

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2013-17

DATE:

From:

7 JUNE

To:

25 JUNE 2013

VESSEL:

JOHN P TULLY

PROJECT(S):

LINE P

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

WaterProperties.ca

Captain: Victor Cronmyr First Officer: Jodi Heske

Second Officer: Ryan Gurr Third Officer: KEVEN NAPTALI

Fishing Master: _____ Chief Engineer: Ryan Braidwood

Mission Participants / Agencies:

DFO-Ios ; DFO-Bio ; UBC ; UW ; NOAA ; UoBC-Berkeley
 UNC: Chapel Hill ; Baltic Sea Research Centre

**** Chief Scientist to complete section below OR cut and tape from cruise plan ****

1st Leg Scientific Personnel:

Chief Scientist: MARIE ROBERT 7-19 A

Name	Watch	Cabin	Name	Watch	Cabin
NINA NEMCEK	HPLC	B	ADRIAN MARCHETTI	18-24	G
NATALIE COHEN	00-06	C	JENNIFER KEENE	12-18	H
AMELIA WEISS	12-18	C	NINA SCHAUBACK	06-12	H
OLIVER WUHL	06-12	D	DOUG YELLAND	12-24	4
ANDREAS MUELLER	00-06	D	HUGH MACLEAN	00-12	S
RICHARD NELSON	12-18	E			
TODD WOOD	18-24	E			
MICHAEL CRAIG	18-24	F			
SETH BUSINSKY	06-12	F			
GLENN COOPER	PH	G			

2nd Leg Scientific Personnel:

Chief Scientist:

[illegible]

**** The following 3 pages are VERY IMPORTANT as they document equipment and settings used on board ****

These pages are to be completed by the CTD Technician setting up the equipment, the Watch Leader on board, and the Chief Scientist MUST verify that all relevant sections are completed prior to leaving the vessel. Any mid-cruise changes to be noted by watch leader in the notes.

Data logging computer: #3

Data acquisition program: Seasave

CTD deck unit make: SBE model: 11+ serial number: 0471

Primary CTD

Make: SBE model: 9+ serial number: 443

Primary temperature serial number: 2023

Primary conductivity serial number: 2280

Secondary temperature serial number: 2668

Secondary conductivity serial number: 2754

Transmissometer: Wetlabs Model: C-Star s/n: 1396DR

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model Seapoint Cable gain: 3X s/n: 2228 (P) S or NO pump?

Fluorometer: Model _____ Cable gain: _____ s/n: _____ P, S or NO pump?

Oxygen sensor: SBE Model: 43 s/n: 0997 (P) (S) or NO pump?

PAR sensor: BIO SPHERICAL Model: 200 s/n: 4601 Surface PAR? Y (N)

Other sensors: Altimeter s/n: 1204 P, S or NO pump?

Other sensors: Jim Bishop's C-Star s/n: _____ P, S or NO pump?

Other sensors: Jim Bishop's C-Star 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: _____

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model _____ Cable gain: _____ s/n: _____ P, S or NO pump?

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: _____ Surface PAR? Y / 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): _____

This also includes the bottle location above the CTD on non-rosette casts (e.g., W.E. Ricker)

Rosette Setup:

Number of bottles: 24
Manufacturer: Seabird/Hannover
Volume of bottles (litres): 10L

Winches:

1. Make: Hawth Model: _____ Serial #: _____ Used for: _____
2. Make: _____ Model: _____ Serial #: _____ Used for: _____
3. Make: _____ Model: _____ Serial #: _____ Used for: _____

Comments on performance during cruise (comments should also be reflected in the post-cruise report):

Salinometer:

Make: _____ Model: _____ Serial Number: _____

Comments on performance during cruise (comments should also be reflected in the post-cruise report):

Oxygen Kit(s):

Make: _____ Model: _____ Kit Number: _____
Make: _____ Model: _____ Kit Number: _____

Comments on performance during cruise (comments should also be reflected in the post-cruise report):

Thermosalinograph System (SBE21):

Program: _____ Version: _____

Sampling interval (seconds): _____

Fluorometer sensor serial number: _____

Comments on performance during cruise (comments should also be reflected in the post-cruise report):

ADCP Setup:

Computer time zone: _____ User Exits: Name: _____ Exit points: _____
Sampling interval (sec): _____ Name: _____ Exit points: _____
Bin Length: (2^x): _____ Name: _____ Exit points: _____
Pulse Length: _____ Work File: _____
Buffer (bytes): _____
Gyro Offset: _____

Comments on performance during cruise (comments should also be reflected in the post-cruise report):

CTD Test Cast Information

Test Cast along side? Yes ☐ No ☒

Comments _____

Test Cast in Saanich Inlet or other location? Yes ☒ No ☐

Comments _____

CTD pressure reading on deck (db), before cast: _____ after cast: _____

Pumps working? Yes ☒ (0011) No ☐ (0010)

Secondary Temp – Primary Temp: 9.011-9.014
(Average from the mixed region)

Secondary Salinity – Primary Salinity: _____
(Average from the mixed region)

Additional Comments:

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Month <u>JUNE</u>			Year <u>2013</u>			Vessel <u>TULLY</u>			Cruise ID <u>2013-17</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
1	S103	7	03:36	BE	ROS	US	48° 35.67	123° 29.89	227		-		DY MC	☒	
			03:40	BO			48° 35.69	123° 29.89		216	1-7	7		☐	
			03:50	EN			48° 35.71	123° 29.90			-			☐	
	JF 01	8	09:21	BE	Loop		48° 15.99	123° 29.82	162		-		H.M.	☐	
	JF 02	8	11:41	BE	Loop		49° 18.03	123° 59.62	185		-		H.M.	☐	
	JF 03	8	13:50	BE	Loop		48° 26.90	124° 29.35	218		-		H.M.	☐	
	JF 04	8	15:54	BE	Loop		48° 32.43	124° 59.59	59		-		H.M.	☐	
2	P1	8	18:17	BE	ROS	US	48° 34.46	125° 30.21	172		8-10	3	H.M/SR/MS	☒	
			18:19	BO			48° 34.45	125° 30.27		129	-			☐	
			18:24	EN			48° 34.41	125° 30.35			-			☐	
3	P1	8	18:06		Loop	OS	48° 34.45	125° 30.07			-	-	DN	☐	Cs sample 60L
4	P2	8	20:54	BE	ROS		48° 36.04	125° 59.83	118		-		DY	☐	
			20:56	BO			48° 36.05	125° 59.84		105	-			☐	
			21:05	EN			48° 36.13	125° 59.89			-			☐	
5	P2	8	21:26	BE	NET		48° 36.07	126° 00.10	118		-		DY	☐	Bonyo
			21:27	BO			48° 36.07	126° 00.11		108	-			☐	
			21:30	EN			48° 36.10	126° 00.13			-			☐	
6	P2		:				°	°			-			☐	
			:				°	°			-			☐	

Event Type:

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ROS = CTD in Rosette
SET = Fish Set

LOOP = Sea Water Loop
MOR = Mooring
NET = Plankton Net Haul
DRF = Drifter
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Bottle Firing Method:

US = Up / Stop (default)
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							Latitude	Longitude							
6	P2	8	21:44	BO	ROS	US	48° 36.23	126° 00.23	1		19-40	22	MRD	☒ ☐	HPSC + UWC CAST
			21:48	BO			48° 36.24	126° 02.26		108	-			☐ ☐	
			22:01	EN			48° 36.30	126° 00.31			-			☐ ☐	
7	P3	8	23:51	BO	ROS	US	48° 37.42	126° 19.75	809		41-42	2		☒ ☐	Chl Max 25m 23.5
		9	00:06	BO			48° 37.32	126° 19.83		804	-			☐ ☐	
			00:21	EN			48° 37.27	126° 19.93			-			☐ ☐	
8	P4	9	02:28	BE	ROS	US	48° 38.90	126° 39.86			-			☒ ☐	
			02:53	BO			48° 38.96	126° 39.86			43-64	22		☐ ☐	
			03:34	EN			48° 38.90	126° 39.86			-			☐ ☐	
9	P4	9	04:25	BE	Net		48° 38.88	126° 39.86	1326		-			☐ ☐	MPS
			05:09	BO			48° 38.88	126° 39.85		1200	-			☐ ☐	
			:	EN			.	.			-			☐ ☐	
10	P4	9	05:55	BE	ROS	US	48° 38.88	126° 39.85	1326		-			☐ ☐	
			05:59	BO			48° 38.88	126° 39.85		150	65-74	10		☐ ☐	
			06:13	EN			48° 38.88	126° 39.86			-			☐ ☐	
11	P4	9	07:13	BE	ROS	US	48° 38.88	126° 39.86	1324		75-98	24		☒ ☒	CESIUM CAST
			07:23	BO			48° 38.88	126° 39.85		600	-			☐ ☐	
			07:39	EN			48° 38.88	126° 39.86			-			☐ ☐	
			:				.	.			-			☐ ☐	

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Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
12	P4	9	07:56	BG	NCT		49° 38. 88	126° 39. 85	1329		-	-	H.M.	☐ ☐	BONGO
			08:04	BO			48° 38. 88	126° 39. 85		250	-			☐ ☐	
			08:16	GM			48° 38. 88	126° 39. 86			-			☐ ☐	
13	P4	9	08:46	BG	ROS	US	48° 38. 89	126° 39. 89	1326		99 - 114	16	H.M./N.G.A.M.	☐ ☐	UBC / UNC CAST
			09:05	BO			48° 38. 91	126° 39. 89		1250	-			☐ ☐	
			09:28	GM			48° 38. 88	126° 39. 88			-			☐ ☐	
14	P4	9	14:08	BG	ROS	US	48° 38. 90	126° 39. 84			115 - 126	12	H.M./R.C.	☐ ☐	CS CAST #2
			14:10	BO			48° 38. 90	126° 39. 84		100	115 - 126			☐ ☐	PAR ADDED
			14:15	GM			48° 38. 89	126° 39. 82			-			☐ ☐	
15	P4	9	15:10	BG	BOAT		48° 38. 88	126° 39. 91			-		O.W.	☐ ☐	OLIVERS BOAT TRIA
			16:03	GM			48° 38. 64	126° 41. 60			-			☐ ☐	
16	P4	9	15:20	BG	ROS	US	48° 38. 86	126° 39. 91	1322		127 - 149	23	H.M./A.M./H.S.	☒ ☒	LIGHT CAST
			15:24	BO			48° 38. 85	126° 39. 91		150	-			☐ ☐	
			15:31	GM			48° 38. 83	126° 39. 91			-			☐ ☐	PAR OFF
17	P5	9	18:29	BG	ROS	U.S.	48° 41. 46	127° 10. 00	2093		150 - 151	2	H.M./O.W./S.B.	☐ ☐	TRIGGER MECH CHANGED
			18:59	BG			48° 41. 43	127° 10. 21		2005	-			☐ ☐	(MISFIRE #8/11/21)
			19:35	GM			48° 41. 50	127° 10. 41			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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Fluo
PAR CABLE CHANGED TO 10 x 15 FROM 3 x 0.50

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Month June				Year 2013			Vessel Tully			Cruise ID 2013-17					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
18	P6	9	22:11	BE	ROS	US	48° 44.65	127° 39.94	2547		-		dy	☒	
			22:48	BO			48° 44.59	127° 39.86		2005	152-165	14		☐	
			23:39	EN			48° 44.61	127° 39.84			-			☐	
19	P7	10	02:25	BE	ROS	US	48° 46.53	128° 9.93	2509		-		dy	☒	
			03:00	BO			48° 46.54	128° 9.88		2005	166-167	2		☐	
			03:33	EN			48° 46.52	128° 9.91			-			☐	
20	P7	10	02:23		LOOP		48° 47.01	128° 10.26			-			☐	601 loop C
21	~P8	10	06:01		DRF		48° 48.83	128° 38.47	2520		-			☐	Net Ocean ARGO
22	P8	10	06:56	BE	ROS	US	48° 48.90	128° 40.19	2522		-		H.m.	☒	
			07:32	BO			48° 48.91	128° 40.30		2005	168-191	24		☐	
			08:28	EN			48° 49.01	128° 40.37			-			☐	
23	P8	10	09:04	BE	NET		48° 49.09	128° 40.40	2521		-		H.M.	☐	BONGO
			09:13	BO			48° 49.11	128° 40.48		250	-			☐	
			09:25	EN			48° 49.13	128° 40.59			-			☐	
24		10	09:29	BE	NET		48° 49.13	128° 40.57	2519		-			☐	BONGO Loop
			10:05	BO			48° 49.15	128° 40.62		1200	-			☐	
			10:35	EN			48° 49.17	128° 41.08			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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							Latitude	Longitude							
25	P 9	10	13:40	BE	ROS	U.S.	48° 51.39	129° 10.11	2354		192-193	2	H.M.	☒	
			14:17	BO			48° 51.40	129° 10.10		2005	-			☐	
			14:53	EN			48° 51.40	129° 10.10			-			☐	
26	P 10	10	17:43	BE	ROS	U.S.	48° 53.48	129° 40.14	2645		194-207	14	H.M.	☒	CHL MAX = 30m
			18:15	BO			48° 53.47	129° 40.13		2005	-			☐	
			18:57	EN			48° 53.46	129° 40.13			-			☐	
27	P 10	10	17:41		LOOP		48° 53.35	129° 40.22			-			☐	60 L CS SAMPLE
28	P 10	10	17:30	BE	BOAT		48° 53.47	129° 40.13			-			☐	OLIVER'S BOAT TRIP
			19:03	EN			48° 53.40	129° 40.35			-			☐	
29	Loop 29	10	19:32	BO	Loop		48° 53.64	129° 44.27	2780		-			☐	Loop CHL x2 SAL
30	P 11	10	21:42	BE	ROS	U.S.	48° 56.05	130° 9.83	2755		-			☒	
			22:17	BO			48° 56.13	130° 9.94			208-209	2		☐	
			22:53	EN			48° 56.23	130° 9.88			-			☐	
31	P 12	11	01:30	DE	DRF		48° 58.04	130° 39.09	3230	0	-			☐	Ret Ocean ARGO
32	P 12	11	02:03	BE	ROS	U.S.	48° 58.09	130° 39.94	3232		-			☒	Deep Cast
			03:04	BO			48° 58.13	130° 39.98		3275	210-232	23		☐	Depth 3221 Press 3275 Sampler 3231 Bot - 10
			04:21	EN			48° 58.17	130° 40.07			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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							Latitude	Longitude							
33	P12	11	05:28	BE	ROS	US	48° 58.18	130° 40.03	3225		-		<u>dy</u>	☒ ☐	HPLC
			05:31	BO			48° 58.18	130° 40.05		150	233-242	10		☐ ☐	
			05:42	EN			48° 58.16	130° 40.03			-			☐ ☐	
34	P12	11	06:04	BE	NET	UN	48° 58.17	130° 40.17	~3000		-			☐ ☐	MPS
			07:00	BO			48° 58.26	130° 40.34		2005	-			☐ ☐	
			:	EN			.	.			-			☐ ☐	still no samples
35	P12	11	08:23	BE	NET		48° 58.31	130° 40.17	3229		-		H.M.	☐ ☐	Bongo
			08:43	BO			48° 58.35	130° 40.15		250	-			☐ ☐	
			08:55	EN			48° 58.39	130° 40.13			-			☐ ☐	
36	P12	11	10:59	BE	ROS	US	48° 58.18	130° 40.08	3231		243-263	21	H.M.	☒ ☐	
			12:03	BO			48° 58.13	130° 40.13		3167	-			☐ ☐	
			13:08	EN			48° 58.13	130° 40.16			-			☐ ☐	PAR ADDED
37	P12	11	15:24	BE	ROS	U.S.	48° 58.17	130° 40.21	2988		264-284	21	H.M.	☐ ☐	LIGHT / ONE CAST
			15:29	BO			48° 58.16	130° 40.26		150	-			☐ ☐	
			15:37	EN			48° 58.14	130° 40.22			-			☐ ☐	PAR OFF
38	P13	11	21:19	BE	ROS	US	49° 2.70	131° 39.87	~3000		-		<u>dy</u>	☒ ☐	
			21:54	BO			49° 2.70	131° 39.85		2005	285-286	2		☐ ☐	
			22:30	EN			49° 2.65	131° 39.87			-			☐ ☐	
39	P13	11	21:20		LOOP		49° 2.71	131° 39.88			-			☐ ☐	600 loop

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Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>June</u>				Year <u>2013</u>			Vessel <u>Tolly</u>			Cruise ID <u>2013-17</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
<u>40</u>	<u>P14</u>	<u>12</u>	<u>04:25</u>	<u>BE</u>	<u>ROS</u>	<u>US</u>	<u>49° 7.40</u>	<u>132° 39.76</u>	<u>3317</u>		<u>-</u>		<u>DY</u>	☒	
			<u>05:02</u>	<u>BO</u>			<u>49° 7.40</u>	<u>132° 39.74</u>		<u>2005</u>	<u>287-296</u>	<u>10</u>		☐	
			<u>05:41</u>	<u>EN</u>			<u>49° 7.22</u>	<u>132° 39.68</u>			<u>-</u>			☐	
<u>41</u>	<u>P15</u>	<u>12</u>	<u>11:34</u>	<u>BE</u>	<u>ROS</u>	<u>US</u>	<u>49° 11.93</u>	<u>133° 39.88</u>	<u>3407</u>		<u>297-298</u>	<u>2</u>	<u>H.M</u>	☒	
			<u>12:00</u>	<u>BO</u>			<u>49° 11.94</u>	<u>133° 39.97</u>		<u>2005</u>	<u>-</u>			☐	
			<u>12:48</u>	<u>EN</u>			<u>49° 11.88</u>	<u>133° 40.13</u>			<u>-</u>			☐	
<u>42</u>	<u>P16</u>	<u>12</u>	<u>18:34</u>	<u>BE</u>	<u>ROS</u>	<u>US</u>	<u>49° 16.97</u>	<u>134° 39.95</u>	<u>?</u>		<u>299-319</u>	<u>21</u>	<u>H.M</u>	☒	<u>LIGAT CAST</u>
			<u>18:36</u>	<u>BO</u>			<u>49° 16.96</u>	<u>134° 39.97</u>		<u>150</u>	<u>-</u>			☐	
			<u>18:40</u>	<u>EN</u>			<u>49° 16.95</u>	<u>134° 39.95</u>			<u>-</u>			☐	
<u>43</u>	<u>P16</u>	<u>17</u>	<u>19:24</u>	<u>BE</u>	<u>ROS</u>	<u>US</u>	<u>49° 16.93</u>	<u>134° 40.27</u>	<u>3633</u>		<u>-</u>		<u>DY</u>	☒	
			<u>19:28</u>	<u>BO</u>			<u>49° 16.92</u>	<u>134° 40.32</u>		<u>150</u>	<u>320-331</u>	<u>12</u>		☐	<u>Cs #1</u>
			<u>19:34</u>	<u>EN</u>			<u>49° 16.92</u>	<u>134° 40.34</u>			<u>-</u>			☐	
<u>44</u>	<u>~P16</u>	<u>12</u>	<u>20:33</u>	<u>DE</u>	<u>DRF</u>	<u>-</u>	<u>49° 15.67</u>	<u>134° 36.38</u>	<u>3642</u>		<u>-</u>			☐	<u>W of C float CFE 003</u>
<u>45</u>	<u>~P16</u>	<u>12</u>	<u>20:39</u>	<u>DE</u>	<u>DRF</u>	<u>-</u>	<u>49° 15.75</u>	<u>134° 36.58</u>	<u>3639</u>		<u>-</u>			☐	<u>W of C float CFE 002</u>
<u>47</u>	<u>~P16</u>	<u>12</u>	<u>21:00</u>	<u>BE</u>	<u>Boat</u>		<u>49° 15.76</u>	<u>134° 36.71</u>			<u>-</u>			☐	<u>Olive out</u>
			<u>:</u>	<u>EN</u>			<u>°</u>	<u>°</u>			<u>-</u>			☐	<u>" in</u>
<u>48</u>	<u>~P16</u>	<u>12</u>	<u>21:24</u>	<u>DE</u>	<u>DRF</u>	<u>-</u>	<u>49° 15.82</u>	<u>134° 37.00</u>	<u>3630</u>		<u>-</u>		<u>DY</u>	☐	<u>MetOcean 71</u>
			<u>:</u>				<u>°</u>	<u>°</u>			<u>-</u>			☐	
			<u>:</u>				<u>°</u>	<u>°</u>			<u>-</u>			☐	

Event Type:

BOT = Bottle cast (no CTD)
CTD = Standalone CTD
ROS = CTD in Rosette
SET = Fish Set

LOOP = Sea Water Loop

MOR = Mooring
NET = Plankton Net Haul
DRF = Drifter

Bottle Firing Method:

US = Up / Stop (default)
UN = Up / No stop
DN = Down / No stop

Notes:

Time Code:

BE = Beginning Time of Cast
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CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time
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Produced by the Water Properties Group, IOS

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DAILY SCIENCE LOG

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Month <u>June</u>				Year <u>2013</u>		Vessel <u>Tully</u>				Cruise ID <u>2013-17</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
49	P16	12	22:09	BE	ROS	US	49° 16.99	134° 39.97	3634		-		dy	☒ ☐	Deep Cast
			23:12	BO			49° 16.98	134° 39.98			332-355	24		☐ ☐	PAR OFF
		13	00:38	EN			49° 17.01	134° 39.99			-			☐ ☐	D = 3624 p = 3687 Sonder = 3634B-89
50	P16	13	01:22	BE	NET		49° 16.99	134° 39.99	3634		-			☐ ☐	Bongo - 250m
			01:30	BO			49° 16.99	134° 40.04		250	-			☐ ☐	
			01:38	EN			49° 17.02	134° 40.03			-			☐ ☐	
51	P16	13	01:42	BE	NET		49° 17.02	134° 40.03	3634		-		dy	☐ ☐	Bongo - 250m
			02:22	BO			49° 17.15	134° 40.30		1200	-			☐ ☐	
			02:45	EN			49° 17.18	134° 40.41			-			☐ ☐	
52	P16	13	03:00	BE	ROS		49° 17.21	134° 40.35	3633		-		N2/dy	☒ ☒	Cs cast #2
			03:12	BO			49° 17.14	134° 40.36		600	-			☐ ☐	
			03:30	EN			49° 17.23	134° 40.24			-			☐ ☐	
53	P16	13	04:04	BE	ROS		49° 17.07	134° 39.97	3633		-		dy	☒ ☐	- PLC + ONW cast
			05:08	BO			49° 16.98	134° 40.02			380-396	17		☐ ☐	Out of order
			06:20	EN			49° 16.99	134° 39.98			-			☐ ☐	A = 3685 Sonder 3633 D = 3622 Alt -9
54	P17	13	11:19	BE	ROS		49° 20.93	135° 39.93	3722		397-398	2	H.M.	☐ ☒	
			11:57	BO			49° 20.94	135° 40.04		2005	-			☐ ☐	
			12:31	EN			49° 20.93	135° 40.30			-			☐ ☐	
			:				.	.			-			☐ ☐	

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Month <u>JUNE</u>				Year <u>2013</u>		Vessel <u>TULLY</u>				Cruise ID <u>2013-17</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
55	P18	13	17:22	BG	ROS	U.S.	49° 25.95	136° 40.14	3833		399 - 400	2	H.M.	☒	
			17:56	BO			49° 25.91	136° 40.16		2005	-			☐	
			:	CH			49°	136°			-			☐	
56	P18	13	16:45	BE	DRF		49° 25.87	136° 38.56			-	-	H.M.	☐	# 122275 / VAGAN
57	P18	13	16:56	BE	BOAT		49° 25.96	136° 39.94			-		O.W	☐	OLIVERS BOAT RIDG
			18:37	CH			49° 25.78	136° 40.10			-			☐	
58	P19	13	22:59	BE	ROS	US	49° 29.99	137° 40.03	3928		-		dy	☒	
			23:35	BO			49° 29.98	137° 39.98		2005	413 - 414	2		☐	
			00:12	EN			49° 29.99	137° 40.04			-			☐	
59	P19	13	23:00	BE	LOOP		49° 29.97	137° 40.01			-			☐	60L BO loop
60	Loop 60	14	00:53	BE	LOOP		49° 30.51	137° 48.20	3951		-		Y.R	☐	Loop 1x SAC 2x CHL
61	P20	14	04:45	BE	ROS	US	49° 33.93	138° 39.96	3966		-		DY	☒	HPLC cast
			04:49	BO			49° 33.94	138° 39.98		150	415 - 424	10		☐	mixed to 50m
			05:01	EN			49° 33.92	138° 39.96			-			☐	
62	P20	14	05:29	BE	NET		49° 33.94	138° 39.98	3966		-			☐	MPS
			07:09	BO			49° 33.86	138° 40.21		2000	-			☐	
			07:52	EN			49° 33.93	138° 40.12			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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Month <u>June</u>				Year <u>2013</u>		Vessel <u>Tully</u>				Cruise ID <u>2013-17</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
63	P20	14	08:33	BC	ROS	U.S	49° 33.91	138° 40.08	3966	(4033)	425-431	7	H.M.	☒	OHAR/UNC CAST
			09:36	BO			49° 33.91	138° 40.09		4000	-			☐	
			10:52	EN			49° 33.91	138° 40.09			-			☐	
64	P20	14	11:13	BC	NET		49° 33.89	138° 40.10	3966		-		H.M.	☐	BONGO
			11:18	BO			49° 33.90	138° 40.13		250	-			☐	
			11:27	EN			49° 33.88	138° 40.15			-			☐	
65	P20	14	12:51	BC	ROS	U.S	49° 34.00	138° 39.91	3967		432-435	24	H.M.	☒	DEEP CAST
			14:17	BO			49° 34.05	138° 40.07		4024	-			☐	
			15:51	EN			49° 34.03	138° 40.06			-			☐	
66	P20	14	16:52	BC	BOAT		49° 34.02	138° 40.01			-		O.W.	☐	OLIVERS BOAT RIG
			17:22	EN			49° 33.77	138° 40.03			-			☐	
67	P20	14	17:01	BC	ROS	U.S	49° 33.87	138° 39.86	3965		456-477	22	H.M.	☐	LIGHT CAST
			17:05	BO			49° 33.87	138° 39.89		150	-			☐	PAR ON
			17:10	EN			49° 33.88	138° 39.89			-			☐	
68	P20	14	17:29	BC	DRF		49° 33.61	138° 40.30	3965		-	-	H.M.	☐	U.W. FLOAT 6181
69	P21	14	22:01	BE	ROS	U.S	49° 37.98	139° 39.86	3959		-			☒	pH added
			22:34	BO			49° 37.97	139° 39.89		2055	478-481	4		☐	O.C.O.
			23:10	EN			49° 37.85	139° 39.97			-			☐	PAR OFF
70	P21	14	22:01	BE	LOOP		49° 37.98	139° 39.87			-			☐	602 loop (BIO)

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P10.5/16

→ 550m-450m upcast
Big Fl spikes

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Month June				Year 2013			Vessel Tolly			Cruise ID 2013-17					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
71	P22	15	04:05	BE	ROS	US	49° 41.83	140° 40.00	3944		-		dy	☒	pH + HPLC cast
			04:38	BO			49° 41.62	140° 40.19		2005	482-491	10		☐	
			05:18	EN			49° 41.54	140° 40.48			-			☐	→
72	P23	15	10:26	BE	ROS	US	49° 46.01	141° 40.06	4052		492-493	2	N.M.	☐	
			10:54	BO			49° 46.14	141° 40.16		2005	-			☐	
			11:27	EN			49° 46.36	141° 40.30			-			☐	
73	P23	15	10:10	BE	LOOP	-	49° 45.92	141° 39.91			-	-	R.N.	☐	CS 137 60L (R.N.)
			:01				.0	.0			-			☐	
74	P24	15	16:28	BE	ROS	US	49° 50.23	142° 40.02	3986		-	-	N.M.	☐	PAR ON
			16:31	BO			49° 50.23	142° 39.99		150	-			☐	
			16:34	EN			49° 50.23	142° 40.00			-			☐	PAR OFF
75	P24	15	16:41	BE	ROS	US	49° 50.22	142° 40.04	3987		494-503	10	N.M.	☐	HPLC cast
			17:10	BO			49° 50.33	142° 40.11		2005	-			☐	
			17:50	EN			49° 50.47	142° 40.35			-			☐	
76	P25	15	22:59	BE	ROS	US	50° 0.02	143° 36.35	4141		-		dy	☒	Calibration cast
			23:34	BO			50° 0.03	143° 36.26		2005	504-527	24		☐	no chl max
		16	00:10	EN			50° 0.07	143° 36.38			-			☐	
77	P25	15	23:01		LOOP		50° 0.04	143° 36.34	4141		-			☐	60L Loop
			23:34				50° 0.03	143° 36.26			-			☐	

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This page is for any notes or observations

p11.5/16

EVENT 71 A: DRF 15 June 0550 UTC 49°42.16 140°46.01

Deploy CC drifter
122 263

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Month <u>June</u>				Year <u>2013</u>		Vessel <u>Tully</u>			Cruise ID <u>2013-17</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
							Latitude	Longitude							
78	P35	16	03:44	BE	ROS	US	50° 0.02	144° 17.95	4150		-		DY	☒ ☐	
			04:19	BO			50° 0.06	144° 18.14		2005	528-529	2		☐ ☐	No chl max
			04:52	EN			50° 0.02	144° 18.23			-			☐ ☐	
79	P26	16	08:04	BG	Pump		50° 00.02	145° 00.11	4250	40	—		A.M/H.M.	☐ ☐	ADRIANS Pumping
			12:46	GN			50° 00.36	145° 00.38			-			☐ ☐	
80	P26	16	13:53	BE	CTD	—	49° 59.91	145° 00.15	4250		—		H.M.	☒ ☐	PAR (ON) FOR ADRIAN
			13:56	BO			49° 59.91	145° 00.17		150	-			☐ ☐	
			13:59	EN			49° 59.93	145° 00.16			-			☐ ☐	PAR OFF
81	P26	16	14:34	BE	ROS	U.S.	49° 59.96	145° 00.16	4252		536-559	24	H.M.	☐ ☒	CS CAST
			14:45	BG			49° 59.99	145° 00.19		600	-			☐ ☐	
			14:59	EN			49° 59.97	145° 00.19			-			☐ ☐	
82	P26	16	15:50	BG	ROS	U.S.	49° 59.95	145° 00.14	4252		560-574	20	H.M.	☐ ☒	ONAR/Si-E-DIC ^{nots} CAST
			17:03	BO			49° 59.96	145° 00.15		4000	-			☐ ☐	
			18:06	EN			49° 59.91	145° 00.16			-			☐ ☐	
83	P26	16	20:22	BE	BOAT		49° 59.09	145° 02.02	4250		-		DY	☐ ☐	Boat-Oliver
			22:04	EN			50° 0.01	145° 0.44			-			☐ ☐	
84	P26	16	20:48	BE			50° 0.13	145° 0.04	4250		-		DY	☒ ☐	ONAR to 400
			20:56	BO			50° 0.15	145° 0.02		400	580-595	16		☐ ☐	
			21:06	EN			50° 0.16	145° 0.04			-			☐ ☐	

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Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
85	P26	16	22:46	BE	ROS	US	50° 0.05	141° 59.94	4250		-		AM	☒	ONAr 1000m
			23:04	BO			50° 0.05	144° 59.95		1000	596-611	16		☐	+Navis
			23:25	EN			50° 0.10	149° 59.84			-			☐	
86	P26	17	01:49	BE	ROS	US	50° 0.08	144° 59.93	4250		-		AM	☒	Deep Cast
			03:09	BO			50° 0.06	144° 59.95		4318	612-635	24		☐	P=4318 S=4252 D=4238 B=10
			04:49	EN			49° 59.96	144° 59.85			-			☐	~4m deep (sander)
87	P26	17	14:34	BE	ROS	US	49° 59.97	144° 59.84	4252		-			☐	
			14:39	BO			49° 59.94	144° 59.87		200	636-659	24	H.M.	☒	CS #2 cast
			14:46	EN			49° 59.92	144° 59.91			-			☐	
88	P26	17	17:27	BE	MOR		50° 05.20	144° 47.24	4252		DEPL-01	—	H.M. NOAH	☐	NOAH mooring
			20:11	EN			50° 07.96	144° 49.78			ANCHOR DROP	—		☐	
89	P26	17	21:10	BE	ROS	US	50° 8.07	144° 48.83	4214		-		AM	☒	ONAr cal's
	(PA007)		21:19	BO			50° 8.07	144° 48.83		500	660-661	2		☐	PAR ON
			21:29	EN			50° 8.02	144° 48.85			-			☐	0.75 NM from mooring
90	P26	18	23:33	BE	ROS	US	50° 8.12	144° 48.86	4214		-			☒	ONAr cal's
	(PA007)		23:43	BO			50° 8.10	144° 48.92		500	662-663	2		☐	
			23:54	EN			50° 8.13	144° 48.98			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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Month <u>June</u>				Year <u>2013</u>		Vessel <u>Tully</u>				Cruise ID <u>2013-17</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
							Latitude	Longitude							
91	P26	18	03:04	BE	ROS	US	50° 0.03	144° 59.93	4252		-		DY	☒	HPLC cast
			03:08	BO			50° 0.03	144° 59.95		150	664-673	10		☐	
			03:18	EN			50° 0.01	144° 59.91			-			☐	
92	P26	18	06:57	BG	ROS	US	50° 06.03	144° 59.99	4252		674 - 696	23	H.M.	☒	UBC/UNC CAST
			08:04	BO			49° 59.98	145° 00.06		4000	-			☐	
			09:08	GN			49° 59.97	145° 00.11			-			☐	
93	P26	18	09:31	BE	NET	-	49° 59.99	144° 59.96	4252		-	-	H.M.	☐	BONGO
			09:41	BO			50° 00.47	144° 59.99		250	-			☐	
			09:50	GN			50° 59.37	144° 59.91			-			☐	
94	P006	18	15:04	BE	ROS	US	50° 02.48	144° 52.61	4228		697-698	2	H.M.	☐	P006 CALIBRATION CAST
			15:13	BO			50° 02.47	144° 52.65		500	-			☐	
			15:22	GN			50° 02.47	144° 52.67			-			☐	
95	RGALGASC	Code	18:16		SENT		50° 02.66	144° 53.36			-			☐	RELEASE CODE SENT
			20:35				50° 03.02	144° 53.70			-			☐	Body on deck
		19	00:13	EN			50° 02.65	144° 56.56			-			☐	Release on deck
96	P26	19	02:03	BE	NET	UN	50° 0.01	144° 59.86	4252		-			☐	MPS
			03:27	BO			50° 0.04	144° 59.90		2000	-	5 nets		☐	
			04:12	EN			50° 00.04	144° 59.97			-			☐	flat calm seas
			:				.	.			-			☐	

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Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
							Latitude	Longitude							
97	P26	19	05:01	BE	NET		49° 59.94	144° 59.91	432		-			☐	Bongo
			05:09	BO			49° 59.90	144° 59.93		250	-			☐	255 m 5°C
			05:13	EN			49° 59.90	144° 59.95			-			☐	
98	P26	19	14:38	BE	ROS	U.S.	49° 59.99	144° 59.94	4252		699 - 714	16	H.M.	☒	CS / UW CAST
			14:42	BO			50° 00.00	144° 59.94		200	-			☐	
			14:49	EN			50° 00.02	144° 59.94			-			☐	
99	P26	19	16:02	BE	ROS	U.S.	50° 00.04	144° 59.94	4252		715 - 739	24	H.M.	☒	LIGHT CAST
			16:05	BO			50° 00.02	144° 59.91		150	-			☐	PAR ON
			16:	EN			.	.			-			☐	
100	P26	19	15:55	BE	BOAT		49° 59.99	144° 59.95			-		O.W.	☐	OLIVERS BOAT RIDE
			16:32	EN			50° 00.17	145° 00.10			-			☐	
101	P26	19	16:39	BE	LRF		50° 00.41	145° 00.27			-		H.M.	☐	ARGO # 7641
102	P26	19	16:53	BE	DRF		50° 00.377	144° 58.87			-		H.M.	☐	DRIFTER # 122276
103	P26	20	15:06	BE	BOAT		49° 36.95	139° 30.76	3958		-			☐	Oliver
			17:21	EN			49° 35.02	138° 58.63			-			☐	PAR OFF
104	P16	21	14:30	BE	ROS	US	49° 17.04	134° 40.07	3632		739 - 757	13	H.M.	☐	RETURN CAST
106			14:46	BO			49° 17.63	134° 40.12		1000	-			☐	
			15:04	EN			49° 17.16	134° 40.16			-			☐	
			:				.	.			-			☐	

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105	P16	21	10:00	BE	DRF		49° 14.32	134° 50.51			-	-	Todd	☐ ☐	Pick up DRIFTER
106	P16	21	13:05	BE	DRF		49° 18.06	134° 45.89			-	-	Todd	☐ ☐	Pick up DRIFTER
			:				° .	° .			-			☐ ☐	
107		22	16:50	BE	BOAT		48° 48.17	128° 32.49			-			☐ ☐	Oliver is samples.
			18:06	EN			48° 46.83	128° 15.17	~2500		-			☐ ☐	
108	P4	23	01:03	BE	ROS	JJ	48° 39.11	126° 39.98	1302		-			☒ ☐	Out-of-order
			01:23	BO			48° 39.10	126° 39.95		1305	752-762	11		☐ ☐	Chl Max @ 130m
			01:47	EN			48° 39.07	126° 39.88			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
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			:				° .	° .			-			☐ ☐	

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