

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2016-06

DATE:

From: 5 JUIN 2016

To: 21 JUIN 2016

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:	MIKE CORFIELD	First Officer:	RYAN HULL
Second Officer:	DAVE TAYLOR	Third Officer:	BRENT SEAMORE
Fishing Master:		Chief Engineer:	ROBERT HORTON

Mission Participants / Agencies:

DFD-IOS / UVic / UBC / NOVA-PHEL

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

1st Leg Scientific Personnel: Chief Scientist: MARIE ROBERT 06-18 A

Name	Watch	Cabin	Name	Watch	Cabin
TERESA VENELLO	06-12	B	AMANDA TIMMERMAN	12-18	H
NATHAN ANDERSON	00-06	C	JADE SHILLER	18-24	H
BO YANG	06-12	C	HUGH MACLEAN	00-12	A
DAVID RIVERA	12-18	D			
WILLIAM HIGLEY	18-24	D			
ROBERT IZETT	00-06	E			
ANDREW ROSS	TM	E			
DOUG YELAND	12-24	F			
MICHAEL ARYCHUK	^{R50} DMS	G			
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: _____

Data acquisition program: _____

CTD deck unit make: SBG model: 11 + serial number: 0425

Primary CTD

Make: SBG model: _____ serial number: 443

Primary temperature serial number: 2106

Primary conductivity serial number: 2280

Secondary temperature serial number: 2663

Secondary conductivity serial number: 2754

Transmissometer: WETLABS Model: C-STAR s/n: 1185 DR

Transmissometer: _____ Model: _____ s/n: _____ P, S or NO pump?

Fluorometer: Model SEAPOINT Cable gain: _____ s/n: 3640 P, S or NO pump?

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

Oxygen sensor: SBG Model: 43 s/n: _____ Surface PAR? Y (N)

PAR sensor: BIOSEPRICAL Model: OSP2350 s/n: 70613 P, S or NO pump?

Other sensors: ALTIMETER 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: _____

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: _____ P, S or NO pump?

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: _____ Surface PAR? Y / N

PAR sensor: _____ Model: _____ 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-rossette casts (e.g., W.E. Ricker)

Rosette Setup:

Number of bottles: 24
Manufacturer: TD5
Volume of bottles (litres): 10 L

Winches:

1. Make: HAW BOLT Model: _____ Serial #: 1702 Used for: CTD - LAAS
2. Make: SWAN Model: 329 Serial #: 1482 Used for: BODICO
3. Make: HAW Model: _____ Serial #: 1076 Used for: KEVLAR TNA WORK
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: SCRIPPS Model: _____ Kit Number: 1
Make: _____ Model: _____ Kit Number: _____
Comments on performance during cruise (comments should also be reflected in the post-cruise report);

PROBLEMS 2 TITRATION CURVES 4 BLANKS 1 STANDARDS - FLYED BY TRADING DETECTOR BOX

Thermosalinograph System (SBE21):

Program: SEASAVE Version: 7.23.2
Sampling interval (seconds): 30
Fluorometer sensor serial number: 0303013 / W535-9530 WETLABS
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: _____
(Average from the mixed region)

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

Additional Comments: _____

DAILY SCIENCE LOG

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Month <u>June</u>			Year <u>2016</u>			Vessel <u>Tully</u>			Cruise ID <u>2016-06</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
1	SL Test	6	02:01	BE	ROS	US	48° 39.92	123° 30.15	171		-	-	24	☐ ☐	Test off Port Bay
			02:05	BO			48° 39.93	123° 30.14		162	-			☐ ☐	PAR 4615 comparison
			02:08	EN			48° 39.93	123° 30.13			-			☐ ☐	then removed
2	Havo 59	6	04:13	BE	ROS	US	48° 36.81	123° 14.79	238		1-15	15	GC	☐ ☐	Ran 10 + back twice!!
			04:18	BO			48° 36.81	123° 14.79			-			☐ ☐	New sog
			04:34	EN			48° 36.82	123° 14.87			-			☐ ☐	
3	Havo 59	6	04:41	BE	NET	-	48° 36.81	123° 14.89	238		-			☐ ☐	
			04:49	BO			48° 36.76	123° 14.88		228	-			☐ ☐	
			04:53	EN			48° 36.76	123° 14.87			-			☐ ☐	
4	IF 1	6	07:22		Loop 4	-	48° 15.93	123° 29.88	147		-			☐ ☐	
5	IF 2	6	09:50	BE	ROS	U.S.	48° 17.96	123° 59.93	198		16-29	13	H.M.	☒ ☐	
			09:53	BO			48° 17.95	123° 59.91		105	-			☐ ☐	
			10:08	EN			48° 17.94	123° 59.94			-			☐ ☐	
6	IF 2	6	10:50	BE	NET	-	48° 17.95	123° 59.91	187		-	-	H.M.	☐ ☐	Bongo
			10:56	BO			48° 17.97	123° 59.86			-			☐ ☐	
			10:58	EN			48° 17.97	123° 59.85			-			☐ ☐	
7	IF 3	6	13:34		Loop 7	-	48° 27.13	124° 30.07	220		-			☐ ☐	
8	IF 4	6	15:57		Loop 8	-	48° 32.30	125° 00.03			-			☐ ☐	
			:				.	.			-			☐ ☐	

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

Time Code:

BE = Beginning Time of Cast
BO = Bottom Time of Cast
EN = End Time of Cast

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

DE = Deployment Time
MR = Messenger Release Time
RE = Recover Mooring Time

Produced by the Water Properties Group, IOS

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Notes:

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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							
9	P1	6	18:39	BE	ROS	U.S.	48° 34.51	125° 30.01	114		29-31	3	14.11	☒ ☐	
			18:41	BO			48° 34.53	125° 30.03		109	-			☐ ☐	
			18:46	EN			48° 34.56	125° 30.04			-			☐ ☐	
10	P2	6	21:49	BE	ROS	U.S.	48° 36.07	126° 0.01	117		-			☒ ☒	Set on deck a while (not logging)
			21:53	BO			48° 36.03	126° 0.03		113	-		DY	☐ ☐	Dns
			22:06	EN			48° 36.04	126° 0.02			32-45	14		☐ ☐	
11	P2	6	22:15	BE	Net		48° 35.99	126° 00.04	118		-			☐ ☐	Bouge to 108m
			22:21	BO			48° 36.04	126° 00.03		108	-			☐ ☐	
			22:23	EN			48° 36.04	126° 00.01			-			☐ ☐	
12	P2	6	22:52	BE	ROS	U.S.	48° 36.04	126° 0.05	117		-		DY	☒ ☐	Deep
			22:56	BO			48° 36.05	126° 0.03			46-53	8		☐ ☐	
			23:06	EN			48° 36.07	126° 0.04			-			☐ ☐	
13	P3	7	01:11	BE	ROS	U.S.	48° 37.45	126° 19.91	815		-		DY	☒ ☐	
			01:	BO			48° 37.46	126° 19.92		820	54-56	3		☐ ☐	on bottom?
			01:47	EN			48° 37.45	126° 19.94			-			☐ ☐	No altimeter
14	P4	7	04:04	BE	ROS	U.S.	48° 38.98	126° 19.96	1314		-		DY	☒ ☐	
			04:29	BO			48° 39.00	126° 39.95			57-75	19		☐ ☐	
			05:10	EN			48° 38.99	126° 39.99			-			☐ ☐	
			:				.	.			-			☐ ☐	

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Notes:

Time Code:

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Month <u>June</u>			Year <u>2016</u>			Vessel <u>TULLY</u>			Cruise ID <u>2016-06</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							
15	P4	7	05:45	BC	Pump		48° 38.98	126° 40.03		40m	76 - 78	-	H.M.	☐ ☐	1 Rot Pumping
			08:00	CH			48° 38.98	126° 39.82			-			☐ ☐	
			:				°	°			-			☐ ☐	
16	P4	7	08:19	BC	ROS	U.S.	48° 38.96	126° 40.01	1321		79 - 94	16	H.M.	☒ ☐	UBC CAST
			08:41	BO			48° 38.97	126° 39.93		1322	-			☐ ☐	
			09:07	CH			48° 39.00	126° 39.94			-			☐ ☐	
17	P4	7	09:21	BC	NET	-	48° 39.00	126° 39.87	1321		-		H.M.	☐ ☐	BONGO
			09:56	BO			48° 38.99	126° 39.88		1200	-			☐ ☐	
			10:15	CH			48° 38.92	126° 39.90			-			☐ ☐	
18	P4	7	10:30	BC	NET		48° 38.96	126° 39.90	1310		-			☐ ☐	BONGO
			10:41	BO			48° 38.98	126° 39.98		250	-			☐ ☐	
			10:44	CH			48° 38.9536	126° 39.8805			-			☐ ☐	
19	P4	7	11:12	BC	ROS	U.S.	48° 38.97	126° 39.95	1326		95 - 112	18	H.M.	☒ ☐	Vvic CAST
			11:17	BO			48° 38.98	126° 39.93		250	-			☐ ☐	
			11:39	CH			48° 38.97	126° 39.91			-			☐ ☐	
20	P4	7	13:16	BC	ROS	U.S.	48° 39.05	126° 39.90	1305		113 - 127	15	H.M.	☒ ☐	DMS CAST
			13:21	BO			48° 39.04	126° 39.91		300	-			☐ ☐	
			13:39	CH			48° 39.00	126° 39.88			-			☐ ☐	
			:				°	°			-			☐ ☐	

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 DRF = Drifter
 _____ = _____

Bottle Firing Method:

US = Up / Stop (default)
 UN = Up / No stop
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Notes:

Time Code:

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Month <u>JUNE</u>				Year <u>2016</u>		Vessel <u>TOLLY</u>		Cruise ID <u>2016-06</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
21	P5	7	17:01	BE	ROS	US	48° 41.44	127° 10.00	2087		128-130	3	H.M.	☒	
			17:35	BO			48° 41.45	127° 09.93		2005	-			☐	
			18:01	EN			48° 41.42	127° 09.90			-			☐	
22	P6	7	21:36	BE	ROS	US	48° 44.56	127° 39.97	2545		-		DY	☒	
			22:11	BO			48° 44.58	127° 39.99		2005	131-133	3		☐	
			22:49	EN			48° 44.58	127° 40.01			-			☐	
23	P7	8	01:46	BE	ROS	US	48° 46.70	128° 9.99	2503		-		DY	☒	
			02:23	BO			48° 46.60	128° 9.97		2005	134-135	2		☐	
			03:00	EN			48° 46.64	128° 9.90			-			☐	
24	P8	8	05:43	BE	Net	DN	48° 48.99	128° 39.97	2517		-		DY	☐	Bongo to 250
			05:55	BO			48° 48.99	128° 40.05		250	-			☐	
			06:00	EN			48° 49.00	128° 40.04			-			☐	
25	P8	8	06:16	BE	ROS	US	48° 49.01	128° 39.97	2516		-		DY/H.M.	☒	+ LOOPS
			06:52	BO			48° 49.00	128° 39.97		2005	136-159	24		☐	→
			07:49	EN			48° 48.97	128° 39.95			-			☐	
26	P9	8	10:27	BE	ROS	US	48° 51.44	129° 09.94	2342		160-161	2	H.M.	☒	
			10:57	BO			48° 51.39	129° 09.92		2005	-			☐	
			11:31	EN			48° 51.36	129° 10.02			-			☐	
27	P9	8	11:42	BE	DR1		48° 51.33	129° 10.32		#30023406 3247560				☐	NOAA DRIFTER

Event Type:

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Bottle Firing Method:

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Notes:

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P8: Bottle 1 closed @ surface. Are they all off by 1?
NO: ONLY Bot 1 MISFIRE

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Month <u>June</u>			Year <u>2016</u>			Vessel <u>TULLY</u>			Cruise ID <u>2016-06</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
28	PP ^{LOOP} ₂₈	8	11:45	BE	LOOP		48° 51.43	129° 0.98			—	3	H.M.	☐ ☐	2xCHL 1xSAL
29	P10	8	14:05	BE	ROS	US	48° 53.59	129° 40.12	2640		162-164	3	MR	☒ ☐	Stop H49 ↓ <°
			14:42	BO			48° 53.70	129° 39.82		2006	-			☐ ☐	
			15:18	EN			48° 53.62	129° 40.01			-			☐ ☐	
30	P10	8	15:27	DE	DRF	-	48° 53.63	129° 40.31	2640		-		DY	☐ ☐	ARGO 372
31	P11	8	17:50	BE	ROS	US	48° 56.00	130° 09.97	2751		-		GC	☒ ☐	
			18:24	BO			48° 56.05	130° 10.00		2005	165-166			☐ ☐	
			18:58	EN			48° 56.07	130° 9.95			-			☐ ☐	
32	P12	8	21:26	BE	ROS	US	48° 58.18	130° 40.03	3236		-		A	☒ ☐	DMS
			21:35	BO			48° 58.24	130° 40.00		300	167-181	15		☐ ☐	
			21:54	EN			48° 58.22	130° 39.99			-			☐ ☐	
33	P12	8	22:00	BE	BOT		48° 58.22	130° 39.99			-			☐ ☐	
			22:45	BO			°	°		45	182-185	4	AR	☐ ☐	
		23:10	21:58	EN			48° 58.22	130° 39.99			-			☐ ☐	
34	P12	8	23:26	BE	ROS		48° 58.24	130° 39.96	3235		-		DY	☒ ☐	PAR OFF
		9	00:25	BO			48° 58.20	130° 39.97		3278	186-208	23		☐ ☐	D 3225 P 3278
			01:45	EN			48° 58.27	130° 39.93			-			☐ ☐	S 3237 A 9.7
			:				°	°			-			☐ ☐	
			:				°	°			-			☐ ☐	

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35	P12	9	02:20	BE	BOT	M	48° 58.15	130° 40.19	3236		-		dy	☐	Niskins chains
			02:45	BO			°	°		200	209-212	4		☐	
			03:03	EN			48° 58.17	130° 39.88			-			☐	
36	P12	9	03:10	BE	Net	-	48° 58.21	130° 39.90	3236		-		dy	☐	Bongo to 1200
			03:51	BO			48° 58.18	130° 40.01		1200	-			☐	
			04:15	EN			48° 58.20	130° 40.07			-			☐	
37	P12	9	04:40	BE	BOT		48° 58.19	130° 40.06	3236		-		dy	☐	Niskins chains
			05:17	BO			48° 58.23	130° 40.00		800	213-216	4		☐	
			05:57	EN			48° 58.21	130° 39.90			-			☐	
38	P12	9	06:07	BE	ROS	US	48° 58.20	130° 40.04	3235		-		dy	☒	PAR ON
			06:42	BO			48° 58.21	130° 40.05		2005	217-232	16		☐	Jade UBC
			07:18	EN			48° 58.21	130° 40.02			-			☐	
39	P12	9	07:42	BE	NET	-	48° 58.23	130° 40.17			-		H.M.	☐	
			07:47	BO			48° 58.23	130° 40.17			-			☐	
			07:51	EN			48° 58.25	130° 40.19			-			☐	
40	P12	9	08:24	BE			48° 58.25	130° 39.91	3237		233-247	15	H.M.	☐	UVIC CAST-AMANDA
			08:28	BO			48° 58.23	130° 39.95		250	-			☐	
			08:46	EN			48° 58.19	130° 39.11			-			☐	
41	P12.2	9	:		Loop 41		°	°			-			☐	

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Bottle Firing Method:

US = Up / Stop (default)
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Time Code:

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 MR = Messenger Release Time
 RE = Recover Mooring Time

CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

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Month <u>JUNE</u>				Year <u>2016</u>		Vessel <u>TULLY</u>				Cruise ID <u>2016-06</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
42	P13	9	13:06	BE	ROS	U.S.	49° 02.59	131° 40.03	3053		248-250	3	H.M	☒	
			13:39	BO			49° 02.57	131° 39.95		2005	-			☐	
			14:12	EN			49° 02.59	131° 40.03			-			☐	
43	P13	9	14:19		DRF	-	49° 02.63	131° 40.43	3052	#300234063247	750		H.M	☐	NOAA DRIFTER
44	LOOP 44	9	14:26	BE	Loop		49° 02.70	131° 41.90	3038		-			☐	2 XCTD 1 X BAL 10 K B
45	P14	9	18:31	BE	ROS	U.S.	49° 07.42	132° 46.12	3315		251-253	3	H.M	☒	
			19:03	BO			49° 07.46	132° 40.21		2005	-		JY	☐	
			19:39	EN			49° 07.40	132° 40.11			-			☐	
46	P15	10	00:01	BE	ROS	US	49° 12.00	133° 39.98	3411		-		DY	☒	started early
			00:36	BO			49° 11.99	133° 40.01		2005	254-256	3		☐	to check PAR
			01:14	EN			49° 11.97	133° 40.05			-			☐	
47	P16	10	05:55	BE	BOT		49° 17.01	134° 40.03	3634		-			☐	Go Flo 50m
			06:09	BO			49° 16.98	134° 40.11		50	257-260	4	AR	☐	
			06:19	EN			49° 16.96	134° 40.17			-			☐	
48	P16	10	06:25	BE	Net		49° 16.99	134° 40.17	3634		-		DY	☐	Borgo to 1200
			07:05	BO			49° 17.01	134° 40.13		1200	-		H.M	☐	
			07:25	EN			49° 17.03	134° 40.22			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

Event Type:

BOT = Bottle cast (no CTD)
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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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Month <u>June</u>			Year <u>2016</u>			Vessel <u>TULLY</u>			Cruise ID <u>2016-06</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	10	07:51	BC	BOT		49° 17.00	134° 40.06	3635		261 - 264	4	H.M	☐ ☐	800 m Go F6
			08:12	BO			49° 17.02	134° 39.95		800 200	-			☐ ☐	
			08:27	EN			49° 17.02	134° 39.94			-			☐ ☐	
50	P16	10	08:38	BC	ROS	U.S	49° 17.03	134° 39.94	3635		-			☐ ☐	
			08:43	BO			49° 17.03	134° 39.93		250	265 - 279	15	H.M	☒ ☐	U VIC CAST
			09:02	EN			49° 17.01	134° 39.96			-			☐ ☐	
51	P16	10	09:17	BC	NET	-	49° 17.00	134° 39.98	3635		-		H.M	☐ ☐	BONGO
			09:25	BO			49° 16.99	134° 39.98		250	-			☐ ☐	
			09:29	EN			49° 16.99	134° 39.98			-			☐ ☐	
52	P16	10	09:50	BC	BOT		49° 17.02	134° 39.95	3635		280 - 283	4	H.M	☐ ☐	Go F60 - 800m
			10:27	BO			49° 17.03	134° 39.99		800	-			☐ ☐	
			11:30	EN			49° 16.94	134° 40.02			-			☐ ☐	
53	P16	10	11:58	BC	ROS		49° 17.18	134° 40.00	3635		284 - 307	24	H.M	☐ ☐	DEEP CAST
			13:07	BO			49° 17.15	134° 39.97		3695	-			☐ ☐	PAR OFF
			14:31	EN			49° 16.99	134° 39.96			-			☐ ☐	
54	P16	10	15:37	BC	ROS		49° 16.99	134° 39.92	3636		308 - 322	15	H.M	☐ ☒	PAR ON - DMS CAST
			15:43	BO			49° 16.99	134° 39.93		300	-			☐ ☐	
			16:00	EN			49° 16.99	134° 39.92			-			☐ ☐	
			:				°	°			-			☐ ☐	

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 DRF = Drifter
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Bottle Firing Method:
 US = Up / Stop (default)
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Month <u>JUNE</u>			Year <u>2016</u>			Vessel <u>TULLY</u>			Cruise ID <u>2016-06</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							
55	P16	10	04:08	BE	DRi		49° 16.94	134° 39.99	3635		-		H.M./DY	☐	ARGO # 336
56	P16	10	04:13	BE	DRi		49° 17.18	134° 40.40	3635	2300	234063247	730	H.M./DY	☐	NOAA DRIFTER
57	Loop57	10	20:56		LOOP		49° 20.20	135° 27.85			-			☐	
58	P17	10	21:01	BE	ROS	US	49° 21.04	135° 40.08	3648		-		DY	☒	
			21:38	BO	I		49° 21.03	135° 39.97		2005	323-325	3		☐	
			22:13	EN			49° 21.01	135° 40.03			-			☐	
59	P18	11	02:33	BE	ROS	US	49° 26.09	136° 40.01	3835		-		DY	☒	
			03:08	BO			49° 26.04	136° 40.12		2005	326-328	3		☐	
			03:44	EN			49° 26.01	136° 40.06			-			☐	
60	P18	11	03:50	DE	DRF		49° 26.05	136° 40.24	3835		-		DY	☐	Argo 373
61	P18	11	03:54	DE	DRF		49° 26.11	136° 40.66	3835		-		DY	☐	Drift 3246710
62	P19	11	08:15	BE	ROS	U.S	49° 29.92	137° 39.92	3928		329-331	3	H.M.	☒	
			08:47	BO			49° 29.98	137° 39.95		2005	-			☐	
			09:20	EN			49° 29.99	137° 40.00			-			☐	
63	P20	11	06:35	BE	NET		49° 33.96	138° 40.03	3966		-			☐	
			06:46	BO			49° 33.94	138° 40.05		250	-			☐	
			06:51	EN			49° 33.92	138° 40.07			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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Notes:

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Month <u>June</u>			Year <u>2016</u>			Vessel <u>TOLLY</u>			Cruise ID <u>2016-06</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
64	P20	11	14:05	BE	ROS	U.S.	49° 34.00	138° 40.14	3966		332 - 346	15	H.M.	☒ ☐	UVIC CAST
			14:11	BO			49° 34.03	138° 40.16		250	-			☐ ☐	
			14:32	EN			49° 34.07	138° 40.17			-			☐ ☐	
65	P20	11	15:20	BE	BOT		49° 34.04	138° 39.98	3965		347 - 350	4		☐ ☐	50m Go-Flu
			15:30				°	°		50	-			☐ ☐	
			15:38				49° 34.05	138° 39.95			-			☐ ☐	
66	P20	11	16:46	BE	NET		49° 34.03	138° 39.87	3966		-			☐ ☐	
			16:35	BO			49° 34.14	138° 40.09		1200	-			☐ ☐	
			16:58	EN			49° 34.13	138° 40.05			-			☐ ☐	
67	P20	11	17:25	BE	BOT		49° 34.02	138° 39.99	3965		351 - 354	4		☐ ☐	
			17:40	BO			49° 34.01	138° 40.03		200	-			☐ ☐	
			17:52	EN			49° 33.99	138° 39.96			-			☐ ☐	
68	P20	11	18:02	BE	ROS	U.S.	49° 33.98	138° 39.94	3965		355 - 378	24		☐ ☐	PAR-OFF
			19:28	BO			49° 34.07	138° 39.96		4025	-			☐ ☐	P=4025 A=10 D=3953 S=3965
			20:56	EN			49° 34.02	138° 39.90			-			☐ ☐	
69	P20	11	21:30	BE	BOT	WOS	49° 34.00	138° 39.89	3965		-			☐ ☐	Go-Flu 800m
			21:58	BO			49° 33.96	138° 39.79		801	379 - 382			☐ ☐	
			22:30	EN			49° 33.92	138° 39.77			-			☐ ☐	
			:				°	°			-			☐ ☐	

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Month <u>June</u>			Year <u>2016</u>			Vessel <u>Tully</u>			Cruise ID <u>2016-06</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
70	P20	11	22:40	BE	ROS	US	49° 34.00	138° 39.80	3965		-		DY	☒	PAR cov
			22:45	BO			49° 34.01	138° 40.00		300	383-397	15		☐	
			23:04	EN			49° 34.01	138° 40.04			-			☐	
71	P20	11	23:10	DE	DRF		49° 34.00	138° 40.13	3965		-		DY	☐	Argo 332
72	P21	12	04:35	BE	ROS	US	49° 37.99	139° 40.05	3959		-		DY	☒	
			05:10	BO			49° 38.01	139° 39.95		2005	398-400	3		☐	
			05:45	EN			49° 38.10	139° 39.97			-			☐	
73	P21	12	06:03	DE	DRF		49° 37.93	139° 40.76	3958		-			☐	NOAA 3247420
			:				.	.			-			☐	
74	P22	12	13:44	BE	ROS	U.S.	49° 42.07	140° 40.01	3894		401-403	3	H.M.	☒	
			14:18	BO			49° 42.00	140° 39.96		2005	-			☐	
			14:49	EN			49° 42.10	140° 39.93			-			☐	
75	P23	12	20:49	BE	ROS	US	49° 46.00	141° 39.97	4052		-		DY	☒	Calis cast
			21:27	BO			49° 46.00	141° 39.98		2005	404-427	24		☐	
			22:08	EN			49° 46.01	141° 40.00			-			☐	
76	P24	13	03:20	BE	ROS	US	49° 50.24	142° 39.97	3986		-		DY	☒	
			03:57	BO			49° 50.21	142° 39.96		2005	428-430	3		☐	
			04:32	EN			49° 50.18	142° 39.99			-			☐	Argo 329
77	P24	13	04:48	DE	DRF		49° 50.44	142° 41.07			-			☐	

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Month <u>June</u>			Year <u>2016</u>			Vessel <u>Tully</u>			Cruise ID <u>2016-06</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
78	P24	13	04:55	DE	DRF		49° 50.50	142° 42.00			-			☐ ☐	X10 AA 3248740
79	P25	13	10:39	BO	ROS	U.S.	49° 59.99	143° 36.15	4143		431 - 433	3	H.M.	☐ ☒	
			11:17	BO			49° 59.94	143° 36.24		2005	-			☐ ☐	
			11:51	EN			49° 59.98	143° 36.24			-			☐ ☐	
80	P35	13	16:31	BE	ROS	U.S.	49° 59.96	144° 18.16	4169		-			☐ ☐	
			17:07	BO			49° 59.99	144° 18.23		2005	434 - 435	2	H.M.	☐ ☒	
			17:41	EN			49° 59.99	144° 18.15			-			☐ ☐	
81	P26	13	22:35	BE	ROS	US	50° 0.01	144° 59.93	41088		-		DY	☒ ☐	
			22:42	BO			50° 0.00	144° 59.96		300	436 - 450	15		☐ ☐	
			23:04	EN			49° 59.96	144° 59.98			-			☐ ☐	
82	P26	13	23:46	BE	ROS	US	50° 0.03	144° 59.96	4253		-		DY	☒ ☐	PAR OFF
		14	01:02	BO			49° 59.98	144° 59.98		4319	451 - 474	24		☐ ☐	DEEP !!
			02:42	EN			50° 0.00	144° 59.98			-			☐ ☐	P=4319 A=9 D=4239 S=4253
83	P26	14	04:00	BE	ROS	US	50° 0.03	144° 59.94	4254		-		DY	☒ ☐	RO's 10
			04:04	BO			50° 0.01	144° 59.96		200	475 - 478	4		☐ ☐	200m
			04:11	EN			50° 0.03	144° 59.96			-			☐ ☐	
84	P26	14	04:41	BE	ROS	US	50° 0.00	144° 59.94	4253		-		DY	☒ ☐	Bo 10
			04:44	BO			50° 0.02	144° 59.93		150	479 - 482	4		☐ ☐	50m
			04:51	EN			50° 0.04	144° 59.10			-			☐ ☐	

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Month <u>JUNE</u>				Year <u>2016</u>		Vessel <u>TULLY</u>				Cruise ID <u>2016-06</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
85	P26	14	11:06	BG	ROS	U.S.	50°00.00	144°59.86	4251		483-502	20	H.M.	☒	UVIC CAST
			11:11	Bo			50°00.00	144°59.86		250	-			☐	
			11:34	CM			50°00.02	144°59.90			-			☐	
86	P26	14	14:05	BG	BOT	-	50°00.02	144°59.96			503-505	3	H.M.	☐	
			14:25	BG			.	.		40	-			☐	Go FLO
			14:25	CM			50°00.14	144°59.57			-			☐	
87	P26	14	15:40	BG	BOT		50°00.25	144°59.80		100	506-508	3	H.M.	☐	Go FLO
			15:50	Bo			50°00.17	144°59.81			-			☐	
			16:05	CM			50°00.19	144°59.79			-			☐	
88	P26	14	16:30	BG	BOT		50°00.14	144°59.77		300	509-511	3	H.M.	☐	Go FLO
			16:40	Bo			50°00.07	144°59.82			-			☐	
			17:09	CM			49°59.89	145°00.12			-			☐	
89	P26	14	17:46	BG	BOT		50°00.12	145°00.05		800	512-514	3	H.M.	☐	Go FLO
			18:13	Bo			49°59.99	145°00.08			-			☐	
			18:40	CM			49°59.83	145°00.09			-			☐	
90	P26	14	19:26	BG	BOT		50°00.02	145°00.02		75	507-	1	D.Y.	☐	missed Go FLO
			19:35	Bo			.	.			-			☐	
			19:45	CM			50°00.01	145°00.09			-			☐	
			:				.	.			-			☐	

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Month <u>JUN</u>				Year <u>2016</u>		Vessel <u>TULLY</u>				Cruise ID <u>2016-06</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/Fl Cleaned	Comments
91	P26	14	19:46	BE	NET	-	50° 00.01	145° 00.07	4252		-			☐ ☐	Bong to 250
			19:57	BO			49° 59.97	145° 00.16		250	-			☐ ☐	
			20:01	EN			49° 59.98	145° 00.16			-			☐ ☐	
92	P26	14	20:10	BE	NET		50° 00.02	145° 00.06	4252		-			☐ ☐	bong to 1200m
			21:07	BO			50° 00.07	145° 00.13		1200	-			☐ ☐	
			21:31	EN			50° 00.08	145° 00.08			-			☐ ☐	
93	P26	14	21:59	BE	ROS	US	50° 0.01	144° 59.97	4252		-		DY	☒ ☐	ONAR/Jade
			23:09	BO			50° 0.01	145° 0.10		4000	518-538	21		☐ ☐	
		15	00:26	EN			50° 0.05	144° 59.95			-			☐ ☐	
94	PA-010	15	19:46	BE	MOR	DE	50° 00.3984	144° 49.3607			-			☐ ☐	Buoy OUT
		16	00:21			DE	50° 03.251	144° 53.313			-			☐ ☐	ANCHOR OUT
95	PA-010	16	03:03	BE	ROS	US	50° 1.47	144° 52.74	4230		-		DY	☒ ☐	AFTER DEPLOYMENT
			03:12	BO			50° 1.46	144° 52.76		500	539-542	4		☐ ☐	CAST
			03:22	EN			50° 1.43	144° 52.80			-			☐ ☐	WRONG STN NAME IN FILE
96	P26	16	04:18	BE	BOT	MR	49° 59.98	145° 0.04	4252		-			☐ ☐	Goffo
			05:00	BO			49° 59.99	145° 0.26		2000	518-517	3		☐ ☐	
			05:55	EN			49° 59.98	145° 00.25			-			☐ ☐	
			:				.	.			-			☐ ☐	
			:				.	.			-			☐ ☐	

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DAILY SCIENCE LOG

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Month				Year			Vessel				Cruise ID					
JUN				2016			TULLY				2016-06					
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	
97	PA-009	16	13:40	BE	ROS	US	50°07.85	144°52.20	4227		543-544	2	MR	☒	BEFORE RECOVERY CAST	
			13:48	BO			50°07.83	144°52.21		500	-			☐		
			13:58	EN			50°07.80	144°52.24			-			☐		
	ALL SOUNDERS:			ON	PASSIVE		MODE	.			-			☐		
98	PA-009	16	14:31	DE	DRF		50°06.85	144°50.83	4224	3002340632-47460				☐	NOAA DRIFTER	
99	Loop 99	17	14:29	BE	LOOP	-	49°32.82	138°10.85	3982		-	710.5	MR	☐	SAL X1 CHL X2	
100	Loop 100	17	19:22	BE	LOOP	-	49°25.98	136°43.85	3830		- T°	11.3	MR	☐	SAL X1 CHL X2	
101	Loop 101	18	01:06	BE	LOOP	-	49°18.77	135°05.62	2874		- T°	11.6	MR	☐	SAL X1 CHL X2	
102	Loop 102	18	14:13	BE	LOOP	-	49°00.93	131°18.39			- T°	13.5	MR	☐	SAL X1 CHL X2	
103	Loop 103	18	17:40	BE	LOOP	-	48°56.36	130°22.22	2526		- T°	13.9	MR	☐	SAL X1 CHL X2	
104	Loop 104	19	01:21	BE	LOOP	-	48°47.77	128°27.50	2410		- T°	14.6	MR	☐	SAL X1 CHL X2	
105	P4	19	08:35	BE	BOT	-	48°38.99	126°39.93	1327		545-547	3		☐	GO FLO - 400	
			08:50	BO			48°38.92	126°39.91		400	-			☐		
			09:03	EN			48°38.93	126°39.94			-			☐		
106	P4	19	09:14	BE	ROS	U.S.	48°38.92	126°40.00	1327		548-561	14	H.M.	☒	P4 RETURN	
			09:36	BO			48°38.87	126°39.83		1325	-			☐		
			10:09	EN			48°38.77	126°39.70			-			☐		
			:				.	.			-			☐		
			:				.	.			-			☐		

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Month <u>JUNE</u>				Year <u>2016</u>		Vessel <u>TULLY</u>				Cruise ID <u>2016-06</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
107	P4	19	10:25	BE	BOT	-	48° 38.84	126° 39.99	1326		562-584	3	DM	☐ ☐	40m Go Flo
			10:44	BO			48° 38.81	126° 39.97		40	-			☐ ☐	
			10:49	CM			48° 38.80	126° 39.96			-			☐ ☐	
108	JF3	19	19:02	BO	DRF	-	48° 28.50	124° 30.03	213		-		DY	☐ ☐	SPONGE BOB 427-429-423
109	JF2	19	20:38				48° 21.03	124° 00.37	140		-		GC	☐ ☐	SPONGE BOB 425-426
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
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			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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