

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2019-008

DATE:

From: 13 AUGUST 2019

To: 29 AUGUST 2019

VESSEL:

JOHN P TULLY

PROJECT(S):

LING P

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

WaterProperties.ca

Captain: ROBERT BARKER First Officer: RYAN HULL

Second Officer: FREDERICK SHEPPARD Third Officer: ALEXANDRIA BANNERMAN

Fishing Master: _____ Chief Engineer: ROGER HADATON

Mission Participants / Agencies:

DFo-Ios ; DFo-Bio ; UBC ; UVic ; UMIAMI

**** 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
MICHAEL ARYCHUK	06-18	B	CHRIS PAYNE	12-18	H
RICHARD NELSON	12-18	C			
CHELSE LOPEZ	18-24	D			
SILE KAFRISSIN	00-06	D			
HUGH MACLEAN	00-12	E			
MOIRA GALBRAITH	12-24	F			
ROBYN TAVES	06-12	F			
RACQUELLE MANGAHAS	18-24	G			
JADE SHILLER	00-06	G			
MICHAEL LIVINGSTON	06-12	H			

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: Tully laptop

Data acquisition program: Seasave

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

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: Wetlabs Model: C-Star s/n: 1883DG

Transmissometer: Wetlabs Model: C-Star s/n: 1185DR

Fluorometer: Model Seapoint Cable gain: 10X s/n: 3640 P S or NO pump?

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

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

PAR sensor: Prophorcal Model: OSP2300 s/n: 70613 Surface PAR? Y / N

Other sensors: Altimeter 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)

Rosette Setup:

Number of bottles: 24
Manufacturer: GO IOS
Volume of bottles (litres): 10

Winches:

1. Make: HAWBOLDT Model: HAW Serial #: 17024 Used for: CTD
2. Make: HAWBOLDT Model: HAW Serial #: 17027 Used for: MPS
3. Make: DT Model: _____ Serial #: 1263 Used for: THR

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

4 SWANN 329 1482 BONUBO
5 HAWBOLDT HAW 1076 GO FLOS
GOOD

Salinometer:

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

Oxygen Kit(s):

Make: SCHLIPS Model: COMPUKOR Kit Number: 2
Make: _____ Model: _____ Kit Number: _____

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

SEE OXY KIT BOOK FOR DASIMAT INFO

Thermosalinograph System (SBE21):

Program: 5 Version: _____ S/N: 45-0620

Sampling interval (seconds): 30

Fluorometer sensor serial number: WS3S-953P

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

POSITION NOT RECORDING PROPERLY

ADCP Setup:

NONE

Computer time zone: _____ User Exits: Name: _____ Exit points: _____
Sampling interval (sec): _____ Name: _____ Exit points: _____
Bin Length: (2⁴x): _____ 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:

Scientific Equipment Used During Cruise

This sheet allows you to enter all of the equipment used while on board. Please use the separate CTD sheet for entry for SBE 9/16/19/25.

Other CTD units:

RBR Serial Number: _____ Sensors: _____

Others: _____

Plankton Nets:

Bongo #1 Frame Size: 0.56 cm Mesh: 236 μ m Flowmeter: 7129

Bongo #2 Frame Size: 0.56 cm Mesh: 236 μ m Flowmeter: 4794

Frame Size: _____ cm Mesh: _____ μ m Flowmeter: _____

Frame Size: _____ cm Mesh: _____ μ m Flowmeter: _____

Multinet ☒ BIONESS ☐ Neuston ☐ Others: _____

Trawl Gear:

Midwater Trawls: SOG ☐ Highseas ☐ Pelagic ☐ Other: _____

Bottom Trawls: Atlantic Western IIA ☐ Yankee 36 Hard & Soft Bottom ☐ Other: _____

American Shrimp Trawl ☐

Notes: _____

Trawl Doors: USA Jet ☐ Tyburon ☐

Sounders : Wesmar 380 ☐ Others: _____

Acoustics:

Echosounder #1 _____ Frequencies (KHz): 12 ☐ 18 ☒ 38 ☒ 70 ☒ 120 ☒ 200 ☒

Others: _____

Echosounder #2 _____ Frequencies (KHz): 12 ☐ 18 ☐ 38 ☐ 70 ☐ 120 ☐ 200 ☐

Others: _____

Software & Notes: _____

Other Gear in Operation:

1. _____
2. _____
3. _____
4. _____
5. _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>AUG</u>			Year <u>2019</u>			Vessel <u>TULLY</u>			Cruise ID <u>2019-008</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
001	S103	14	21:04	BE	ROS	US	48° 35.51	123° 30.29	224		1 - 17	17	MG	☒ ☐	CHECK CABLE FOR KINK
			21:09	BO			48° 35.51	123° 30.29		200	-			☐ ☐	
			21:31	EN			48° 35.51	123° 30.29			-			☐ ☐	
2	59	15	00:17	BE	ROS	US	48° 34.96	123° 14.65	227		18 - 30	13	ML	☒ ☐	
			00:22	BO			48° 34.97	123° 14.64		223	-			☐ ☐	
			00:37	EN			48° 34.93	123° 14.53			-			☐ ☐	
3	59	15	00:53	BE	Net		48° 34.79	123° 14.57	240		-		MG	☐ ☐	
			01:02	BO			48° 34.67	123° 14.72		230	-			☐ ☐	
			01:07	EN			48° 34.61	123° 14.74			-			☐ ☐	
4	JF1	15	03:41	BE	LOOP	UN	48° 15.80	123° 29.47	147	4.5	5004		MG	☐ ☐	ISAL 2CHL 1NUT
5	JF2	15	05:39	BE	LOOP	UN	48° 18.00	124° 00.00	187	4.5	5005			☐ ☐	" " "
6	JF3	15	08:05	BE	LOOP		48° 27.00	124° 29.94	223	4.5	5006		H.M.	☐ ☐	" " "
7	JF4	15	10:24	BE	LOOP		48° 31.91	124° 59.93	54	4.5	5007		H.M.	☐ ☐	" " "
8	P1	15	12:44	BE	ROS	U.S	48° 34.46	125° 30.09	135		31 - 34	4	H.M.	☒ ☐	
			12:47	BO			48° 34.47	125° 30.12		127	-			☐ ☐	
			12:53	EN			48° 34.49	125° 30.17			-			☐ ☐	
9	P1	15	12:45	BE	LOOP CS	UN	48° 34.47	125° 30.11	135	4.5	-		R.N.	☐ ☐	RICKS CS LOOP
			:				°	°			-			☐ ☐	
			:				°	°			-			☐ ☐	

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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HUGH WILL RETERMINATE WHEN THERE IS A FOUR HOUR WINDOW

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Month <u>August</u>			Year <u>2019</u>			Vessel <u>JP Tully</u>			Cruise ID <u>2019-008</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
10	P2	15	15:21	BE	ROS	U.S	48°35.99	125°59.83	115		35-44	11	HM	☒	DMS
			15:22	BO			48°35.99	125°59.83		105	-			☐	
			15:31	EN			48°35.94	125°59.87			-			☐	→ CALLED GOIS CHANGED
11	P2	15	15:48	BE	NET	—	48°35.95	125°59.87	115		-		HM	☐	
			15:53	BO			48°36.00	125°59.85			-			☐	
			15:55	EN			48°36.01	125°59.84			-			☐	
12	P2	15	16:12	BE	ROS	US	48°36.10	125°59.91	115		46-60	15	MR/HM	☒	Deep Cast
			16:15	BO			48°36.03	125°59.88			-			☐	
			16:25	EN			48°36.05	125°59.72			-			☐	
13	P3	15	18:26	BE	ROS	US	48°37.47	126°19.94	816		61- /	1	HM	☒	APPROX 1 MIN STOP @ 307M WIRE LO
			18:39	BO			48°37.48	126°19.99		806?	-			☐	
			18:56	EN			48°37.47	126°19.92			-			☐	
14	P4	15	21:08	BE	ROS	US	48°38.97	126°39.90	1322		62-77	16	MG	☒	DMS CAST
			21:14	BO			48°38.97	126°39.90		300	-			☐	
			21:37	EN			48°38.97	126°39.90			-			☐	
15	P4	15	21:48	BE	NET	—	48°38.9684	126°39.9003	1320		-		MG	☐	Bengo
			21:58	BO			48°38.9669	126°39.8995		250	-			☐	
			22:02	EN			48°38.9666	126°39.8973			-			☐	
			:				°	°			-			☐	

Event Type:

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— =

Bottle Firing Method:

US = Up / Stop (default)

UN = Up / No stop

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

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BEFORE EVENT 10, P2 DMS: FLUD CABLE CHANGED FROM 10x TO 3x.
NEW CONFIG FILE IS: 2019-008 START_3x FLUD.

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Month			Year		Vessel		Cruise ID								
AUGUST			2019		JP TULLY		2019-008								
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
16	P4	15	23:08	BE	ROS	UN	48° 38.96	126° 39.90	1318		78 - 89	12		☐ ☐	TRACE METALS
			23:36	BO			48° 38.97	126° 39.89		1200	-			☐ ☐	
		16	00:09	EN			48° 38.96	126° 39.89			-			☐ ☐	
17	P4	16	00:27	BE	ROS	US	48° 38.97	126° 39.90	1322		90 - 108	19	MG/MP	☒ ☐	DEEP CAST
			00:51	BO			48° 38.97	126° 39.90		1319	-			☐ ☐	
			01:36	EN			48° 38.97	126° 39.90			-			☐ ☐	
18	P4	16	02:44	BE	NET	/	48° 38.98	126° 39.97			-		MG	☐ ☐	BONGO
			03:30	BO			48° 38.98	126° 39.97		1200	-			☐ ☐	
			03:49	EN			48° 38.98	126° 39.96			-			☐ ☐	
19	P4	16	04:16	BE	ROS	US	48° 38.93	126° 39.91	1324		-		MG	☒ ☐	CESIUM 500M
			04:25	BO			48° 38.94	126° 39.91		500	109 - 132	24		☐ ☐	
			04:40	EN			48° 38.93	126° 39.91			-			☐ ☐	
20	LOOP P4	16	04:14	BE	LOOP	/	48° 38.93	126° 39.91	1324	4.5	5020	/	CL	☐ ☐	PH LOOP 1
21	P4	16	05:13	BE	ROS	US	48° 38.93	126° 39.91	1324		133 - 156	24	MG	☒ ☐	CESIUM 150M
			05:17	BO			48° 38.94	126° 39.91		150	-			☐ ☐	
			05:27	EN			48° 38.94	126° 39.91			-			☐ ☐	
22	P4	16	06:05	BE	ROS	US	48° 38.94	126° 39.91	1323		157 - 172	16	MG/MP	☒ ☐	UBC CAST
			06:29	BO			48° 38.94	126° 39.91		1324	-			☐ ☐	
			06:56	EN			48° 38.94	126° 39.91			-			☐ ☐	

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O₂ SENSOR WENT OFF DOWNCAST TRACK TO A LOWER READING @ 684 + RETURNED AFTER BOTTLE TRIP AT 600M
BLIP ON CHL+TRANS - SUSPECT SOMETHING WENT THROUGH IT

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Month <u>AUG</u>			Year <u>2019</u>			Vessel <u>J.P. Tully</u>			Cruise ID <u>2019-008</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
23	P4	16	07:17	BE	ROS	U.S.	48° 38. 96	126° 39. 97	1322		173 - 182	10	H.M.	☒ ☐	PROD. CAST
			07:20	BO			48° 38. 96	126° 39. 96		150	-			☐ ☐	
			07:25	EN			48° 38. 96	126° 39. 97			-			☐ ☐	
24	P5	16	10:32	BE	ROS	U.S.	48° 41. 43	127° 09. 90	2094		183 - /	1		☒ ☐	
			11:05	BO			48° 41. 44	127° 09. 90		2005	-			☐ ☐	
			11:39	EN			48° 41. 44	127° 09. 99			-			☐ ☐	
25	P6	16	14:33	BE	ROS	U.S.	48° 44. 56	127° 39. 83	2575		184 - /	1	H.M.	☐ ☐	Loop 5025
			15:07	BO			48° 44. 61	127° 39. 68		2005	-			☐ ☐	2 Ctl / 1 SAL / 1 MOR
			15:42	EN			48° 44. 63	127° 39. 66			-			☐ ☐	
26	P6	16	15:01	BE	LOOP		48° 44. 60	127° 39. 71			- /		R.N.	☐ ☐	CS Loop
27	P7	16	18:12	BE	ROS	U.S.	48° 46. 56	128° 09. 93	2507		185 - /	1	H.M.	☒ ☐	NISKIN 1 CLOSED
			18:46	BO			48° 46. 67	128° 09. 96		2005	-	(2)		☐ ☐	2000 by MISTAKE. NOT NEEDED
			19:20	EN			48° 46. 78	128° 10. 16			-			☐ ☐	
28	P8	16	21:49	BE	ROS	US	48° 49. 00	128° 39. 92	2573		186 - 209	24	MG	☒ ☐	
			22:23	BO			48° 48. 99	128° 39. 95		2005	-			☐ ☐	
			23:21	EN			48° 49. 02	128° 39. 96			-			☐ ☐	
29	P8	16	23:33	BE	NET	/	48° 49. 07	128° 39. 91	2575		- - -	-	MG	☐ ☐	Bongo
			23:45	BO			48° 49. 12	128° 39. 92		250	-			☐ ☐	
			23:49	EN			48° 49. 14	128° 39. 95			-			☐ ☐	

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Month <u>AUG</u>				Year <u>2019</u>			Vessel <u>JP Tully</u>			Cruise ID <u>2019-008</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
30	P9	17	02:18	BE	ROS	US	48° 51.44	129° 09.90	2576		210	1	MG	☒ ☐	Loop 15AL 1NUT 2CHL
			02:52	BO			48° 51.46	129° 09.88		2005	-			☐ ☐	
			03:23	EN			48° 51.49	129° 09.81			-			☐ ☐	
31	LOOP 31	17	05:08	BE	LOOP	/	48° 53.09	129° 33.29	2575	4.5	5031	—	CL/MG	☐ ☐	15AL 1NUT 2CHL
32	P10	17	05:54	BE	ROS	US	48° 53.58	129° 39.85	2645		211-234	24	MG	☒ ☐	CESIUM 200
			05:58	BO			48° 53.59	129° 39.82		200	-			☐ ☐	
			06:10	EN			48° 53.62	129° 39.80			-			☐ ☐	
33	P10	17	06:43	BE	ROS	US	48° 53.70	129° 39.70	2576		235-253	19	H ¹⁴ /MG	☒ ☐	CESIUM 400+300
			07:16	BO			48° 53.84	129° 39.58		2005	-			☐ ☐	
	<u>32</u>		07:51	EN			48° 53.75	129° 39.81			-			☐ ☐	
34	P10	17	08:04	BE	DRF	—	48° 53.63	129° 39.97	2575		- - -	—	HM	☐ ☐	Argo 21
35	P11	17	10:23	BE	ROS	US	48° 55.12	130° 09.98	2583		254- /		HM	☒ ☐	
			10:56	BO			48° 55.10	130° 10.00		2005	-			☐ ☐	
	<u>P</u>		11:30	GM			48° 56.18	130° 10.15			-			☐ ☐	
36	Loop P11	17	11:27	BE	LOOP	/	° .	° .	2576		-			☐ ☐	Loop 5036 5035
37	P12	17	13:57	BE	ROS	US	48° 58.19	130° 40.00	2775		255- 264	10		☒ ☐	PROD CAST
			14:00	BO			48° 58.20	130° 40.00		150	-			☐ ☐	
			14:07	GM			48° 58.20	130° 40.00			-			☐ ☐	PAR OFF
			:				° .	° .			-			☐ ☐	

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Month				Year			Vessel			Cruise ID					
August				2019			JP TULLY			2019-008					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
38	P12	17	14:38	BC	ROS	UN	48° 58.20	130° 40.00	3229		265 - 273	9	RT	☐ ☐	TMR
			14:45	BO			48° 58.20	130° 40.00		300	-			☐ ☐	PAR OFF
			14:57	EN			48° 58.20	130° 40.00	2683	310	-			☐ ☐	
39	P12	17	15:17	BE	ROS	US	48° 58.20	130° 40.01	3229		274 - 297	24		☒ ☐	DEGR
			16:12	BO			48° 58.20	130° 40.00			-			☐ ☐	
			17:24	EN			48° 58.20	130° 40.00			-			☐ ☐	
40	P12		15:34	BC	LOOP		48° 58.20	130° 40.00		Loop	-	-	R.N.	☐ ☐	RN LOOP CS
41	P12	17	17:33	BE	ROS	UN	48° 58.20	130° 40.00	3229		298 - 309	12	RT	☐ ☐	TMR
			18:09	BO			48° 58.20	130° 40.00		2010	-			☐ ☐	
			18:55	EN			48° 58.19	130° 39.99			-			☐ ☐	
42	P12	17	19:14	BE	ROS	US	48° 58.20	130° 40.00	3229		310 - 326	17	MG	☒ ☐	DMS + SOL DOC ED
			19:20	BO			48° 58.20	130° 40.00		300	-			☐ ☐	
			19:40	EN			48° 58.20	130° 40.00			-			☐ ☐	
43	P12	17	20:38	BE	NET	/	48° 58.17	130° 39.98	3232		-	-	MG	☐ ☐	BONGO 250M
			20:49	BO			48° 58.18	130° 39.98		250	-			☐ ☐	
			20:54	EN			48° 58.20	130° 40.03			-			☐ ☐	
44	P12	17	21:02	BE	NET	/	48° 58.23	130° 40.10	3231		-		MG	☐ ☐	BONGO 1200M
			21:40	BO			48° 58.23	130° 40.10		1800	-			☐ ☐	
			22:01	EN			48° 58.25	130° 40.14			-			☐ ☐	

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

Event Type:

BOT = Bottle cast (no CTD)
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NET = Plankton Net Haul
DRF = Drifter

Bottle Firing Method:

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DN = Down / No stop

Notes:

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Month				Year		Vessel			Cruise ID						
AUGUST				2019		JP TULLY			2019-008						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
45	P12	17	22:17	BE	ROS	US	48° 58.18	130° 40.03	3230		327-342	16	MG	☒ ☐	UBC CAST
			22:52	BO			48° 58.18	130° 40.03		2005	-			☐ ☐	
			23:28	EN			48° 58.18	130° 40.03			-			☐ ☐	
46	P12	17	23:38	DE	DRF	—	48° 58.18	130° 40.35	3223		-		MG/MR	☒ ☐	Float 12
47	P13	18	04:44	BE	ROS	US	49° 02.60	131° 39.86	3140		343-	1	MG	☒ ☐	LOOP SAL NUT 20HL
			05:19	BO			49° 02.65	131° 39.90		2005	-			☐ ☐	
			05:51	EN			49° 02.64	131° 39.87			-			☐ ☐	
48	P14	18	11:03	BE	ROS	US	49° 07.40	132° 39.95	3313		344-367	24	H.M.	☒ ☐	SALT CAST
			12:00	BO			49° 07.38	132° 39.92		3362	-			☐ ☐	PAR OFF
			13:16	EN			49° 07.36	132° 39.85			-			☐ ☐	
49	P14	18	11:40	BE	LOOP		49° 03.39	132° 39.98			Loop		R.N	☐ ☐	LOOP-RN C3
50	P15	18	18:28	BE	ROS	U.S.	49° 12.06	133° 39.94	3433		368- /	1	HM/MG	☒ ☐	PAR ON
			19:00	BO			49° 12.11	133° 40.04		2006	-			☐ ☐	
			19:31	EN			49° 12.16	133° 40.10			-			☐ ☐	
51	Loop 51	18	15:49	BE	LOOP		49° 09.70	133° 09.46	2976		505-1-	—	CL	☐ ☐	PA Loop 2
52	P15	18	19:45	DE	DRF	—	49° 12.20	133° 40.51	3424		-	—	MG	☒ ☐	ARGO 15
53	P16	19	00:12	BE	ROS	US	49° 17.01	134° 39.96	3625		369-384	16		☒ ☐	DMS
			00:17	BO			49° 16.98	134° 39.96		300	-			☐ ☐	
			00:35	EN			49° 17.02	134° 39.92			-			☐ ☐	

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Month <u>AUGUST</u>			Year <u>2019</u>			Vessel <u>JP Tully</u>			Cruise ID <u>2019-008</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
54	P16	19	00:56	BE	ROS	UN	49° 17.02	134° 39.93	3625		385-396	12	RT	☐ ☐	TMR
			01:29	BO			49° 17.03	134° 39.99		2000	-			☐ ☐	
			02:04	EN			49° 17.08	134° 40.09			-			☐ ☐	
55	P16	19	03:02	BE	ROS	US	49° 16.97	134° 39.92	3625		397-420	24	MG	☒ ☐	DEEP CAST
			04:04	BO			49° 16.97	134° 39.92		3684	-			☐ ☐	PAR OFF
			05:29	EN			49° 16.97	134° 39.92			-			☐ ☐	D 3620 A 11.3 P 3684 S 3626
56	P16	19	05:36	BE	ROS	UN	49° 16.97	134° 39.92	3624		421-429	9	RT	☐ ☐	TMR
			05:45	BO			49° 16.97	134° 39.92		300	-			☐ ☐	
			06:01	EN			49° 16.97	134° 39.92			-			☐ ☐	
57	P16	19	06:39	BE	ROS	US	49° 16.97	134° 39.91	3624		430-453	24	MG/HM	☒ ☐	CESIUM 500M
			06:45	BO			49° 16.97	134° 39.91		500	-			☐ ☐	PAR ON
			07:01	EN			49° 16.97	134° 39.91			-			☐ ☐	
58	P16	19	07:24	BE	ROS	US	49° 17.00	134° 39.97	3624		454-477	24	HM	☒ ☐	CS 150
			07:27	BO			49° 17.00	134° 39.97		150	-			☐ ☐	
			07:34	EN			49° 17.00	134° 39.97			-			☐ ☐	
59	P16	19	07:50	BO	NET	/	49° 16.99	134° 39.96	3624		-	-	HM	☐ ☐	250 BORG
			08:00	BO			49° 17.00	134° 39.95		250	-			☐ ☐	
			08:05	GM			49° 17.00	134° 39.95			-			☐ ☐	
			:				°	°			-			☐ ☐	

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Notes:

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Month			Year			Vessel			Cruise ID						
AUGUST			2019			J. P. TULLY			2019-008						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
60	P16	19	08:13	BG	NET	/	49° 17.00	134° 39.95	3625		-	/	H.M.	☐	1200 BONGO
			08:53	Bo			49° 17.00	134° 39.95		1200	-			☐	
			09:13	EN			49° 17.00	134° 39.95			-			☐	
61	P16	19	09:29	BG	ROS	US	49° 17.00	134° 39.95	3625		478-487	10	H.M.	☒	PROD CAST
			09:32	Bo			49° 17.00	134° 39.95		150	-			☐	
			09:37	EN			49° 17.00	134° 39.95			-			☐	
62	P16	19	10:06	BG	DRF	/	49° 16.99	134° 39.98	3625		-	/	H.M.	☐	FLOAT 01
63	P17	19	15:04	BG	ROS	US	49° 21.04	135° 40.01	3742		408	1	H.M.	☒	LOOP 1SAL INUT 2CHL
			15:37	Bo			49° 21.01	135° 40.00		2005	5063			☐	
			16:10	EN			49° 20.95	135° 39.97			-			☐	
64	P18	19	20:52	BE	ROS	US	49° 26.00	136° 39.95	3822		489-512	24	MG	☒	PAR OFF
			21:59	Bo			49° 26.00	136° 39.95		3891	-			☐	TOC DOC GELS
			23:28	EN			49° 26.00	136° 39.95			-			☐	03823 A 10.7 P3891 S 3822
65	LOOP65	20	01:33	BE	LOOP	/	49° 27.96	137° 09.42	2454	4.5	5065	-	MG	☒	1SAL 2CHL INUT
66	P19	20	03:40	BE	ROS	US	49° 30.03	137° 39.93	3912		513-	1	MG	☐	LOOP 4SAL INUT 2CHL
			04:15	Bo			49° 30.02	137° 39.93		205	-			☐	
			04:45	EN			49° 30.03	137° 39.94			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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DRF = Drifter

Bottle Firing Method:

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

Time Code:

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Notes:



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N 0030 WENT OVER SEAMOUNT RISING 1450 FROM BOTTOM 2400 FROM SURFACE

→ 0103 ER60 CHANGED FROM MAX TO INTERVAL 0105 CHANGED BACK TO MAX

N 0130 ANOTHER SEAMOUNT RISING 1800 FROM BOTTOM 2250 FROM SURFACE

68 69 70 71 DEEP
bongo bongo TMR

536

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Month AUG				Year 2019			Vessel J P Tully			Cruise ID 2019-003					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
67	P20	20	10:34	BE	ROS	U.S	49° 34.00	138° 39.98	3948		514-523	10	H.M.	☒ ☐	PRODUCTIVITY CAST
			10:36	BO			49° 34.00	138° 39.99		150	-			☐ ☐	
			10:42	EN			49° 34.00	138° 39.99			-			☐ ☐	
68	P20	20	10:54	BE	NET	—	49° 33.99	138° 39.98	3948		-		H.M.	☐ ☐	Bongo (250)
			11:04	BO			49° 33.99	138° 39.98		250	—	—		☐ ☐	
			11:08	EN			49° 33.99	138° 39.98			-			☐ ☐	
69	P20	20	11:17	BE	NET	—	49° 33.99	138° 39.98	3949		—	—	HM	☐ ☐	Bongo (1200)
			11:54	BO			49° 33.99	138° 39.98		1200	-			☐ ☐	
			12:17	EN			49° 33.99	138° 39.98			-			☐ ☐	
70	P20	20	14:19	BE	ROS	U.S	49° 34.00	138° 39.99	3949		524-535		RT	☐ ☐	THIR
			14:57	BO			49° 34.00	138° 39.98		2000	-			☐ ☐	
			15:37	EN			49° 34.00	138° 39.98			-			☐ ☐	
71	P20	20	15:50	BE	ROS	U.S	49° 34.00	138° 39.98	3948		536-559	24	H.M.	☒ ☐	DEEP CAST
			16:58	BO			49° 34.00	138° 39.99		4024	-			☐ ☐	
			18:33	EN			49° 34.00	138° 40.00			-			☐ ☐	
72	P20	20	19:29	BE	ROS	UN	49° 33.97	138° 39.99	3947		-			☐ ☐	
			19:35	BO			49° 33.97	138° 39.99		310	560-571	12	RT	☐ ☐	TMR
			19:47	EN			49° 33.98	138° 39.99			-			☐ ☐	
			:				.	.			-			☐ ☐	

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Bottle Firing Method:

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Notes:

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Month				Year		Vessel			Cruise ID						
August				2019		JP TULLY			2019-008						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
73	P20	20	19:58	BE	ROS	US	49° 33.96	138° 40.00	3949		572-587	16	MG	☒ ☐	PAR ON
			20:06	BO			49° 33.96	138° 40.00		300	-			☐ ☐	DMS CAST
			20:29	EN			49° 33.97	138° 40.00			-			☐ ☐	
74	P20	20	22:16	DE	DRF	/	49° 34.02	138° 40.44	3948		572-587	-	MG	☐ ☐	ARGO II ELEVEN
75	LOOP 75	21	01:21	BE	LOOP	/	49° 37.21	139° 27.44	3938	4.5	5075	-	MG	☐ ☐	SAL NOS 2 CHL
76	P21	21	02:20	BE	ROS	US	49° 37.98	139° 39.96	3949		-		MG	☒ ☐	CESIUM
			02:24	BO			49° 37.99	139° 39.96		200	588-611	24		☐ ☐	
			02:34	EN			49° 38.01	139° 39.96			-			☐ ☐	
77	P21	21	02:58	BE	ROS	US	49° 37.99	139° 39.94	3949		-			☐ ☐	
			03:31	BO			49° 38.06	139° 39.99		2005	612-630	19	MG	☒ ☐	CESIUM + LOS CAST
			04:14	EN			49° 38.15	139° 39.67			-			☐ ☐	HYDRALIC LEAK →
78	P21	21	04:56	DE	DRF		49° 38.19	139° 39.69	3940		-		MG	☐ ☐	FLUSH 003
79	P22	21	09:11	BE	ROS	U.S	49° 42.01	140° 40.01	3905		631-654	24	H.M	☒ ☐	TOC/DOC/G/Ls CAST
			10:18	BO			49° 41.98	140° 40.00		3988	-			☐ ☐	DOWN 50m X 2 TO
			11:41	EN			49° 42.01	140° 40.03			-			☐ ☐	FLUSH
80	LOOP 80	21	13:48	BE	LOOP		49° 44.12	141° 10.64	3964		-	-	H.M.	☐ ☐	5080 LOOP ^{NOT SAL CHL}
81	P23	21	15:44	BE	ROS	U.S	49° 46.04	141° 39.96	4031		9671-9682	12	R.T.	☐ ☐	TMR CAST
			15:45	BO			49° 46.04	141° 39.96		50	-			☐ ☐	
			15:48	EN			49° 46.04	141° 39.95			-			☐ ☐	

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AS THE ROSETTE WAS BEING LOWERED TO DECK HYDRAULIC LINE SPEWED OUT OIL OVER THE CAROSEL AND CLOSED BOTTLES
2 → 13 WASHED DOWN WITH HOT SOAPY WATER, ^{RINSE} WIPE DOWN WITH HOT SOAPY CLOTH, RINSE, WIPE DOWN + RINSE AGAIN

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Month <u>August</u>				Year <u>2019</u>		Vessel <u>J P TULLY</u>				Cruise ID <u>2019-008</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
82	P23	21	17:45	BE	TANK	✓	49° 46.0049	141° 39.9584	4031	4.5	-		H.M.	☒ ☐	Filling 1000L tanks
			18:00	EN			49° 46.0715	141° 39.9386			-			☐ ☐	
83	P23	21	18:02	BE	loop	✓	49° 46.07	141° 39.96	4030	4.5	-		RJ	☐ ☐	CS loop 60L
84	P23	21	20:30	BE	ROS	US	49° 45.98	141° 39.82	4031		655 - 670	16	MG	☒ ☐	Pic Pac Doc Toc Chom
			21:03	BO			49° 45.85	141° 39.82		2005	-			☐ ☐	+ 10S CAST PAR WAS OFF
			21:47	EN			49° 45.78	141° 39.84			-			☐ ☐	
85	P23	21	22:05	DE	DRF	✓	49° 45.78	141° 40.13	4032	0	-		MG	☐ ☐	ARGO 14
86	P24	22	02:09	BE	ROS	US	49° 50.20	142° 39.94	3996		671 - 694	24	MG	☒ ☐	Pic Pac ETC + 10S CAST
			03:21	BO			49° 50.20	142° 39.94		4046	-			☐ ☐	D 3973 A 10.2 P4046 S 3969
			04:55	EN			49° 50.20	142° 39.94			-			☐ ☐	
87	P24	22	02:12	BE	LOOP	✓	49° 50.20	142° 39.94	3996	4.5	✓	✓	RN	☐ ☐	CESIUM LOOP
88	P25	22	16:36	BE	ROS	U.S.	49° 59.97	143° 36.27	4127		695 - 710	16	MG	☒ ☐	Toc Doc Chom Pic Pac +
			19:08	BO			49° 59.97	143° 36.27		2005	-			☐ ☐	10S CAST
			19:57	GM			49° 59.98	143° 32.57			-			☐ ☐	
89	P25	22	18:39	BE	LOOP	✓	49° 59.97	143° 36.27	4127	4.5	✓	✓	RN	☐ ☐	CS LOOP
90	P26	23	14:23	BE	ROS	U.S.	50° 00.11	144° 59.96	4229		711 - 734	24	H.M.	☒ ☐	DEEP CAST
			15:38	BO			50° 00.11	144° 59.96		4318	-			☐ ☐	
			17:07	GM			50° 00.12	144° 59.96			-			☐ ☐	
			:				°	°			-			☐ ☐	

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ORIGINAL 82 2005M CAST ABORTED HYDRAULIC + WIRE KINK ISSUES → RETERMINATION + COMPLETE WASH DOWN
CAROUSEL TAKEN OUT TO SOAK, BOTTLES WASHED INSIDE + OUT, RINSED IN SOAPY WATER + RINSED WITH FRESH WATER
ROSETTE DOWN TO 50 M TWICE WITH NO PUMP + ONCE WITH PUMP ON + THEN START CAST

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Month <u>AUGUST</u>				Year <u>2019</u>		Vessel <u>J P TULLY</u>				Cruise ID <u>2019-008</u>					
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
91	P26	23	18:03	BE	ROS	US	50°00.05	145°00.07	4226		735-749	15	14.11	☒	DMS CAST
			18:08	BO			50°00.04	145°00.09		300	-			☐	PAR ON
			18:25	EN			50°00.05	145°00.11			-			☐	
92	P26	23	19:47	BE	ROS	US	49°59.99	144°59.95	4227		750-765	16	MG	☒	GELS ETC
93			19:53	BO			49°59.99	144°59.95		400	-			☐	PROGRAM STOP@200↑
			20:20	EN			49°59.99	144°59.95			-			☐	REBOOT →
94	P26	23	20:59	BE	NET	✓	49°59.99	144°59.95	4227		-	✓	MG	☐	BONGO
			21:08	BO			49°59.99	144°59.97		250	-			☐	
			21:13	EN			49°59.99	144°59.99			-			☐	
95	P26	23	21:47	BE	ROS	US	49°59.99	144°59.98	4227		766-789	24	MG	☒	CESIUM
			21:57	BO			49°59.99	144°59.98		500	-			☐	
			22:11	EN			49°59.99	144°59.98			-			☐	
96	P26	23	22:36	BE	ROS	US	49°59.99	144°59.98	4227		790-813	24	MG	☒	CESIUM
			22:39	BO			49°59.99	144°59.98		150	-			☐	
			22:48	EN			49°59.99	144°59.98			-			☐	
97	P26	24	01:01	BE	ROS	UN	49°59.95	145°00.00	4227		814-823	10	RT	☐	THIR SHALLOW
			01:08	BO			49°59.95	145°00.00		400	-			☐	
			01:17	EN			49°59.95	145°00.00			-			☐	
			:				.	.			-			☐	

Event Type:

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

LOOP = Sea Water Loop
MOR = Mooring
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DRF = Drifter
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Bottle Firing Method:

US = Up / Stop (default)
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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

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RE = Recover Mooring Time

Notes:

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CAST 92: SURFACE TO 400 THEN BACK UP TO 200. NISKINS 1 TO 3

CAST 93: 200 BACK TO SURFACE. NISKINS 4 TO 16

REBOOT LAPTOP AFTER CAST 93.

DAILY SCIENCE LOG

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Month AUGUST			Year 2019			Vessel I P Tully			Cruise ID 2019-008						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
98	P26	24	07:05	BG	ROS	U.S	50° 00.03	145° 00.12	4225		824 - 845	22	H.M.	☒	UBC CAST
			07:45	BO			50° 00.06	145° 00.13		2500	-			☐	
			08:31	EN			50° 00.04	145° 00.07			-			☐	
99	P26	24	11:04	BG	ROS	U.S	50° 00.00	144° 59.95	4226		846 - 855	10	H.M.	☒	PROD. CAST
			11:06	BO			49° 59.99	144° 59.94		150	-			☐	
			11:12	EN			49° 59.99	144° 59.90			-			☐	
100	P26	24	14:21	BG	ROS	UN	49° 59.99	145° 00.01	4226		856 - 867	12	RT	☐	TMR
			15:43	BO			49° 59.95	145° 00.03		4000	-			☐	
			17:06	UN			49° 59.95	145° 00.03			-			☐	
101	PA-013	24	18:24	BG	ROS	US	50° 07.62	144° 53.16	4204		868 - 871	4	H.M.	☒	MOORING ROSETTE
			18:31	BO			50° 07.62	144° 53.23		350	-			☐	
			18:41	EN			50° 07.60	144° 53.27			-			☐	
102	P26	24	19:55	BE	ROS	UN	49° 59.98	145° 00.03	4227		-		RT	☐	WATER FOR MAINT
			19:57	BO			49° 59.98	145° 00.03		30	-			☐	
			19:59	EN			49° 59.98	145° 00.03			-			☐	
103	P26	24	21:17	BE	NET	UN	50° 00.08	145° 00.06	4227		-		MG	☐	MPS
			22:43	BO			50° 00.08	145° 00.06		2505	-			☐	
			23:23	EN			50° 00.08	145° 00.06			-			☐	
104	P26	24	23:40	DE	DRF	-	50° 00.04	144° 59.97	4227		-		MG	☐	CEMENT BOB

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Month <u>AUGUST</u>			Year <u>2019</u>			Vessel <u>J P TULLY</u>			Cruise ID <u>2019-008</u>						
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105	LOOP105	25	01:23	BE	LOOP	✓	49°59.99	144°31.86	4221	4.5	5105	✓	CHELSI	☐ ☐	PH LOOP 3
106	P35	25	02:22	BE	ROS	US	50°00.04	144°18.20	4228		872	1	MG	☒ ☐	LOOP INUT ISAL 2CHL
			02:56	BO			50°00.04	144°18.17		2005	-			☐ ☐	PAR 15 OFF?
			03:30	EN			50°00.02	144°18.16			-			☐ ☐	
107	LOOP107	25	06:00	BE	LOOP	✓	49°59.46	143°36.53	43	4.5	5107	✓	MG	☐ ☐	INUT ISAL 2CHL
108	Loop108	25	12:52	BE	Loop		49°58.25	141°38.35	4204	4.5	5108	✓	H.M.	☐ ☐	LOOP 5108 SAL/INUT 2xCHL
109	Gsloop	26	02:51	BE	loop		49°48.67	137°39.90	-		-		RI	☐ ☐	Gsloop
110	Gsloop	26	06:10	BE	loop		49°45.25	136°38.95	4220		-		TD	☐ ☐	Gsloop
111	LOOP111	26	06:37	BE	LOOP	✓	49°44.74	136°30.51	4274	4.5	5111		MG	☐ ☐	INUT ISAL 2CHL
112	Loop 112	26	12:55	BE	Loop	✓	49°35.98	134°37.39	4206	4.5	5112	✓	H.M.	☐ ☐	INUT/SAL/2CHL
113	LOOP113	26	01:45	BE	LOOP	✓	49°12.85	130°48.98	2575	4.5	5113	✓	CHELSI	☐ ☐	PH LOOP 4
114	LOOP114	27	06:08	BE	LOOP	✓	49°03.09	129°29.31	2438	4.5	5114	✓	MG	☐ ☐	INUT ISAL 2CHL
115	Gsloop	27	08:55	BE	loop		48°56.61	128°39.23	2519		-		RI	☐ ☐	Gsloop 600
116	Loop116	27	12:45	BE	Loop	✓	48°46.59	127°31.60	2541	4.5	5116	✓	H.M.	☐ ☐	INUT/SAL/2xCHL
117	P4	27	15:49	BE	ROS	U.S	48°38.99	126°39.95	1320		073-091	19	H.M.	☒ ☐	P4 RETURN
			16:11	BO			48°38.98	126°39.96		1318	-			☐ ☐	
			16:48	EN			48°38.98	126°40.00			-			☐ ☐	
118	P4	NEXT PAGE													
			:				.	.			-			☐ ☐	
			:				.	.			-			☐ ☐	

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118	P4	27	16:58	B6	NET	✓	48° 38.98	126° 40.09	1320		✓	✓	M.G	☐ ☐	BONGO
			17:07	BO			48° 38.84	126° 40.18		250	-			☐ ☐	
			17:14	GN			48° 38.80	126° 40.10			-			☐ ☐	
119	LOOP	27	17:27	BE	LOOP	✓	48° 38.32	126° 37.94	1317		5119-	✓	CHWS	☐ ☐	PHI LOOP J
120	LOOP120	27	21:44	BE	LOOP		48° 35.57	126° 11.22	627	4.5	5120	✓	MG	☐ ☐	1 NUF / SAL 2 CHL
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
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