

DAILY SCIENCE LOG BOOK

CRUISE
NUMBER

2019-006

DATE:

From: 2 JUIN

To: 18 JUNE 2019

VESSEL:

JOHN P TULLY

PROJECT(S):

LINE P

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

WaterProperties.ca

Captain:	<u>VICTOR GRONMYR</u>	First Officer:	<u>SIMON CLARKE</u>
Second Officer:	<u>ALISTAIR BUTT</u>	Third Officer:	<u>STEPHEN LOWDON</u>
Fishing Master:		Chief Engineer:	<u>STUART BURSAW</u>

Mission Participants / Agencies:

DFo-IoS; UBC; UVic; MBARI; NOAA

**** 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
KYLE SIMPSON	00-02/TM	B	MICHAEL LIVINGSTON	12-18	H
MOIRA GALBRAITH	12-24	C	FLORIAN LUESKOW	00-12	H
ROBYN SAITO TA	00-12	C			
MICHAEL ARYCHUK	12-24 DMS	D			
JOSIANNE HAAG	00-06	E			
JADE SHILLER	18-24	E			
WILLIAM HASKELL	12-18	F			
STEVE ROMAIN	00-12	F			
NATHAN ANDERSON	18-24	G			
BILL HIGLEY	06-12	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: Telly Laptop - Silver

Data acquisition program: Seasave

CTD deck unit make: SBE model: 11 serial number: 0425

Primary CTD

Make: SBE model: 9 serial number: 506

Primary temperature serial number: 2023

Primary conductivity serial number: 1763

Secondary temperature serial number: 5013

Secondary conductivity serial number: 3394

Transmissometer: Cstar WL Model: _____

Transmissometer: Cstar WL Model: _____

Fluorometer: Model Seapoint Cable gain: 3x s/n: 3640 P S or NO pump?

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

Oxygen sensor: SBE 43 Model: 5582350 s/n: 3234 P S or NO pump?

PAR sensor: Spherical Model: _____ s/n: 70613 Surface PAR? Y/N

Other sensors: A-14 s/n: 62355 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: _____

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)

Serial Logs
3-17200, N, 3
4-X
DG 15-960, N, 3, 1
DR 16-X
S-4300

1 Frey T ADO
2 " C 1-43
3 " P 2-P1
4 " T2 3-Tr
5-PAN 4-Tr, 2
6-A14 5-PAN
7-A14 6-A14

Rosette Setup:

Number of bottles: 24
Manufacturer: IDS
Volume of bottles (litres): 100

Winches:

1. Make: Haw Boldt Model: _____ Serial #: 17026 Used for: CTD
2. Make: Haw Boldt Model: _____ Serial #: 17027 Used for: MPS
3. Make: Haw Boldt Model: _____ Serial #: 1076 Used for: TM

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

4. SWATH 329-1482 BOWGO
5. SPOOLING WINCH MOORINGS
SWATH 455-1450

Salinometer:

Make: _____ Model: _____ Serial Number: _____
Comments on performance during cruise (comments should also be reflected in the post-cruise report):

Oxygen Kit(s):

Make: SCRP Model: _____ Kit Number: 1
Make: _____ Model: _____ Kit Number: _____
Comments on performance during cruise (comments should also be reflected in the post-cruise report):

Thermosalinograph System (SBE21):

Program: SCS Version: _____ SN 0620
Sampling interval (seconds): 5
Fluorometer sensor serial number: WS35-953 P
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 All GOOD

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:

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Month <u>June</u>				Year <u>2019</u>		Vessel <u>Tully</u>				Cruise ID <u>2019-006</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
1	S103	03	02:28	BE	ROS	US	48° 35.52	123° 30.23	226		1 - 17	17	MG	☒	
			02:32	BO			48° 35.51	123° 30.22		200	-			☐	MAY BE ANOXIC @ BOT
			02:54	EN			48° 35.50	123° 30.21			-			☐	
2	JF1	03	07:52	BE	LOOP	-	48° 15.74	123° 30.07	151		18 -		RS	☐	1 NUT, 1 SAL, 2 CHL
3	JF2	03	10:10	BE	LOOP	-	48° 18.769	123° 00.167	178		19 -		RS	☐	1 NUT, 1 SAL, 2 CHL
4	JF3	03	12:15	BE	LOOP	-	48° 27.10	124° 30.22	221		20 -		RS	☐	1 NUT, 1 SAL, 2 CHL
5	JF4	03	14:10	BE	LOOP	-	48° 31.120	125° 00.510	244		21 -		RS	☐	1 NUT, 1 SAL, 2 CHL
6	P1	3	16:27	BE	ROS		48° 34.430	125° 30.140	135		22 - 25	4	SR	☒	
			16:30	BO			48° 34.450	125° 30.180		125	-			☐	16:30
			16:36	EN			48° 34.470	125° 30.240			-			☐	
7	P2	03	19:02	BE	ROS		48° 36.06	125° 59.97	117		41 - 52	12	MG	☒	DMS OUT OF ORDER
			19:04	BO			48° 36.06	125° 59.98		100	-			☐	
			19:24	EN			48° 36.04	126° 0.02			-			☐	
8	P2	03	19:42	BE	NET	✓	48° 36.05	126° 0.11	117		-		MG	☐	BONGO
			19:56	BO			48° 36.04	126° 0.16		110	-			☐	
			19:57	EN			° 36.04	° 0.16			-			☐	
9	P2	03	20:16	BE	NET	✓	48° 36.01	126° 00.20	117		-		MG	☐	SCAR
			20:29	BO			48° 36.02	126° 00.27		110	-			☐	
			20:31	EN			48° 36.03	126° 00.26			-			☐	

Event Type:

BOT = Bottle cast (no CTD)
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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

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→ CTD Con file is 2019-005-ctd.xmlcon that's ok

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Month <u>JUN</u>			Year <u>2019</u>			Vessel <u>TULLY</u>			Cruise ID <u>2019-006</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
							Latitude	Longitude							
10	P2	3	20:38	BE	ROS	US	48°36.03	126°00.25	119		26 - 40	15	MR	☒	Deep Cast
			20:41	BO			48°36.02	126°00.25		110	-			☐	
			20:50	EN			48°35.99	126°00.22			-			☐	
11	P3	3	22:46	BE	ROS	US	48°37.45	126°20.10	820		53 -	1	MG	☒	PROBLEM @ 500M <u>WINDY</u>
			23:07	BO			48°37.45	126°20.10		813	-			☐	
			23:22	EN			48°37.45	126°20.20			-			☐	
12	P4	4	01:34	BE	ROS	US	48°38.97	126°39.94	1321		54 - 70	17	MG	☒	DHS CAST
			01:40	BO			48°38.95	126°39.90		300	-			☐	
			02:01	EN			48°38.91	126°39.83			-			☐	
13	P4	4	02:47	BE	ROS	US	48°38.93	126°39.83	1320		71 - 89	19	MR	☒	DEEP CAST
			03:10	BO			48°38.91	126°39.79		1321	-			☐	D 1304 A 10 P 1320 S 1322
			03:49	EN			48°38.89	126°39.72			-			☐	LOOP 2 OXYS
14	P4	4	05:03	BE	NET	UN	48°39.01	126°40.11	1320		-		MG	☐	14PS
			05:56	BO			48°38.99	126°39.97		1200	-			☐	
			06:26	EN			48°39.00	126°40.00			-			☐	
15	P4	4	07:00	BE	NET	UN	48°39.01	126°40.05	1326		-		SR	☐	FLYING NET
			07:28	BO			48°39.02	126°40.05		250	-			☐	
			07:33	EN			48°39.02	126°40.06			-			☐	
16	P4	4	07:40	BE	NET	UN	48°39.97	126°30.96	1326		-		SR	☐	BONSO

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Notes:

Time Code:

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

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STOPPED @ 500M DUE TO STRANGE NOISE CREW GOING TO GREASE WINCH ~ 5 MIN NO NOISE ON START DOWN

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Month <u>JUN</u>			Year <u>2019</u>			Vessel <u>TULLY</u>			Cruise ID <u>2019-006</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
16	P4	4	07:53	BO	NET	UN	48°38.97	126°39.97	1326	250	-		SR	☐ ☐	BONGO
			07:58	EN			48°39.01	126°40.05			-			☐ ☐	
17	P4	4	08:11	BE	ROS	US	48°38.97	126°39.99	1320		90-105	16	SR	☒ ☐	NTRU
			08:35	BO			48°38.96	126°39.37		1310	-			☐ ☐	UBC
			09:03	EN			48°39.97	126°39.83			-			☐ ☐	
18	P4	4	09:22	BE	ROS	US	48°39.01	126°39.96	1318		106-115	10	SR	☒ ☐	Productivity
			09:26	BO			48°39.00	126°39.96		150	-			☐ ☐	NTRU
			09:31	EN			48°39.01	126°39.95			-			☐ ☐	
19	P5	4	12:05	BE	ROS	US	48°41.46	127°9.99			-		SR	☒ ☐	loop 5019
			12:40	BO			48°41.49	127°10.10		2005	116-	1		☐ ☐	1xnt, 1xsal,
			13:14	EN			48°41.51	127°10.06			-			☐ ☐	2xchla
20	Loop 20	4	15:15	Loop	Loop		48°44.35	127°37.47	2361		118 -5020		SR	☐ ☐	1xnt 1sal 2chla
21	P6	4	15:34	BE	ROS	US	48°44.58	127°39.99		2005	117	1	SR	☒ ☐	
			16:03	BO			48°44.63	127°39.99			-			☐ ☐	
			16:43	EN			48°44.59	127°39.96			-			☐ ☐	
22	P7	4	19:48	BE	ROS	US	48°46.57	128°10.09	2508		119-	1		☐ ☐	Loop 1xnt 1sal 2chla
	P7		19:54	BO			48°46.56	128°10.09		2005	-			☐ ☐	
			20:28	EN			48°46.54	128°10.12			-			☐ ☐	
			:				°	°			-			☐ ☐	

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Notes:

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Month <u>JUNE</u>				Year <u>2019</u>		Vessel <u>TULLY</u>				Cruise ID <u>2019-06</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
							Latitude	Longitude							
23	P8	04	22:55	BE	ROS	US	48°49.03	128°40.09	2521		119-142	24	MG	☒ ☐	2 OXY LOOPS
			23:27	BO			48°49.06	128°40.06		2005	-			☐ ☐	
		5	00:19	EN			48°49.02	128°40.01			-			☐ ☐	
24	P8	05	01:28	BE	NET	UN	48°49.01	128°39.98	2520		- - -	-	MG	☐ ☐	Bongo
			01:49	BO			48°48.96	128°40.06		250	-			☐ ☐	
			01:54	EN			48°48.96	128°40.07			-			☐ ☐	
25	P8	05	02:07	BE	NET	UN	48°49.00	128°40.04	2520		- - -	-	MG	☐ ☐	Bongo (deep)
			03:00	BO			48°48.90	128°40.09		1200	-			☐ ☐	
			03:20	EN			48°48.91	128°40.10			-			☐ ☐	
26	P9	05	05:54	BE	ROS	US	48°51.41	129°09.92	2344		143-	1	MG	☒ ☐	
			06:25	BO			48°51.39	129°09.91		2005	-			☐ ☐	
			06:57	EN			48°51.340	129°09.940			-			☐ ☐	
27	P10	05	09:23	BE	ROS	US	48°53.690	129°40.090	2646		144-	1	SN	☒ ☐	NTR
			09:56	BO			48°53.710	129°39.950		2005	-			☐ ☐	2CAL 1SAC INLT
			10:27	EN			48°53.610	129°39.980			-			☐ ☐	
28	P11	05	12:53	BE	ROS	US	48°56.030	130°9.940	2575		145-	1	SN	☒ ☐	
			13:27	BO			48°55.92	130°09.93		2005	-			☐ ☐	
			14:01	EN			48°55.750	130°10.060			-			☐ ☐	
			:				.	.			-			☐ ☐	
							.	.			-			☐ ☐	

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Month <u>June</u>			Year <u>2019</u>			Vessel <u>Tully</u>			Cruise ID <u>2019-006</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
29	P12	05	16:36	BE	ROS	US	48° 58.220	130° 40.020	3226	150	146-155	10	SN	☒ ☐	Productivity
			16:40	BO			48° 58.220	130° 40.020		150	-			☐ ☐	Cast
			16:45	EN			48° 58.230	130° 40.020			-			☐ ☐	NTR
			:				.	.			-			☐ ☐	PAR OFF
30	P12	05	17:18	BE	BOT	DN	48° 58.197	130° 39.975	3227		-			☐ ☐	Go-Fls
			:	MR			.	.		50	-			☐ ☐	
			:	EN			ABORTED	.			-			☐ ☐	
31	P12	05	17:41	BE	BOT	DN	48° 58.197	130° 39.973	3230		156-159	4	KS/SR	☐ ☐	Go-Fls
			17:51	MR			48° 58.196	130° 39.975		50	-			☐ ☐	
			18:04	EN			48° 58.197	130° 39.973			-			☐ ☐	
32	P12	05	18:10	BE	ROS	US	48° 58.200	130° 39.970	3228		160-183	24	SR	☒ ☐	Deep Cast
			19:06	BO			48° 58.20	130° 39.97		3274	-			☐ ☐	PAR OFF 20X/LOOPS
			20:25	EN			48° 58.20	130° 39.97			-			☐ ☐	OUT OF ORDER 24 1ST
33	P12	05	20:41	BE	BOT	DN	48° 58.20	130° 39.97	3232		-	4	KS	☐ ☐	Trace metal
			21:04	BO			48° 58.20	130° 39.98		800	184-187			☐ ☐	
			21:38	EN			48° 58.20	130° 39.97			-			☐ ☐	
34	P12	05	21:51	BE	ROS	US	48° 58.22	130° 39.90	3231		188-205	18	MG	☒ ☐	PAR ON
			21:57	BO			48° 58.22	130° 39.89		300	-			☐ ☐	DMS + 100/DO/CDOM
			22:18	EN			48° 58.23	130° 39.90			-			☐ ☐	OUT OF ORDER

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Notes:

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PAR removed (A/D voltage 4) - left can file as is

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Dropped messenger off bottle 2 → restart cast

D 3222 A 10.5 P 3275 33227

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Month <u>JUN</u>				Year <u>2019</u>		Vessel <u>TULLY</u>				Cruise ID <u>2019-006</u>						Page <u>6</u> of <u>15</u>	
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments		
							Latitude	Longitude									
35	P12	05	23:05	BE	BOT		48°58.19	130°39.91	3233		206-209	4	KS	☐ ☐	TRACU MOTAL		
			23:25	MR			48°58.19	130°39.91		300	-			☐ ☐			
			23:43	EN			48°58.19	130°39.91			-			☐ ☐			
36	P12	05	23:53	BE	NET	UN	48°58.19	130°39.89	3229		- - -	-	MG	☐ ☐	Bongo (250)		
		06	00:08	BO			48°58.21	130°39.96		250	-			☐ ☐			
			00:12	EN			48°58.21	130°39.96			-			☐ ☐			
37	P12	06	00:22	BE	NET	UN	48°58.21	130°39.95	3231		- - -	-	MG	☐ ☐	Bongo (1200)		
			01:00	BO			48°58.21	130°39.95		1200	-			☐ ☐			
			01:20	EN			48°58.21	130°39.96			-			☐ ☐			
38	P12	06	01:33	BE	NET	UN	48°58.21	130°39.95	3220		- - -	-	MG	☐ ☐	Scor net		
			01:46	BO			48°58.21	130°39.97		250	-			☐ ☐			
			01:51	EN			48°58.21	130°39.96			-			☐ ☐			
39	P12	06	02:43	BE	ROS	VS	48°58.26	130°39.86	3230		210-225	16	MG	☒ ☐	UBC EAST		
			03:17	BO			48°58.26	130°39.86		2005	-			☐ ☐			
			03:55	EN			48°58.26	130°39.86			-			☐ ☐			
40	P13	06	09:09	BE	ROS	VS	49°02.630	131°39.860	2995		226-	1	SN	☒ ☐	NTRU		
			09:43	BO			49°02.630	131°39.910		2005	-			☐ ☐			
			10:13	EN			49°02.540	131°40.050			-			☐ ☐			
			:				.	.			-			☐ ☐	> PAIR REMOVED		

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
 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

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Month June				Year 2019			Vessel Tully			Cruise ID 2019-006					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
41	Loop 41	06	11:50		Loop		49° 03.933	131° 56.996	3164		5041			☐	1XNA 2XCHL 1XSA
42	P14	06	15:47	BE	ROS	US	49° 07.330	132° 39.880	3310		227-250	24	SR	☒	PAR OFF →
			16:44	BO			49° 07.320	132° 39.900		3359	-			☐	NTR
			18:02	EN			49° 07.470	132° 40.000			-			☐	
43	Loop 43	06	22:23	BE	Loop	—	49° 11.04	132° 28.92	2993	4.5	5043	—	MG	☐	PAR ON
44	P15	06	23:25	BE	ROS		49° 11.93	133° 39.95	3403		251	1	MG	☒	1NOT 1SAL 2CHL
		07	00:01	BO			49° 11.92	133° 40.00		2005	-			☐	
			00:33	EN			49° 11.91	133° 40.02			-			☐	PAR OFF
45	P16	07	05:09	BE	ROS	US	49° 16.97	134° 39.99	3623		252-275	24	MG	☒	DEEP CAST 2oxy loops D 3622 P 3685 A 9.4 S 3624
			06:09	BO			49° 16.97	134° 39.99		3685	-			☐	
			07:32	EN			49° 16.970	134° 39.990			-			☐	
46	P16	07	08:27	BE	SN NET	UN	49° 16.97	134° 39.97	3624		- - -		SR	☐	started late recording
			08:28	BO			49° 16.97	134° 39.97		250	-			☐	Run not
			08:32	EN			49° 16.97	134° 39.96			-			☐	
47	P16	07	08:48	BE	BOT		49° 16.98	134° 39.99	3625		276-278	4	SR	☐	Trace metals
			09:04	MR			49° 16.99	134° 39.99		50	-			☐	
			09:11	EN			49° 16.98	134° 39.99			-			☐	
48	P16	07	09:18	BE	Bongo	UN	49° 16.99	134° 39.99	3624		- - -	/	SR	☐	BONGO
			10:02	BO	NET		49° 17.27	134° 40.30		1200	-			☐	

Event Type: LOOP = Sea Water Loop
 BOT = Bottle cast (no CTD)
 CTD = Standalone CTD
 ROS = CTD in Rosette
 SET = Fish Set

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

Notes:

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Forgot to turn on pumps, hence $\downarrow 10 \uparrow 10 \downarrow 10 \uparrow 10$

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MARKED THEM

BOTTLES 10, 14, 23 CONSISTENTLY LEAKING AT BOTTOM CAP
FOUR THREE TWO TIMES SO FAR PLEASE TRACK

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Month <u>June</u>				Year <u>2013</u>			Vessel <u>Tully</u>			Cruise ID <u>2013-006</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
48	P16	07	10:22	EN	BNGO	UN	49° 17.38	134° 40.32	3624		-			☐ ☐	1200m Bongo
49	P16	07	10:37	BE	BOT		49° 17.38	134° 40.32	3625	1200	280-283	4	SR	☐ ☐	Trace metals
			11:06	MR			49° 17.34	134° 40.25		800	-			☐ ☐	
			11:35	EN			49° 17.34	134° 40.23			-			☐ ☐	
50	P16	07	11:45	BE	ROS	US	49° 17.340	134° 40.240	3624		284-293	10	SR	☒ ☐	Productivity
			11:49	BO			49° 17.340	134° 40.230		150	-			☐ ☐	Cast
			11:54	EN			49° 17.340	134° 40.240			-			☐ ☐	PAR on
51	P16	07	12:31	BE	NET	UN	49° 17.08	134° 39.97	3625		- - -		SR	☐ ☐	Bongo 250
			12:40	BO			49° 17.07	134° 39.96		250	-			☐ ☐	
			12:44	EN			49° 17.08	134° 39.97			-			☐ ☐	
52	P16	07	13:01	BE	BOT	US	49° 17.08	134° 39.97	3624		294-297	4	SR	☐ ☐	Trace metal
			13:15	MR			49° 17.08	134° 39.97		300	-			☐ ☐	
			13:30	EN			49° 17.08	134° 39.97			-			☐ ☐	
53	P16	07	13:36	BE	ROS	US	49° 17.08	134° 39.97	3624		298-313	16	SR	☒ ☐	DMS
			13:42	BO			49° 17.08	134° 39.97		300	-			☐ ☐	
			14:00	EN			49° 17.08	134° 39.97			-			☐ ☐	
54	Loop 54	07	15:31	BE	LOOP		49° 18.19	135° 00.78	3223		534 - 5054	1	SR	☐ ☐	
			:				°	°			-			☐ ☐	
			:				°	°			-			☐ ☐	

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

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→ Replaced spigots on 2, 4, 16 (red o-rings on front) → they were sticky.

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Month <u>June</u>				Year <u>2019</u>		Vessel <u>Tully</u>				Cruise ID <u>2019-066</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
55	P17	07	18:31	BE	ROS	US	49° 20.900	135° 39.890	3559		314-	1	SR	☒	
			19:04	BO			49° 20.85	135° 39.90		2005	-		MG	☐	
			19:35	EN			49° 20.85	135° 39.97			-			☐	
56	P17	07	19:43	BE	DRF	-	49° 20.95	135° 40.53	3520	-	- - -	-	MG	☐	66021090 NOAA
57	P18	07	23:57	BE	ROS	US	49° 25.99	136° 39.98	3822		315 - 338	24	MG	☒	PAR OFF
		08	00:59	BO			49° 25.99	136° 39.97		3892	-			☐	D 3822 P 3892 A 9.91 S 3822
			02:27	EN			49° 25.93	136° 39.91			-			☐	PAR ON
58	LOOP 58	08	05:09	BE	LOOP	/	49° 28.53	137° 18.96	3878	4.5	5058	/	MG	☐	2 CHL 1 SAL
59	P19	08	06:44	BE	ROS	US	49° 30.02	137° 39.98	3911		339-	1	MG	☒	LOOP 1 NOT 1 SAL 2 CHL
			07:17	BO			49° 29.980	137° 39.970		2005	-			☐	
			07:47	EN			49° 29.930	137° 40.120			-			☐	
60	P20	08	12:07	BE	BOT		49° 34.247	138° 40.053	3949		340-343	4	SR	☐	60-FLO-TM
			12:32	BO			49° 34.247	138° 40.051		800	-			☐	Messenger Release
			13:00	EN			49° 34.243	138° 40.055			-			☐	
61	P20	08	13:09	BE	ROS	US	49° 34.250	138° 40.050	3949		344-353	10	SR	☒	Productivity
			13:12	BO			49° 34.250	138° 40.050		150	-			☐	NRU
			13:17	EN			49° 34.240	138° 40.050			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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
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

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PUT 2 KNOTS IN LINE (BOT 6) TO BOTTOM CAP BOTTLE FULL OF WATER BUT TOP CAP OPEN

BOTTLE WAS NOT TRIPPED FOR P17 - POSSIBLE THIS WAY AT P16 DEPLOYMENT

CHANGED SPIGOTS (2) 8, 13 (16) SEE IF THAT WORKS BETTER FOR OPENING + CLOSING



already changed last watch

AND CHANGE AGAIN FOR 16

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Month <u>June</u>				Year <u>2019</u>		Vessel <u>TJ My</u>				Cruise ID <u>2019-006</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
62	P20	08	14:37	BE	BOT		49° 34.06	138° 40.29	3948		373-381	4	KS	☐	Trace metals
			14:48	MR			49° 34.34	138° 40.29		50	-			☐	Go-Flu.
			14:54	EN			49° 34.06	138° 40.29			-			☐	
63	P20	08	19:58	BE	ROS	US	49° 34.05	138° 39.81	1958		386-401	16	MG	☒	DMS OUT OF ORDER
			20:02	BO			49° 34.05	138° 39.80	3948	300	-			☐	
			20:25	EN			49° 34.03	138° 39.78			-			☐	
64	P20	8	20:36	BE	BOT		49° 34.02	138° 39.78	3948		382-385	4	KS	☐	TM
			20:54	MR			49° 34.02	138° 39.77		300	-			☐	
			21:11	EN			49° 34.02	138° 39.77			-			☐	
65	P20	8	21:21	BE	ROS	US	49° 34.02	138° 39.77	3948		374-377	24	MR/MG	☒	Deep Cast PAR OFF
			22:26	BO			49° 34.02	138° 39.77		4024	-			☐	P 3951 P 4024 A 10.3 S 4277
			23:53	EN			49° 34.02	138° 39.77			-			☐	
66	P21	9	05:30	BE	ROS	/	49° 38.12	139° 39.97	3942		402-421	20	MG	☐	BONGO (net torn, cancelled)
			06:05	BO			49° 38.14	139° 39.96		2005	-			☐	Dis Soc Doc Poc Pic
			07:00	EN			49° 38.140	139° 39.960			-			☐	
67	P21	9	07:07	DE	DRF		49° 38.159	139° 40.440	3942		-			☐	NOAA Drafters
			:				.	.			-			☐	66021080
			:				.	.			-			☐	66021040
68	Loop68	9	10:24	BE	LOOP		49° 40.973	140° 26.056	3945		5069-		SR	☐	

Event Type:

BOT = Bottle cast (no CTD)
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LOOP = Sea Water Loop
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Bottle Firing Method:

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 UN = Up / No stop
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Notes:

Time Code:

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

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 MR = Messenger Release Time
 RE = Recover Mooring Time

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Month <u>June</u>				Year <u>2019</u>		Vessel <u>Tully</u>				Cruise ID <u>2019-006</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
69	P22	9	11:28	BE	ROS	US	49°42.010	140°39.960	4293		422-445	24	SR	☒	PAR SKI off
			12:35	BO			49°42.000	140°40.060	3917	4000	-			☐	
			14:00	EN			49°42.01	140°40.12			-			☐	
70	P23	9	18:06	BE	ROS	US	49°46.030	141°39.970	4032		446-	1	SR	☒	PAR ON
			18:46	BO			49°46.02	141°39.95		2005	-			☐	Loop taken 5070
			19:11	EN			49°46.01	141°39.97			-			☐	2x drl, 1x sal, 1x nut
71	P23	9	19:21	BE	DRF	✓	49°46.04	141°40.58	4030	SRF	-		MG	☐	66020250
72	P24	9	23:29	BE	ROS	US	49°50.22	142°39.95	3969		447-470	24	MG/MR	☒	PAR OFF
		10	00:38	BO			49°50.15	142°39.81		4046	-			☐	DIC DOC DPC PIC POC CDOH S 3969 P 4046 A 10 D 3994
			02:06	EN			49°50.24	142°40.00			-			☐	
73	P24	10	02:14	BE	DRF	✓	49°50.32	142°40.82	3969	SRF	-		MG	☐	66020230
74	P25	10	05:57	BE	ROS	US	50°00.04	143°36.42	4118		471-490	20	MG	☒	DIC DOC ETC
			06:32	BO			50°00.02	143°36.31		2005	-			☐	
			07:22	EN			50°00.050	143°36.250			-			☐	
75	P35	10	10:27	BE	ROS	US	50°00.200	144°18.260	4128		491-	1	SR	☒	NTPC
			11:02	BO			50°00.210	144°18.260		2005	-			☐	
			11:34	EN			49°59.960	144°18.120			-			☐	
			:				°	°			-			☐	
7AB	P25	10	107:35		DRF		°	°			-			☐	NOAA 66021060

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

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SPLIT MY THUMB TRYING OPEN/CLOSE SPIGOTS 50%

CHANGED 13 → 16 SPIGOTS THIS WILL BE THE SECOND CHANGE FOR 14 + 16

↓ 16 SEEMS WAY BETTER BUT THIS WILL BE TEST

↓ CHANGED AGAIN

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Month June			Year 2019			Vessel Tully				Cruise ID 2019-006					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
76	P26	10	15:10	BE	ROS	US	50° 00.030	145° 00.050	4277		492 - 510	19	SL	☒ ☐	CHEN CAST
			15:44	BO			50° 0.030	144° 59.980		2005	-			☐ ☐	PAR ON
			16:34	EN			50° 00.050	145° 00.010			-			☐ ☐	
77	P26	10	17:53	BE	ROS	US	50° 00.010	144° 59.900	4226		511 - 534	24	SR	☒ ☐	PAR OFF
			19:06	BO			50° 00.02	144° 59.99		4318	-		MG	☐ ☐	54227 P 4319
			20:45	EN			50° 00.01	145° 00.01			-			☐ ☐	A 10 D 4237 DEEP CAST 2 OXY LOOPS
78	P26	10	21:59	BE	ROS	US	50° 0.02	145° 0.05	4226		535 - 550	16	MG	☒ ☐	DMS OUT OF ORDER
			22:04	BO			50° 0.02	145° 0.04		300	-			☐ ☐	PAR ON
			22:26	EN			49° 59.98	145° 0.00			-			☐ ☐	
79	P26	11	01:04	BE	ROS	US	50° 0.07	145° 0.02	4227		551 - 570	20	MG	☒ ☐	UBC CAST
			01:32	BO			50° 0.07	144° 59.98		2005	-			☐ ☐	SALINITY STORAGE EXP
			02:07	EN			50° 0.05	144° 59.97			-			☐ ☐	WATER FOR SARAH-ANN
80	P26	11	02:35	BE	NET	/	50° 0.04	145° 0.01	4228		-		MG	☐ ☐	BONCO
			02:54	BO			50° 00.01	145° 00.02		350	-			☐ ☐	
			03:00	EN			50° 00.01	145° 00.02			-			☐ ☐	
81	P26	11	07:12	BE	BOT		50° 00.02	144° 59.91	4229		571 - 574	4	KS	☐ ☐	Trace metals 800m
			07:26	HR			50° 00.02	144° 59.91		800	-			☐ ☐	
			08:02	EN			50° 00.01	144° 59.75			-			☐ ☐	
82	P26	11	09:18	BE	BOT		49° 59.95	145° 00.07	4285		575 - 578	4	KS	☐ ☐	Trace metals 300m

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
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Bottle Firing Method:

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

Notes:

Time Code:

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

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

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Month June			Year 2019			Vessel Tully			Cruise ID 2019-006						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
82	P26	11	09:32	MR	BOT		49° 59. 88	145° 00. 02		300	-		RS	☐ ☐	TM 300m
			09:52	EN			49° 59. 79	144° 59. 35			-			☐ ☐	
83	P26	11	10:40	BE	BOT		49° 59. 95	145° 00. 01	4226		578-582	4	RS	☐ ☐	TM 50m
			10:51	MR			49° 59. 90	144° 59. 95		50	579-			☐ ☐	
			11:04	EN			49° 59. 826	144° 59. 912			-			☐ ☐	
84	P26	11	11:52	BE	BOT		49° 59. 9582	144° 59. 9264			583-586	4	RS	☐ ☐	Calibration
			12:06	MR			49° 59. 784	144° 59. 828			585-588			☐ ☐	
			12:11	EN			49° 59. 75	144° 59. 82	4258	95	-	4		☐ ☐	
85	P26	11	12:28	BE	ROS	US	50° 00. 040	145° 00. 060	4295		587-596	10	SR	☒ ☐	Productivity
			12:31	BO			50° 00. 030	145° 00. 050		150	-			☐ ☐	
			12:36	EN			50° 00. 0000	145° 00. 040			-			☐ ☐	
86	P26	11	15:43	BE	NET		50° 00. 028	144° 59. 943	4226		-		RS	☐ ☐	Bongo VNH
			15:53	BO			49° 59. 975	144° 59. 938		250	-			☐ ☐	
			15:59	EN			49° 59. 975	144° 59. 935			-			☐ ☐	
87	P26	11	16:50	BE	NET		49° 59. 994	145° 00. 123	4728		-		RS	☐ ☐	SCOR VNH
			17:00	BO			50° 00. 002	145° 00. 167		250	-			☐ ☐	
			17:05	EN			50° 00. 017	145° 00. 154			-			☐ ☐	
			:				°	°			-			☐ ☐	
			:				°	°			-			☐ ☐	

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Notes:

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DAILY SCIENCE LOG

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Month JUNE				Year 2019		Vessel TULLY				Cruise ID 2019-006					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
88	P26	11	17:11	BE	NET	-	50° 00.164	145° 00.188	4227		-		SR	☐ ☐	Ring (seal) redo, VNH
			17:25	BO			49° 59.994	145° 00.175		250	-			☐ ☐	no sample!
			17:30	EN			49° 59.986	145° 00.191			-			☐ ☐	TAKASHED!
89	P26	11	17:41	BE	NET	-	49° 59.97	145° 00.169	4229		-		SR	☐ ☐	Boys - 1200m
			18:26	BO			49° 59.877	145° 00.131		1200	-			☐ ☐	✓
			18:47	EN			49° 59.628	145° 00.227			-			☐ ☐	
90	P26	11	18:55	BE	DRF	-	49° 59.63	144° 59.79	4227	SRF	-		MG	☐ ☐	→ 103 DRIFTERS →
91	P26	11	19:06	BE	DRF	-	49° 59.70	144° 58.12	4227	SRF	-		MG	☐ ☐	NOAA 0240 0280
92	P26	12	00:53	RE	DRF	-	50° 24.79	143° 48.23	4305	SRF	-		MG	☒ ☐	0948 RECOVERY →
93	PA-013	12	19:52	BE	MOR	-	50° 10.323	144° 41.364	4164		-		MG	☐ ☐	TOP PART Buoy out
		13	01:19	DE			50° 07.592	144° 50.418	4196		-			☐ ☐	ANCHOR
94	PA-013	13	02:59	BE	ROS	US	50° 07.72	144° 50.26	4197		597-600	4	MG	☒ ☐	CALIBRATION O ₂ → ONR
			03:05	BO			50° 07.73	144° 50.24		350	-			☐ ☐	
			03:13	EN			50° 07.72	144° 50.23			-			☐ ☐	
95	PA-012	13	15:02	BE	ROS	US	50° 02.920	144° 53.050	4205		-		SR	☒ ☐	CALIB O ₂ → ONR
			15:09	BO			50° 02.930	144° 53.050		350	601-604	4		☐ ☐	
			15:18	EN			50° 02.920	144° 53.080			-			☐ ☐	
96	PA-012	13	17:01	BE	MOR	✓	50° 03.12	144° 52.23	4204		-		MG	☐ ☐	BOAT IN WATER
			17:51	RE			50° 03.11	144° 52.26			-			☐ ☐	ON DECK Buoy

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BOSS 1006, 1007, 1008, 1009, 1010 + GRID 1000
OSKER 0425, 0500, 0479

ALONG SIDE LAT 50.07.93 LONG 14448.91 D 4191

~ 1410 13 JUNE UTZ: STOP EK60 FOR MODERN RELEASE
1440 RESTART

657993

DAILY SCIENCE LOG

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Month JUN			Year 2019			Vessel TULLY			Cruise ID 2019-06						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
96	PA-012	13	21:06	EN	MOR	/	50° 00.268	144° 50.246	4206		-		MG	☐	
97	LOOP97	14	20:14	BE	LOOP	/	49° 32.51	138° 07.06	3925	4.5	5097	/	MG	☐	LINE ON DECK
98	LOOP98	15	17:31	BE	LOOP	/	49° 21.39	131° 54.47	3108	4.5	5098	/	MG	☐	ISAL / NUT 3CHL
99	LOOP99	15	21:55	BE	LOOP	/	49° 12.93	130° 40.18	2991	4.5	5099	/	MG	☐	" " "
100	LOOP100	16	02:52	BE	LOOP	/	49° 02.33	129° 18.62	2432	4.5	5100	/	MG	☐	" " "
101	P4	16	14:20	BE	BOT		48° 38.93	126° 40.00	1323		605-608	4	MG	☐	" " "
			14:28	MR			48° 38.92	126° 39.98		300	-		KS	☐	TM-300m
			14:35	EN			48° 38.93	126° 39.97			-			☐	
102	P4	16	14:45	BE	ROS	US	48° 38.930	126° 39.980	1325		609-627	19	MG?	☒	Loops 1sal 2chl 1 Nut
			15:00	BO			48° 38.930	126° 39.980		1322	-		SR	☐	
			15:45	EN			48° 38.940	126° 39.990			-			☐	
103	P4	16	:	BE			°	°	1325	50	-			☐	
			16:07	MR			48° 38.95	126° 39.99			628-631	4	KS	☐	
			16:21	EN			48° 38.96	126° 40.05			-			☐	
104	P4	16	16:26	BE	NET		48° 38.95	126° 40.02			-			☐	
			16:36	BO			48° 39.00	126° 40.20			-			☐	BONGO
			16:41	EN			48° 39.01	126° 40.27			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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