22.082	238						SURFACE TOW
		20:29	EN				50 45.63	127 20.03	276						
2	QCSTO4	21:26	DE	BONGO		321	50 42.20	127 17.081	110	100					
		21:29	EN				50 42.19	127 17.075							
		21:32	BE	CTD		322	5042 17	127 17.06	110	100		/			SAL, NUTS, CHL @ 10m
		21:39	EN				50 42 136	127 17.025							
		21:44	BE	TRAWL		323	50 42 26	127 16.46							SURFACE TOW
		22:14	EN				5043 137	127 13.33	169						

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Notes: _____

This page is for any notes or observations

QC5T02 - NW end Mercer Is., Queen Charlotte Strait

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month July **Year** 2010 **Ship** CCGS Vikine Storm **Cruise ID**

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information: Latitude	Positional Information: Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
2	QCS705	2245	BE	CTD		324	50 44.8	127 09.04	172	160		1			SAL, NUTS, CHL @ 10m
		2252	EN				50 44.6	127 08.9							
		2254	BE	Bongo		325	50 44.6	127 08.8	172	150					
		2305	EN				50 44.54	127 8.57	174						
		2310	BE	Tow		326	50 44.45	127 7.91	184						Surface Tow
		2340	EN				50 44.22	127 4.16	141						
3	QCS06	0016	BE	Bongo		327	50 44.22	126 57.12	112	90					
		0022	EN				44.15	57.00							
		0025	BE	CTD		328	50 44.07	126 56.9	114	105		1			SAL, NUTS, CHL @ 10m
		0032	EN				4400	56.83							
		0038	BE	Tow		329	50 43.63	126 56.32	149						
		0048	EN				50 45.06	126 55.59							
03	GS04	1629	BE	CTD		330	49 58.67	125 07.22	68	55		1		✓	SAL, CHL, NUTS @ 10m
		1632	EN				58.65	07.32							
		1634	BE	Bongo		331	49 58.65	125 07.36	69	60					No preserved sample - Dan Bevan project
		1638	EN				58.63	07.43							
		1645	BE	Tow		332	49 58.80	125 06.70	51	Surf.					⊛
		1715	EN				59.46	03.31	287						

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Time Code:
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Notes:

This page is for any notes or observations

– ABORTED TOW, PORPOISES

(*) GS04: Start of joint survey with Beamish/Neville. All trawl info/protocol is Beamish, all CTD/bongo info/protocol is Trudel. GS04 = Beamish Stn 1

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JULY | **Year** 2010 | **Ship** CFV Viking Storm | **Cruise ID** 2010 17

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	GS05	1730		Bong.		333	50 00.18	125 02.66	163	150					
		1740					00.17	02.51							
		1743		CTD		334	50 00.15	125 02.47	128	115		1			SAL, CHL, NUTS @ 10m
		1750					00.11	02.41							
		1807		Tow		335	49 59.63	125 01.43	112	15m.					
		1837					59.03	124 58.71							
03	GS06	1852		CTD		336	49 57.51	124 57.99	147	135		1			SAL, CHL, NUTS @ 10m
		1900					57.42	57.97							
		1903		Bongo		337	4957.40	24 57.94	149	140					No preserved sample — Dan Bevan project
		1908													
		1948		Tow		338	4957.03	124 57.22	153	Surf.					
		1948					57.03	55.56	120						
03	GS07	2012		Bongo		339	49 53.84	124 56.47	145	135					
		2021					53.86	56.36							
		2024		CTD		340	49 53.86	124 56.32	152	140		1			SAL, CHL, NUTS @ 10m
		2033					53.83	56.25							
		2042		Tow		341	49 53.42	124 57.01	128	30m					
		2112					51.66	59.26	226						

Cast Type:
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Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JULY | **Year** 2010 | **Ship** CFV Viking Storm | **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
03	GS08	21:39	BE	CTD		342	49 49.65	124 59.54	109	100		1			SAL, CHL, NUTS @ 10m
		21:45	EN				49.63	59.55							
		21:47	BE	Bongo		343	49 49.62	124 59.56	109	100					No preserved sample - Dan Bevan project
		21:53	EN				49.61	59.56							
		22:01	BE	Trawl		344	49 49.5	124 59.4	100	Surf.					
		22:31	EN				47.09	56.8							
03	GS09	22:56	BE	Bongo		345	49 47.65	124 53.73	124	115					
		23:06	EN				47.57	53.75							
		23:07	BE	CTD		346	49 47.56	124 53.75	120	110		1			SAL, CHL, NUTS @ 10m
		23:13	EN				47.50	53.76							
		23:20	BE	Trawl		347	49 47.69	124 53.25	152	Surf.					
		23:50	EN				49.24	50.41							
04	GS10	00:15	BE	CTD		348	49 50.26	124 47.55	167	155		1			SAL, CHL, NUTS @ 10m
		00:24	EN				50.27	47.49							
		00:26	BE	Bongo		349	49 50.27	124 47.47	169	150					No preserved sample - Dan Bevan project
		00:36	EN				50.27	47.43							
		00:41	BE	Trawl		350	49 50.07	124 46.94	172	Surf					
		01:11	EN				48.72	43.75							

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Notes:

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JULY | **Year** 2010 | **Ship** CFV Viking Storm | **Cruise ID** 2010-17

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							
04	GS11	13 05	BE	CTD		351	49 51.13	124 34.91	153	145		1		✓	SAL, CHL, NUTS @ 10m
		13 13	EN				51.06	34.84							
		13 15	BE	Bongo		352	49 51.04	124 34.83	163	150					
		1325	EN				51.00	34.77							
		1331	BE	Trawl		353	49 50.45	124 34.66	205	Surf.					
		1401	EN				48.15	33.62							
04	GS12	1419	BE	Bongo		354	49 47.15	124 34.00	306	150					Dan Bevan sample - no preserved sample
		1429	EN				47.18	34.00							
		1432	BE	CTD		355	49 47.18	124 34.00	306	280		1			SAL, CHL, NUTS @ 10m
		1447	EN				47.17	34.02							
		14:53	BE	Trawl		356	49 47.03	124 33.4	306	Surf.					
		15:23	EN				46.41	29.9							
04	GS13	15.46	BE	CTD		357	49 45.92	124 27.3	254	230		1			SAL, CHL, NUTS @ 10m
		16:01	EN				4606	27.56							
		16:03	BE	Bongo		358	49 46.08	124 27.6	256	150					
		16:13	EN				44.1	27.7							
		16:23	BE	Trawl		359	49 45.9	124 27.0	249	15m					
		16:53	EN				44.6	23.5							

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JULY **Year** 2010 **Ship** CFV Viking Storm **Cruise ID** 2010-17

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							
04	GS14	1718	BE	Bongo		360	49 44.35	124 20.63	231	150					Dan Bevan sample - no preserved sample
		1727	EN				44.47	20.71							
		1731	BE	CTD		361	49 44.51	124 20.75	200	190		1			SAL, CHL, NUTS @ 10m
		1742	EN				44.6	20.77							
		1749	BE	Trawl		362	49 44.5	124 20.4	162	Surf.					
		1819	EN				43.7	17.0							
04	GS15	1856	BE	CTD		363	49 41.0	124 15.9	218	200		1			SAL, CHL, NUTS @ 10m
		1908	EN				40.95	15.8							
		1910	BE	Bongo		364	49 41.0	124 15.8	238	150					
		1919	EN				40.9	15.7							
		1930	BE	Trawl		365	49 40.3	124 15 2	350	45m					
		2000	EN				38.3	13.7							
04	GS16	2024	BE	Bongo		366	49 36.9	124 12.8	341	150					Dan Bevan sample - no preserved sample
		2034	EN				37.0	12.9							
		2036	BE	CTD		367	49 37.0	124 12.9	353	230		1			SAL, CHL, NUTS @ 10m
		2053	EN				37.2	13.2							
		2057	BE	Trawl		368	49 37.2	124 12.7	353	Surf.					
		2127	EN				37.2	09.1							

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JULY | **Year** 2010 | **Ship** CFV Viking Storm | **Cruise ID** 2010-17

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							
04	GS17	21:57	BE	CTD		369	49 35.8	124 05.4	277	230		1			SAL, CHL, NUTS @10m
		22:12	EN				35.8	05.4	274						
		22:15	BE	Bongo		370	4935.9	124 05.4	270	150					
		22:24	EN				35.9	05.4	267						
		22:32	BE	Trawl		371	4935.4	124 05.3	260	30m					
		23:02	EN				33.0	04.0	186						
04	GS18	23:37	BE	Bongo		372	49 30.2	124 05.9	151	140					Dan Bevan sample - no preserved sample
		23:46	EN				30.4	04.0							
		23:49	BE	CTD		373	49 30.4	124 04.0	151	140		1			SAL, CHL, NUTS @10m
		23:57	EN				30.5	03.98							
05		00:04	BE	Trawl		374	49 30.3	124 04.4	148	Surf.					
		00:34	EN				28.7	06.8							
05	GS19	12:58	BE	CTD		375	49 46.1	124 42.6	220	210		1		✓	SAL, CHL, NUTS @10m
		13:11	EN				45.8	42.6							
		13:15	BE	Bongo		376	49 45.8	124 42.7	266	150					
		13:24	EN				45.6	42.8							
		13:31	BE	Trawl		377	49 45.3	124 43.3	356	Surf.					
		14:01	EN				43.8	46.1							

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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JULY | **Year** 2010 | **Ship** CFV Viking Storm | **Cruise ID** 2010 17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
	GS20	1423	BE	Bongo		378	49 42.2	124 48.5	90	80					Dan Bevan sample – no preserved sample
		1427	EN				42.2	48.5							
		1430	BE	CTD		379	49 42.1	124 48.5	90	80		1			SAL, CHL, NUTS @10m
		1435	EN				42.1	48.5							
		1441	BE	Trawl		380	49 41.7	124 48.2	88	Surf.					
		15:11	EN				39.2	46.3							
	GS21	15:59	BE	CTD		381	49 36.9	124 42.1	129	120		1			SAL, CHL, NUTS @10m
		16:06	EN				36.8	42.0							
		16:08	BE	Bongo		382	49 36.8	124 42.0	129	120					
		16:16	EN				36.8	42.0							
		16:30	BE	Trawl		383	49 37.3	124 41.4	147	30m					
		16:45	EN				38.4	40.4							
	GS22	17:17	BE	Bongo		384	49 40.4	124 39.5	142	130					No preserved sample – Dan Bevan project
		17:25	EN				40.4	39.6							
		17:31	BE	CTD		385	49 40.4	124 39.6	126	115		1			SAL, CHL, NUTS @10m
		17:38	EN				40.3	39.7							
		17:43	BE	Trawl		386	49 40.7	124 39.5	156	Surf.					
		18:13	EN				42.5	38.9							

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

Notes:

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JULY | **Year** 2010 | **Ship** CFV Viking Storm | **Cruise ID** 2010-17

Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
	GS23	18:39	BE	CTD		387	49 41.6	124 34.9	200	190		1			SAL, CHL, NUTS @ 10m
		18:51	EN				41.6	34.9							
		18:53	BE	Bongo		388	49 41.6	124 34.9	200	150					
		19:03	EN				41.6	34.8							
		19:11	BE	Trawl		389	49 41.2	124 34.2	180	15m.					
		19:41	EN				39.5	31.6							
	GS24	20:12	BE	Bongo		390	49 37.0	124 27.8	339	150					No preserved sample - Dan Bevan project
		20:22	EN				37.0	27.7							
		20:24	BE	CTD		391	49 37.0	124 27.7	342	230		1			SAL, CHL, NUTS @ 10m
		20:39	EN				36.9	27.6							
		20:45	BE	Trawl		392	49 36.7	124 27.2	340	Surf.					
		21:15	EN				34.8	24.6							
Beamish set #2		22:42	BE	Trawl		393	49 32.7	124 25.0	130	45m.					No CTD / bongo w/ this trawl.
		22:12	EN				31.0	27.5							
	GS25	22:43	BE	CTD		394	49 29.8	124 31.0	270	230		1			SAL, CHL, NUTS @ 10m
		22:58	EN				29.7	30.8							
		23:00	BE	Bongo		395	49 29.6	124 30.8	283	150					
		23:10	EN				29.5	30.7							
		23:16	BE	Trawl		396	49 29.2	124 31.3	283	15m					
		23:46	EN				27.7	34.1							

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DRF = Drifter
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Bottle Firing Method:
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Time Code:
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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JULY **Year** 2010 **Ship** CFV Viking Storm **Cruise ID** 2010 17

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							
06	GS26	0053	BE	Bongo		397	49 25.5	124 32.5	151	140					⊛ No preserved sample Dan Bevan project
		0103	EN				25.5	32.6							
		0105	BE	CTD		398	49 25.5	124 32.6	148	140		1			SAL, CHL, NUTS @ 10m
		0115	EN				25.5	32.6							
		00:12	BE	Trawl		399	49 26.8	124 35.8	142	Surf.					
		00:42	EN				25.7	32.9							
06	GS27	1353	BE	CTD		400	49 23.0	124 23.8	136	125		1		✓	⊛ SAL, CHL, NUTS @ 10m
		1400	EN				22.9	23.7							
		1404	BE	Bongo		401	49 22.9	124 23.7	125	115					
		1411	EN				22.9	23.6							
		1507	BE	Trawl		402	49 24.2	124 28.3	191	Surf.					
		1337	EN				23.2	23.5							
06	Beams #2	14:21	BE	Trawl		403	49 23.26	124 22.5	158	15m					
		14:51	EN				24.1	18.6							
06	GS28	1559	BE	Bongo		404	49 21.3	124 13.3	296	150					⊛ No preserved sample Dan Bevan project
		1609	EN				21.4	13.0							
		1613	BE	CTD		405	49 21.4	124 12.9	303	~~330~~		1			SAL, CHL, NUTS @ 10m
		1627	EN				21.5	12.6							
		15:16	~~BE~~ EN	Trawl		406	49 23.6	124 15.9	338	Surf.					
		15:46					21.6	14.2							

Cast Type:
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DRF = Drifter
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Bottle Firing Method:
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UN = Up / No stop
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Time Code:
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Transmissometer to be cleaned before each cast, do not use Ammonia products

Notes: _____

⊛ GS26: Trawl ops conducted first, then bongo & CTD. Consecutive numbers not changed.

⊛ GS27: Trawl ops conducted first, then CTD & bongo. Consecutive numbers not changed.

⊛ GS28: Trawl ops conducted first, then bongo & CTD. Consecutive numbers not changed.

10 minutes / bongo deepest
15 minutes / CTD deepest.

DAILY SCIENCE LOG

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Day	Station Name	Time (UTC)	Time Code	Cast Type	Firing Method	Event Number	Positional Information Latitude	Longitude	Bottom Depth	Max Depth	Sample Numbers	# of Bottles	Watch Keepers	Trans. Cleaned	Comments
06	GS29	17 29	BE	CTD		407	49 23.1	124 06.8	255	230					SAL, CHL, NUTS @10m
		17:43	EN				23.1	06.7							
		17:45	BE	Bongo		408	49 23.1	124 06.6	259	150					
		17:55	EN				23.1	06.5							
		16:35	BE	Trawl		409	49 21.7	124 11.3	264	Surf.					
		17:05	EN				22.3	07.0							
06	GS30	18 29	BE	Bongo		410	49 26.4	124 03.1	396	150					⊛ No preserved samples Dan Bevan project
		18 39	EN				26.3	03.1							
		18 4	BE	CTD		411	49 26.2	124 03.1	396	230					SAL, CHL, NUTS @10m
		18 56	EN				26.1	03.0							
		19 04	BE	Trawl		412	49 26.5	124 03.2	394	Surf.					
		1934	EN				28.7	02.2							
06	GS31	2031	BE	CTD		413	49 22.4	123 57.8	407	230					SAL, CHL, NUTS @10m
		2046	EN				22.4	57.7							
		2049	BE	Bongo		414	49 22.4	123 57.6	406	150					
		2059	EN				22.4	57.6							

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DRF = Drifter
____ = _____

Bottle Firing Method:
US = Up / Stop
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DN = Down / No stop

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

Notes: _____

⊛ GS23: Trawl ops conducted first, then CTD & bongo. Consecutive numbers not changed.

⊛ GS30: Trawl ops conducted first, then bongo & CTD. Consecutive numbers not changed.

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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							
06	GS32	2133	BE	Bongo		415	49 22.8	123 50.5	244	150					No preserved sample - Dan Bevan project
		2143	EN				22.7	50.5							
		2145	BE	CTD		416	49 22.7	123 50.5	247	230		1			SAL, CHL, NUTS @ 10m
		2200	EN				22.6	50.5							
06	GS33	2234	BE	CTD		417	49 19.0	123 54.1	387	230		1			SAL, CHL, NUTS @ 10m
		2249	EN				18.8	54.0							
		2251	BE	Bongo		418	49 18.8	123 53.9	383	150					
		2301	EN				18.7	53.9							
		2307	BE	TOW		419	49 18.9	123 54.2	397	Surf.					
		2337	EN				20.2	56.5							
07	GS34	0015	BE	Bongo		420	49 16.4	123 57.6	332	150					No preserved sample - Dan Bevan project
		0025	EN				16.2	57.5							
		0027	BE	CTD		421	49 16.2	123 57.4	320	230		1			SAL, CHL, NUTS @ 10m
		0047	EN				16.0	57.2							

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Bottle Firing Method:
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Time Code:
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Notes: _____

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Ocean Sciences Division, Institute of Ocean Sciences

Month JULY | **Year** 2010 | **Ship** CFV Viking Storm | **Cruise ID** 2010-17

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							
07	GS35	13 04	BE	CTD		422	49 14.1	123 44.3	400	230		1		✓	SAL, CHL, NUTS @10m
		13 19	EN				14.1	44.1							
		13 21	BE	Bongo		423	49 14.1	123 44.6	397	150					
		13 31	EN				14.0	43.9							
07	GS36	14 30	BE	Bongo		424	49 17.2	123 31.6	242	150					No preserved sample- Dan Bevan project
		14 40	EN				17.1	31.7							
		14 43	BE	CTD		425	49 17.1	123 31.8	255	230		1			SAL, CHL, NUTS @10m
		14 58	EN				17.0	31.7							
07	GS37	16:03	BE	CTD		426	49 07.0	123 27.9	318	230		1			SAL, CHL, NUTS @10m
		16:18	EN				06.8	28.0							
		16:22	BE	Bongo		427	49 06.8	123 28.0	320	150					
		16:32	EN				06.7	28.2							
07	GS 38	17 08	BE	Bongo		428	49 07.1	123 21.3	155	145					No preserved sample Dan Bevan project
		17 17	EN				07.1	21.3							
		17 20	BE	CTD		429	49 07.1	123 21.2	154	145		1			SAL, CHL, NUTS @10m
		17 29	EN				07.1	21.1							

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Month JULY **Year** 2010 **Ship** CFV Viking Storm **Cruise ID** 2010 17

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							
	GS39	1826	BE	CTD		430	4901.0	12316.4	140	130		1			SAL, CHL, NUTS @ 10m
		1833	EN				01.0	16.5							
		1835	BE	Bongo		431	4901.0	12316.5	139	130					
		1844	EN				01.0	16.6							
	GS40	1918	BE	Bongo		432	4900.6	12323.2	264	150					No preserved samples Dan Bevan project
		1928	EN				00.5	23.1							
		1930	BE	CTD		433	4900.5	12323.0	259	230		1			SAL, CHL, NUTS @ 10m
		1945	EN				00.4	22.8							
	GS41	2018	BE	CTD		434	4900.5	12329.4	189	160		1			SAL, CHL, NUTS @ 10m
		2028	EN				00.4	29.3							
		2030	BE	Bongo		435	4900.4	12329.3	186	150					
		2040	EN				00.4	29.3							
	GS42	2128	BE	Bongo		436	4906.6	12334.9	238	150					No preserved samples Dan Bevan project
		2138	EN				06.4	34.9							
		2139	BE	~~CTD~~ Niskin sample		437	4906.4	12334.9	235	10		1			⊛ SAL, CHL, NUTS @ 10m ↘ no CTD at this stn
	END		EN												

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