DAILY SCIENCE LOG BOOK

MISSION NUMBER 2021-005

DATE:

From: **To:**

VESSEL:

PROJECT(S):

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

WaterProperties.ca

35 Page Logbook

**** 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: Water properties # 102

Data acquisition program: Seasave 7.26.7.121

CTD deck unit make: SBE model: 11 serial number: 425

Primary CTD

Make: SBE model: 9 serial number: 443

Primary temperature serial number: 4700

Primary conductivity serial number: 3531

Secondary temperature serial number: 4888

Secondary conductivity serial number: 4513

Transmissometer: Wetlabs Model: CSTAR serial: 1185DR

Transmissometer: Wetlabs Model: CSTAR serial: 1883DR

Fluorometer: Model Seapoint SCF Cable gain: 3X serial: 3950 **P**, **S** or **NO** pump?

Fluorometer: Model _____ Cable gain: _____ serial: _____ **P**, **S** or **NO** pump?

Oxygen sensor: SBE Model: 43 serial: 3791 **P**, **S** or **NO** pump?

PAR sensor: Biospherical Model: QSP2350 serial: 70613 **Surface PAR? Y / N**

Other sensors: Valeport Altimeter VA500 serial: 75321 **P**, **S** or **NO** pump?

Other sensors: _____ serial: _____ **P**, **S** or **NO** pump?

Other sensors: _____ serial: _____ **P**, **S** or **NO** pump?

Other sensors: _____ serial: _____ **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: _____ serial: _____

Transmissometer: _____ Model: _____ serial: _____

Fluorometer: Model _____ Cable gain: _____ serial: _____ **P**, **S** or **NO** pump?

Fluorometer: Model _____ Cable gain: _____ serial: _____ **P**, **S** or **NO** pump?

Oxygen sensor: _____ Model: _____ serial: _____ **P**, **S** or **NO** pump?

PAR sensor: _____ Model: _____ serial: _____ **Surface PAR? Y / N**

Other sensors: _____ serial: _____ **P**, **S** or **NO** pump?

Other sensors: _____ serial: _____ **P**, **S** or **NO** pump?

Other sensors: _____ serial: _____ **P**, **S** or **NO** pump?

Other sensors: _____ serial: _____ **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 (typical on small launches).

Rosette Setup:
Number of bottles: _____
Manufacturer: _____
Volume of bottles (litres): _____

Rosette/Niskin Bottle Serial Numbers:

1: 2016-10-04	2: 2616-10-05	3: 2016-10-06	4: 2016-10-07	5: 2016-10-08
6: 2018-10-02	7: 2000-10-29	8: 2016-10-09	9: 2018-10-01	10: 2000-10-30
11: 2018-10-04	12: 2016-10-10	13: 2016-10-11	14: no label	15: 2000-10-24
16: 2016-10-12	17: 2000-10-23	18: 2016-10-13	19: 2016-10-14	20: 2016-10-15
21: 2018-10-03	22: 2016-10-16	23: 2016-10-17	24: 2016-10-18	

Make sure to note any bottle changes or repairs during your cruise in this log book.

Winches:
1. Make: HAWBOLDT Model: HAW Serial #: 17026 Used for: LARS
2. Make: " Model: " Serial #: 17027 Used for: APR Dock nets
3. Make: _____ Model: _____ Serial #: _____ Used for: _____

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

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

Label Printers:
Primary Printer Kit #: Brady Kit i3300 #1
Secondary Printer Kit #: _____
Software Version: _____

Thermosalinograph System (SBE21/45):
Program: SCS Version: _____
Sampling interval (seconds): _____
TSG serial number: 0620
Fluorometer sensor serial number: 1656
Comments on performance during cruise (comments should also be reflected in the post-cruise report):
_____

ADCP Setup:
Computer time zone: UTC 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)

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/SCOR #1	Frame Size: _____cm	Mesh: _____ µm	Flowmeter: _____
Bongo/SCOR #2	Frame Size: _____cm	Mesh: _____ µm	Flowmeter: _____
_____	Frame Size: _____cm	Mesh: _____ µm	Flowmeter: _____
_____	Frame Size: _____cm	Mesh: _____ µm	Flowmeter: _____

Multinet ☑ BIONESS ☐ Neuston ☐ Others:
MPS 1&2, Borges 1&2, MOCNESS, Mini borge
_____

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:

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 1 of _____

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
1	S1	19	17:30	BE	ROS	US	48° 39.006	123° 30.354	191		1 -	1	RF	☑ ☐	
			17:44	BO			48° 39.007	123° 30.362		182	-			☐ ☐	
			17:49	EN			48° 39.007	123° 30.360			-			☐ ☐	
2	S1	19	18:06	BE	UVP	/	48° 39.042	123° 30.334	191		/ -	/	JS/AS	☒ ☐	
			18:12	BO			48° 39.032	123° 30.333		181	-			☐ ☐	
			18:15	EN			48° 39.027	123° 30.328			-			☐ ☐	
3	S9	19	20:21	BE	ROS	US	48° 34.910	123° 14.800	251		2 - 12	11	CA	☐ ☐	
			20:28	BO			48° 34.880	123° 14.810		224	-			☐ ☐	
			20:45	EN			48° 34.430	123° 14.770			-			☐ ☐	
4	HAR059	19	21:02	BE	Bongo	/	48° 37.07	123° 14.87	228		-		MG	☐ ☐	BONGO
			21:08	BO			° 36.98	° 14.93		220	-			☐ ☐	
			21:15	EN			° 36.71	° 14.98			-			☐ ☐	
5	JF2	20	01:02	BE	NET	/	48° 17.994	123° 59.994	187		-		MG	☐ ☐	BONGO
			01:07	BO			° 17.928	° 59.941		180	-			☐ ☐	
			01:11	EN			° 18.000	123° 59.853			-			☐ ☐	
6	JF2	20	01:23	BE	ROS	US	48° 17.960	123° 59.960	187		13 - 22	10	CA	☐ ☐	
			01:26	BO			48° 17.940	123° 59.960		182	-			☐ ☐	
			01:41	EN			48° 17.900	123° 59.820			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

22 Nut-F JF2 2021-005 5 m bot 10

22 CHL JF2 2021-005 5 m bot 10 not sampled ran out of water.

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
UVP = Underwater Vision Profiler

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

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

Notes: _____

This page is for any notes or observations

EVENT 3

- Stopped @ 100m to fix lead to aft

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month MAY **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
7	LB01	20	06:01	BE	Ros	US	48°40.291	124°57.150	37		28-29	7	CA	☑☑	CHL MAX @ 5m
			06:02	BO			48°40.282	124°59.154		29	-			☐☐	=7.5
			06:06	EN			48°40.240	124°59.170			-			☐☐	
8	LB02	20	06:50	BE	bs	US	48°38.988	125°02.195	55		30 34	5	CS/RF	☐☐	
			06:52	bo			48°38.930	125° 2.190		46	-			☐☐	
			06:59	EN			48°38.930	125° 2.230			-			☐☐	
9	LB03	20	07:33	BE	Ros	US	48°37.270	125° 5.580	95		35-	1	RF	☑☐	
			07:37	BO			48° 37.260	125° 5.580		86	-			☐☐	
			07:40	EN			48° 37.240	125° 5.570			-			☐☐	
10	LB04	20	08:12	BE	Ros	US	48° 35.660	125° 8.840	112		36-42	7	RF	☑☐	
			08:15	BO			48° 35.660	125° 8.850		104	-			☐☐	
			08:25	EN			48° 35.640	125° 8.910			-			☐☐	
11	E1	20	09:14	BE	Ros	~~US~~	48°31.750	125° 3.980	118		/	/	RF	☑☐	
			09:17	BO			48°31.750	125° 3.960		109	-			☐☐	
			09:20	EN			48° 31.760	125° 3.940	115		-			☐☐	
12	E1	20	09:32	BE	Net	/	48°31.810	125° 3.920	116		-	/	JS/NN	☐☐	Bongo
			09:37	BO			48° 31.814	125° 3.920		110	-			☐☐	
			09:40	EN			48° 31.828	125° 3.915			-			☐☐	
			:				° .	° .			-			☐☐	

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

Notes: _____

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

TULLY

IENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Year 2021 | Vessel Tully | Cruise ID 2021-005 |

ation lame	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
305	20	10:36	BE	ROS	US	48° 34.100	125° 12.000	104		43 -	1	RF	☑ ☐	Nothing to remark
		10:38	BO			48° 34.110	125° 11.990		96	-			☐ ☐	
		10:42	EN			48° 34.110	125° 11.970			-			☐ ☐	
06	20	11:19	BE	ROS	US	48° 32.170	125° 15.530	115		44 - 51	8	RF	☑ ☐	Nothing to remark
		11:22	BO			48° 32.180	125° 15.520		107	-			☐ ☐	
		11:34	EN			48° 32.220	125° 15.400			-			☐ ☐	
1	20	12:10	BE	ROS	✓	48° 28.990	125° 15.340	153		/	/	RF	☑ ☐	
		12:13	BO			48° 29.010	125° 15.300		144	-			☐ ☐	
		12:17	EN			48° 29.050	125° 15.300			-			☐ ☐	
1	20	12:26	BE	Net	/	48° 29.111	125° 15.291	151		/	/	NN/JS	☐ ☐	Bongo
		12:32	BO			48° 29.139	125° 15.217		146	-			☐ ☐	
		12:34	EN			48° 29.163	125° 15.197			-			☐ ☐	
2	20	13:24	BE	ROS	—	48° 26.276	125° 9.240	160		/	/	RF	☑ ☐	
		13:28	BO			48° 26.292	125° 9.211		152	-			☐ ☐	
		13:31	EN			48° 26.320	125° 9.173			-			☐ ☐	
2	20	13:46	BE	UVP		48° 26.423	125° 9.051	160		-			☐ ☐	
		13:51	BO			48° 26.472	125° 8.982		145	-			☐ ☐	
		13:54	EN			48° 26.506	125° 8.924			-			☐ ☐	
		:				° .	° .			-			☐ ☐	

no CTD)
CTD
te

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

Notes: _____

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

TAKU

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
19	C2	20	14:07	BE	Net	/	48° 26.545	125° 8.910	159		/	/	JS/NN	☐☐	Bongo
			14:13	BO			48° 26.580	125° 8.835		153	-			☐☐	
			14:16	EN			48° 26.615	125° 8.789			-			☐☐	
20	C3	20	15:30	BE	ROS	/	48° 23.480	125° 20.610	123		/	/	RF	☑☐	
			15:32	BO			48° 23.500	125° 20.570		114	-			☐☐	
			15:35	EN			48° 23.510	125° 20.530			-			☐☐	
21	C3	20	15:46	BE	UVP	/	48° 23.554	125° 20.343	122		/	/	JS	☑☐	
			15:51	BO			48° 23.562	125° 20.337			-			☐☐	
			15:53	EN			48° 23.556	125° 20.356			-			☐☐	
22	C3	20	16:03	BE	NET	/	48° 23.570	125° 20.378	122		/	/	JS	☑☐	Bongo
			16:08	BO			48° 23.560	125° 20.409		117	-			☐☐	
			16:10	EN			48° 23.560	125° 20.458			-			☐☐	
23	LB07	20	16:58	BE	ROS	US	48° 28.620	125° 22.110	156		52 -	1	RF	☑☐	Nothing to remark
			17:01	BO			48° 28.610	125° 22.120		149	-			☐☐	
			17:06	EN			48° 28.610	125° 22.150			-			☐☐	
24	LB07	20	17:15	BE	NET	/	48° 28.664	125° 22.249	156		/	/	JS	☑☐	Bongo
			17:21	BO			48° 28.678	125° 22.276		145	-			☐☐	
			17:23	EN			48° 28.684	125° 22.288			-			☐☐	
			:				° .	° .			-			☐☐	

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

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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005 Page 5 of ____

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
25	B8	20	18:37	BE	ROS	/	48° 34. 478	125° 29. 968	119		/	/	RF	☑ ☐	
			18:39	BO			48° 34. 490	125° 29. 890		111	-			☐ ☐	
			18:42	EN			48° 34. 476	128° 29. 870			-			☐ ☐	
26	B8	20	18:55	BE	NET	/	48° 34.320	125° 29. 875	122		-			☐ ☐	
			19:00	BO			48° 34.323	125° 29. 879		117	/	/	MG/KS	☐ ☐	BONGO
			19:01	EN			48° 34. 317	125° 29. 886			-			☐ ☐	
27	B7	20	19:44	BE	ROS	—	48° 32.082	125° 35. 327	78		/	/	Ø	☑ ☐	
			19:45	BO			° 32.070	° 35. 340		68	-			☐ ☐	
			:47	EN			° 32060	° 35. 340			-			☐ ☐	
28	B7	20	19:54	BE	NET	/	48° 32. 043	125° 35. 374	78		-	/	MG	☐ ☐	
			19:57	BO			48° 32. 022	125° 35. 390		73	/			☐ ☐	
			19:59	EN			48° 32. 018	125° 35. 412			-			☐ ☐	
29	LBOB	20	21:09	BE	ROS	US	48° 25. 210	125° 28. 801	149		53 - 72	20	CS	☑ ☐	
			21:12	BO			° 25. 170	° 28. 810		144	-			☐ ☐	
			21:26	EN			° 25. 090	° 28. 920			-			☐ ☐	
30	LBOB8	20	21:38	BE	NET	US	48° 25. 342	125° 28. 752	151		-		MG	☐ ☐	BONGO
			21:47	BO			° 25. 2589	° 28. 93		145	-			☐ ☐	
			21:49	EN			° 25. 2487	° 28. 960			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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

Notes: _____

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 6 of _____

Month MAY **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
31	LB08	20	21:58	BE	NET	~~US~~	48°25.2190	125°28.9851	143		-		MG	☐☐	Bongo
			22:05	BO			48°25.206	125°29.021		140	-			☐☐	
			22:08	EN			48°25.2137	125°29.028			-			☐☐	
32	LB09	20	22:52	BE	ROS	US	48°21.736	125°34.660	150		73-81	9	CD	☑☐	
			22:55	BO			48°21.916	125°34.680		141	-			☐☐	
			23:16	EN			48°21.736	125°34.646			-			☐☐	
33	LB10	20	23:58	BE	ROS	US	48°18.490	125°41.370	154		82-	1	CA	☑☐	
			00:01	BO			48°18.490	°41.370		145	-			☐☐	
			00:06	EN			°18.500	°41.356			-			☐☐	
34	LB11	21	00:53	BE	ROS	US	48°15.200	125°47.720	207		83-93	11	CA	☑☐	
			00:57	BO			48°15.190	125°47.717		197	-			☐☐	
			01:13	EN			48°15.148	125°47.791			-			☐☐	
35	LB1	21	01:23	BE	NET	—	48°15.16	125°47.76	207		-	—	MG	☐☐	BONGO
			01:29	BO			48°15.15	125°47.78		200	-			☐☐	
			01:33	EN			48°15.16	125°47.79	—	—	-			☐☐	
36	LB12	21	02:11	BE	ROS	US	48°12.900	125°51.890	512		94-108	15	CA	☑☐	
			02:20	BO			48°12.870	125°51.890		505	-			☐☐	
			02:43	EN			48°12.755	125°51.998			-			☐☐	
			:				° .	° .			-			☐☐	

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

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 7 of _____

Month May **Year** 2021 **Vessel** JULIA **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
37	LB13	21	03:13	BE	ROS	US	48° 10.960	125° 56.100	922		109	1	CS	☑☐	→
			03:39	BO			48° 10.560	125° 56.140		915	-			☐☐	
			03:58	EN			48° 10.570	125° 56.060			-			☐☐	
38	LB14	21	04:33	BE	ROS	US	48° 08.410	125° 59.950	1124		110 - 127	18	AS	☑☐	
			04:53	BO			48° 08.360	125° 59.920		1120	-			☐☐	
			05:32	EN			48° 08.360	125° 59.950			-			☐☐	
39	LB15	21	06:37	BE	ROS	US	48° 04.190	126° 08.540	1551		128 - 130	3	CD/RF	☑☐	
			07:04	BO			48° 4.150	126° 8.624		1560	-			☐☐	
			07:30	EN			48° 4.202	126° 8.630			-			☐☐	
40	LB16	21	08:37	BE	ROS	US	48° 0.460	126° 16.877	1810		131 -	1	RF	☐☐	
			09:08	BO			48° 0.460	126° 16.880		1826	-			☐☐	
			09:37	EN			48° 0.460	126° 16.880			-			☐☐	
41	LB16	21	09:45	BE	Net	/	48° 0.460	126° 16.879	1810		-	/	JS	☑☐	Bongo to 1200m
			10:24	BO			48° 0.461	126° 16.877		1200	-			☐☐	
			10:44	EN			48° 0.461	126° 16.877			-			☐☐	
42	LB16	21	10:54	BE	Net	/	48° 0.460	126° 16.877	1810		-	/		☐☐	Bongo to 250
			11:03	BO			48° 0.460	126° 16.877		250	-			☐☐	
			11:07	EN			48° 0.460	126° 16.877			-			☐☐	
			:				° .	° .			-			☐☐	

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

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

Notes: _____

→ Stopped on way up @ 70m to correct a fwd kick

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
43	LC12/A4	21	14:29	BE	ROS	~~US~~	48° 15.070	126° 39.930	2535		/	/	RP	☑ ☐	
			15:03	BO			48° 15.068	126° 39.928		2005	-			☐ ☐	
			15:34	EN			48° 15.070	126° 39.930			-			☐ ☐	
~~44~~	LC12/A4	21	15:44	BE	Net	/	48° 15.113	~~126° 39.999~~ 126° 40.000	2535		/	/	~~JS~~/NN	☐ ☐	Bongo to 250m
			15:53	BO			~~48° 15.114~~			250	-			☐ ☐	came up twisted.
			15:58	EN			~~48°~~ 15.115	126° 39.999			-			☐ ☐	re-do!
44	LC12/A4	21	16:08	BE	Net	/	48° 15.114	126° 40.000	2535		/	/	JS/NN	☐ ☐	Bongo to 250
			16:16	BO			48° 15.114	126° 40.002		250	-			☐ ☐	
			16:21	EN			48° 15.114	126° 40.002			-			☐ ☐	
45	LC12/A4	21	~~16~~ 17:29	BE	Net	/	48° 15.115	126° 40.002	2535		/	/	JS/NN	☐ ☐	Bongo to 1200
			17:11	BO			48° 15.115	126° 40.008		1200	-			☐ ☐	
			17:30	EN			48° 15.114	126° 40.009			-			☐ ☐	
46	LC12/A4	21	17:42	BE	UVP	/	48° 15.107	126° 40.007	2533		/	/	JS	☐ ☐	
			17:50	BO			48° 15.107	126° 40.007		300	-			☐ ☐	
			17:54	EN			48° 15.107	126° 40.007			-			☐ ☐	
47	LC11	21	19:18	~~BE~~	ROS	US	48° 18.950	126° 26.690	1446		132 - 150	19	A	☑ ☐	
			19:43	BO			48° 18.924	126° 26.808		1481	-			☐ ☐	
			20:24	EN			48° 18.877	126° 27.103			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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

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

Notes: _____

ENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 9 of _____

Year 2021 | Vessel TULLY | Cruise ID 2021-005

ation ame	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
10	21	21:16	BE	ROS	—	48°22.309	126°20.290	1249		-	—	JN	☑ ☐	
		21:39	BO			°22.250	°20.320		1247.7	-			☐ ☐	
		22:00	EN			°22.271	°20.305			-			☐ ☐	
19	21	22:41	BE	ROS	US	48°25.930	126°13.640	610		151 - m2	22	CA	☑ ☐	
		22:57	BO			°25.890	°13.650		601	-			☐ ☐	
		23:26	EN			°25.770	°13.55			-			☐ ☐	
09	21	23:37	BE	NET	—	°25.939	°13.70	614	250	—	—		☐ ☐	BONGO
		:47	BO			°25.939	°13.699			-			☐ ☐	
		:52	EN			°25.939	°13.699			-			☐ ☐	
09	21	:59	BE	NET		°25.939	°13.699	610	250	—	—		☐ ☐	BONGO
		00:09	BO			°25.939	°13.699			-			☐ ☐	
		00:13	EN			°25.939	°13.699			-			☐ ☐	
-	22	01:11	BE	ROS	—	48°22.440	126°03.710	353		—	—	CA	☑ ☐	
		01:17	BO			°22.710	°03.710		350	-			☐ ☐	
		01:23	EN			°22.701	°03.760			-			☐ ☐	
S	22	01:31	BE	NET	—	48°22.761	126°03.967	342		—	—	MG	☐ ☐	BONGO
		01:41	BO			°22.727	°03.981		250	-			☐ ☐	
		01:45	EN			°22.719	°03.989			-			☐ ☐	
		:				° .	° .			-			☐ ☐	

(no CTD)
CTD
ette

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

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month MAY **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
54	LC08	22	02:59	~~BE~~	ROS	US	48° 29.420	126° 07.140	200		173 - 184	12	CD	☑☐	
			03:03	BO			° 29.410	° 07.160		193	-			☐☐	
			03:19	EN			° 29.320	° 07.270			-			☐☐	
55	LC08	22	08:36	~~BE~~	NET	—	48° 29.43	126° 07.13	202		—	—	MG	☐☐	BONGO
			08:40	BO			48° 29.41	126° 07.165		195	-			☐☐	
			09:47	EN			48° 29.43	126° 07.19			-			☐☐	
56	LC07	22	04:32	~~BE~~	ROS	—	48° 32.980	126° 00.520	130	—	—	—	CD	☐☐	
			04:35	BO			° 32.970	° 00.530		120	-			☐☐	
			04:37	EN			° 32.960	° 00.560			-			☐☐	
57	LC06	22	05:24	~~BE~~	ROS	US	48° 36.490	125° 54.010	94		185 - 172	8	CD	☑☐	
			05:26	BO			° 36.490	° 53.970		85	-			☐☐	
			05:37	EN			° 36.540	° 53.950			-			☐☐	
58	LC06	22	05:51	~~BE~~	NET	—	48° 36.51	125° 53.90	94		—	—	MG	☐☐	BONGO
			05:55	BO			° 36.52	° 53.92		88	-			☐☐	
			05:57	EN			° 36.52	° 53.93			-			☐☐	
59	LC05	22	06:49	~~BE~~	ROS	/	48° 39.990	125° 47.304	65		-	/	JN/KF	☑☐	
			06:51	BO			48° 39.992	125° 47.292		56	-			☐☐	
			06:53	EN			48° 39.991	125° 47.272			-			☐☐	
			:				° .	° .			-			☐☐	

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

Notes: _____

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 11 of _____

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
60	LC05	22	07:02	BE	Net		48° 39.996	125° 47.137	64		-		JS/NN	☐☐	Bongo
			07:05	BO			48° 42.011	125° 47.156		57	-			☐☐	
			07:06	EN			48° 40.018	125° 47.156			-			☐☐	
61	LC04	22	07:56	BE	Net		48° 43.474	125° 40.782	167		-		JS/NN	☐☐	Bongo
			08:02	BO			48° 43.475	125° 40.806		160	-			☐☐	
			08:05	EN			48° 43.468	125° 40.800			-			☐☐	
62	LC04	22	08:13	BE	Net		48° 43.462	125° 40.818	167		-			☐☐	Both sides frozen. BO's
			08:19	BO			48° 43.461	125° 40.799		160	-		JS	☐☐	
			08:22	EN			48° 43.470	125° 40.818			-			☐☐	
63	LC04	22	08:37	BE	ROS	US	48° 43.460	125° 40.810	167		193-208	16	RF	☑☐	
			08:41	BO			48° 43.460	125° 40.810		158	-			☐☐	
			08:57	EN			48° 43.430	125° 40.820			-			☐☐	
64	LC03	22	09:46	BE	ROS	~~US~~	48° 46.970	125° 34.260	135		-	-	RF	☑☐	
			09:49	BO			48° 46.980	125° 34.270		126	-			☐☐	
			09:52	EN			48° 46.970	125° 34.280			-			☐☐	
65	LC02	22	10:22	BE	ROS	US	48° 48.670	125° 30.990	109		209-216	8	RF	☐☐	
			10:25	BO			48° 48.670	125° 31.010		100	-			☐☐	
			10:36	EN			48° 48.690	125° 31.000			-			☐☐	
			:				° .	° .			-			☐☐	

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

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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005 Page 12 of _____

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
66	LC01	22	11:12	BE	Ros	US	48° 50.470	125° 27.740	95		217 - 223	7	RF	☑ ☐	
			11:14	BO			48° 50.460	125° 27.740		86	-			☐ ☐	
			1125	EN			48° 50.436	125° 27.743			-			☐ ☐	
67	LC01	22	11:35	BE	UVP		48° 50.403	125° 27.756	95		-		JS	☐ ☐	
			11:38	BO			48° 50.398	125° 27.766		85	-			☐ ☐	
			11:41	EN			48° 50.389	125° 27.771			-			☐ ☐	
68	LD01	22	13:25	BE	ROS	US	49° 0.144	125° 43.806	35		-			☐ ☐	turned pump off
			13:27	BO			49° 0.140	125° 43.800		26	224 - 227	4	N2	☑ ☐	@surface before
			13:32	EN			49° 0.130	125° 43.790			-			☐ ☐	acquisition stopped.
69	LD07	22	13:39	BE	UVP		49° 00.1239	125° 43.778	35		-		JS	☐ ☐	
			13:40	BO			49° 00.1244	125° 43.778		25	-			☐ ☐	
			13:42	EN			49° 00.124	125° 43.770			-			☐ ☐	
70	LD02	22	14:11	BE	UVP		48° 58.352	125° 47.063	44		-			☐ ☐	
			14:12	BO			48° 58.340	125° 47.067		35	-			☐ ☐	
			14:13	EN			48° 58.331	125° 47.070			-			☐ ☐	
971	LD02	22	14:25	BE	Net		48° 58.254	125° 47.119	44		-		JS	☐ ☐	changed event number
			14:27	BO			48° 58.258	125° 47.124		38	-			☐ ☐	
			14:27	EN			48° 58.261	125° 47.128			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

EVENT 71 + 971
Same event number was used for net & ROS events @ LDO2 => Net event # changed to 971

DAILY SCIENCE LOG - Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
71	LD02	22	14:41	BE	ROS	US	48°58.300	125°47.200	44		228-232	5	RF	☑☐	
			14:42	BO			48°58.300	125°47.200		35	-			☐☐	
			14:49	EN			48°58.320	125°47.200			-			☐☐	
72	LD03	22	15:22	BE	ROS	/	48°56.630	125°50.410	48		/	/	RF	☑☐	
			15:24	BO			48°56.630	125°50.410	~~48~~	39	-			☐☐	
			15:25	EN			48°56.640	125°50.420			-			☐☐	
73	LD03	22	15:32	BE	UVP	/	48°56.646	125°50.427	47		/	/	TS/NN	☐☐	"The apparatus"
			15:33	BO			48°56.655	125°50.424	'	42	-			☐☐	
			15:34	EN			48°56.657	125°50.424			-			☐☐	
74	LD04	22	16:23	BE	UVP	/	48°53.166	125°56.982	63		/	/	JS	☐☐	
			16:25	BO			48°53.179	125°57.001		57	-			☐☐	
			16:26	EN			48°53.183	125°57.011			-			☐☐	
75	LD04	22	16:33	BE	Net		48°53.177	125°57.629	63		-			☐☐	Bongo
			16:34	BO			48°53.180	125°57.047		57	-			☐☐	
			16:36	EN			48°53.186	125°57.061			-			☐☐	
76	LD04	22	16:52	BE	ROS	US	48°53.190	125°57.090	64		233-237	5	RF	☑☐	
			16:54	BO			48°53.200	125°57.090		56	-			☐☐	
			17:01	EN			48°53.190	125°57.120			-			☐☐	
77	LOOP77	22	17:24	BE	LOOP		48°51.060	126°01.201	/	415	~~50-65077~~	/		☐☐	

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

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

Notes: _____

IENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005 **Page** 14 **of** ____

ation ame	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
05	22	17:45	BE	ROS	/	48°49.784	126° 3.499	90		/	/	RF	☑☐	
		17:47	BO			48°49.789	126° 3.516		82	-			☐☐	
		17:49	EN			48°49.793	126° 3.517			-			☐☐	
05	22	17:56	BE	UVP	/	48°49.829	126° 3.517	90		/	/	JS	☑☐	
		17:58	BO			48°49.838	126° 3.514		82	-			☐☐	
		17:59	EN			48°49.845	126° 3.514			-			☐☐	
6	22	19:01	BE	UVP	/	48°46.2237	126°10.585	137		—	—	MG	☐☐	
		19:04	BO			°46.218	126°10.746		130	-			☐☐	
		19:09	EN			°46.218	°10.746			-			☐☐	
2	22	19:20	BE	Ros	US	48°46.170	126°10.770	141		238 - 245	8	CS	☑☐	→ Stopped @ 102 m to fix cft lead.
		19:23	BO			°46.180	°10.830		133	-			☐☐	→ fired 5m bottle w/out cabling
		19:35	EN			°46.100	°11.090			-			☐☐	
+	22	20:31	BE	ROS	—	48°42.750	126°16.920	572		—	—	CS	☑☐	
		20:41	BO			°42.720	°16.960		579	-			☐☐	
		20:51	EN			°42.666	°17.010			-			☐☐	
	22	21:38	BE	UVP	—	48°39.212	126°23.501	767		—	—	MG/JS	☐☐	
		21:49	BO			°39.208	°23.307		300	-			☐☐	
		21:54	EN			°39.2113	°23.347			-			☐☐	
		:				°	°			-			☐☐	
										-			☐☐	

CTD)
D

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

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

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month MAY **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
84	LD08	22	22:00	BE	ROS	US	48° 39.200	126° 23.310	769		246-262	17	AN/MG	☑ ☐	
			22:14	BO			48° 39.143	126° 23.357		763	-			☐ ☐	
			22:44	EN			48° 38.942	126° 23.279			-			☐ ☐	
85	LD09	22	23:38	BE	ROS	—	48° 35.600	126° 30.16	1056		—	—	CS/MG	☑ ☐	
			23:56	BO			° 35.53	° 30.27		1045	-			☐ ☐	
		23	00:13	EN			° 35.55	° 30.30			-			☐ ☐	
86	LD09	23	00:20	BE	UVP	—	48° 35.55	126° 30.30	1061		—	—	MG/JN	☐ ☐	
			00:30	BO			° 35.517	° 30.332		300	-			☐ ☐	
			00:35	EN			° 35.513	° 30.358			-			☐ ☐	
87	LD09	23	00:39	BE	NET	—	48° 35.517	126° 30.389	1067		—	—	MG	☐ ☐	Box.
			00:48	BO			° 35.494	° 30.431		250	-			☐ ☐	
			00:53	EN			° 35.492	° 30.421			-			☐ ☐	
88	LD10	23	02:10	BE	UVP	—	48° 32.14	126° 36.69	1480		—	—	JN	☐ ☐	
			02:18	BO			° 32.13	° 36.71		300	-			☐ ☐	
			02:24	EN			° 32.253	° 36.597			-			☐ ☐	
89	LD10	23	02:33	BE	ROS	—	48° 31.998	126° 36.772	1490		—	—	CS	☑ ☐	
			02:58	BO			° 31.950	° 36.990		1488	-			☐ ☐	
			03:20	EN			° 31.850	° 36.970			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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

Notes: _____

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month MAY **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-005 Page 16 of ____

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
90	LD11	23	04:14	BE	UVP	—	48° 28.798	126° 43.118	1582		—	—	JN	☐☐	
			04:23	BO			° 28.780	° 43.258		250	-			☐☐	
			04:28	EN			° 28.777	° 43.296			-			☐☐	
91	LD11	23	04:33	BE	NET	—	48° 28.777	126° 43.390	1630		-		JN	☐☐	Bongo
			04:44	BO			° 28.80	° 43.55		250	-			☐☐	
			04:49	EN			° 28 796	° 43.563			-			☐☐	
92	LD11		04:57	BE	NET	—	48° 28.88	126° 43.53	1571		-		JN	☐☐	Bongo
			05:09	BO			°28.89	°43.71		250	-			☐☐	
			05:13	EN			°28.	°43.			-			☐☐	
93	LD11	23	05:25	BE	ROS	US	48° 28.790	126 43890	1659		263 - 267	5	CA	☑☐	
			05:27	BO			° 28 784	° 43 904		50	-			☐☐	
			05:31	EN			° 28 782	° 44.071			-			☐☐	
94	LD11	23	05:47	BE	ROS	US	48° 28.630	126° 44.150	1854		268 - 288	21	D	☐☐	~ About 1 mile from station
			06:20	BO			° 28.450	° 44.450		1853	-			☐☐	
			07:10	EN			48° 28.440	126° 44.670			-			☐☐	
95	LOOP	23	11:49		LOOP	—	48° 48.747	127° 15.716			5095		N^2	☐☐	1 dtr, 1 SAZ
96	LG09	23	12:26	BE	Net		48° 51.147	127° 19.354	2061		-		JS/NN	☐☐	Bongo to 250m
			12:35	BO			48° 51.179	127° 19.417	~~2~~	250	-			☐☐	
			12:40	EN			48° 51.191	127° 19.430			-			☐☐	

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

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
97	LG09	23	12:49	BE	Net		48° 51.190	127° 19.461	2063		-		JS/NN	☐☐	Bongo to 200
			13:24	BO			48° 51.224	127° 19.506		200	-			☐☐	
			13:45	EN			48° 51.246	127° 19.527			-			☐☐	
98	LG09	23	13:55	BE	Net		48° 51.247	127° 19.529	2063		-		NN	☐☐	Bongo to 250
			14:04	BO			48° 51.259	127° 19.540		250	-			☐☐	
			14:09	EN			48° 51.267	127° 19.548			-			☐☐	
99	LG09	23	14:26	BE	ROS	US	48° 51.274	127° 19.555	2055		281-301	13	RF	☑☐	
			15:00	BO			48° 51.275	127° 19.555		2005	-			☐☐	
			15:39	EN			48° 51.275	127° 19.555			-			☐☐	
100	LG08	23	16:31	BE	ROS	—	48° 55.350	127° 13.310	2069		—	—	RF/N²	☑☐	
			17:07	BO			48° 55.489	127° 13.310		2005	-			☐☐	
			17:39	EN			48° 55.540	127° 13.310			-			☐☐	
101	LG07	23	18:26	BE	Net	—	48° 59.405	127° 07.134	1765		-		JS/NN	☐☐	Bongo to 250
			18:35	BO			° 59.426	° 07.197		250	-			☐☐	
			18:40	EN			° 59.441	° 07.199			-			☐☐	
102	LG07	23	18:49	BE	ROS	—	48° 59.440	127° 07.210	1759		—	—	A	☐☐	
			19:18	BO			° 59.500	° 07.290		1759	-			☐☐	
			19:46	EN			° 59.4	° 7.2	1755		-			☐☐	
			:				° .	° .			-			☐☐	

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

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

Notes: _____

ENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Year 2021 | Vessel TULLY | Cruise ID 2021-005

ation ame	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
07	23	19:58	BE	UNP	—	48° 59.624	127° 07.277	1755		—	—	MG	☐☐	cleaned Trans
		20:09	BO			48° 57.653	127° 07.254		300	-			☐☐	
		20:14	EN			48° 59.687	127° 07.266			-			☐☐	
06	23	21:19	BE	ROS	US	49° 03.505	126° 57.990	621		302 - 319	17	CO	☐☐	⇒ NO Samples 303
		21:30	BO			49° 03.515	126° 57.900		614	-			☐☐	
		21:58	EN			49° 03.510	126° 57.940			-			☐☐	
05	23	22:44	BE	ROS	—	49° 07.45	126° 55.16	269		—	—	JN	☐☐	
		22:48	BO			° 7.43	° 55.13		259	-			☐☐	
		22:53	EN			° 7.43	° 55.10			-			☐☐	
04	23	23:42	BE	ROS	US	49° 11.23	126° 49.44	145	136.9	320 - 328	9	JN	☑☐	
		23:45	BO		BO	° 11.21	° 49.45			-			☐☐	
		23:59	EN			° 11.18	° 49.610			-			☐☐	
04	24	00:06	BE	NET	/	49° 11.18	126° 49.66	148		-		MG	☐☐	BONGO
		00:11	BO			° 11.18	° 49.66		140	-			☐☐	
		00:15	EN			49° 11.17	126° 49.71			-			☐☐	
04	24	00:21	BE	UNP	—	49° 11.18	126° 49.72	148		—	—	MG	☐☐	
		00:26	BO			° 11.18	° 49.71		140	-			☐☐	
		00:30	EN			° 11.17	° 49.73			-			☐☐	
		:				° .	° .			-			☐☐	

no CTD)
CTD
tte

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

Notes: _____

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 19 of _____

Month MAY **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
109	LG03	24	01:25	BE	ROS	—	49° 15.060	126° 43.960	122		—	—	CA	☑☐	
			01:27	BO			° 15.060	° 43.990		114	-			☐☐	
			01:30	EN			° 15.060	° 44.020			-			☐☐	
110	LG02	24	02:27	BE	ROS	US	49° 18.85	126° 38.27	100		329 - 341	13	JN	☑☐	
			02:29	BO			° 18.86	° 38.29		92	-			☐☐	
			02:41	EN			° 18.90	° 38.29	99		-			☐☐	
111	LG02	24	02:51	BE	NET	—	49° 18.79	126° 38.17	100		-	—	MG	☐☐	BONGO
			02:56	BO			49° 18.84	126° 38.19		95	-			☐☐	
			02:58	EN			49° 18.86	126° 38.22			-			☐☐	
112	LG02	24	03:14	BE	NET		49° 18.77	126° 38.28	101		-	—	MG	☐☐	BONGO
			03:17	BO			° 18.82	° 38.33		95	-			☐☐	
			03:19	EN			° 18.86	° 38.40			-			☐☐	
113	LG02	24	03:37	BE	UVP		49° 18.71	126° 38.04	101		-	—	MG	☐☐	
			03:40	BO			° 18.71	° 38.04		95	-			☐☐	
			:	EN			°	°			-			☐☐	
114	LG01	24	04:14	BE	ROS	US	49° 20.56	126° 35.00	54		342 - 346	5	JN	☑☐	
			04:15	BO			49° 20.57	126° 35.02		94.5	-			☐☐	
			04:22	EN			° 20.62	° 35.02	51		-			☐☐	
			:				°	°			-			☐☐	

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

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month MAY **Year** 2021 **Vessel** J P TULLY **Cruise ID** 2021005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
115	Loop115	24	06:13	BE	Loop	/	49° 3 2.41	126° 51.22	59	45	5115	—	MG	☐☐	1SAL 1CHL
116	LJ01	24	07:43	BE	ROS	/	49° 44.370	127° 2.568	61		/	/	RF	☑☐	
			07:45	BO			49° 44.360	127° 2.550		52	-			☐☐	
			07:47	EN			49° 44.360	127° 2.530			-			☐☐	
117	LJ02	24	08:13	BE	Net	/	49° 42.642	127° 5.275	83		/	/	JS/NN	☒☒	BONGO
			08:17	BO			49° 42.640	127° 5.263		77	-			☐☐	
			08:18	EN			49° 42.643	127° 5.255			-			☐☐	
118	LJ02	24	08:30	BE	ROS	US	49° 42.640	127° 5.280	83'		347 -	1	RF	☑☐	
			08:32	BO			49° 42 640	127° 5.290		74	-			☐☐	
			08:35	EN			49° 42 650	127° 5 290			-			☐☐	
119	LJ02	24	08:42	BE	UVP	/	49° 42.662	127° 5.294	83		/	/	JS	☒☒	
			08:45	BO			49° 42.647	127° 5.289		75	-			☐☐	
			08:47	EN			49° 42.643	127° 5.287			-			☐☐	
120	LJ03	24	09:31	BE	ROS	/	49° 39.139	127° 10.979	124		/	/	RF	☑☐	
			09:34	BO			49° 39.139	127° 10.957		115	-			☐☐	
			09:36	EN			49° 39.114	127° 10.946			-			☐☐	
121	LJ04	24	10:28	BE	UVP		49° 35.368	127° 16.688	159		-			☐☐	
			10:33	BO			49° 35.301	127° 16.621		155	-			☐☐	
			10:36	EN			49° 35.274	127° 16.585			-			☐☐	

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

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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
122	LJ04	24	10:41	BE	Net		49° 35.254	127° 16.495	158		-		JS/NN	☐☐	BONGO
			10:46	BO			49° 35.243	127° 16.422		153	-			☐☐	
			10:49	EN			49° 35.235	127° 16.365			-			☐☐	
123	LJ04	24	10:57	BE	ROS	US	49° 35.220	127° 16.350	157		348 -	1	RF	☑☐	
			11:00	BO			49° 35.210	127° 16.340		148	-			☐☐	
			11:05	EN			49° 35.220	127° 16.320			-			☐☐	
124	LJ05	24	11:52	BE	ROS	~~US~~	49° 31.618	127° 22.460	1070		-	/	RF	☑☐	
			12:11	BO			49° 31.624	127° 22.322	"	1064	-			☐☐	
			12:28	EN			49° 31.639	127° 22.175			-			☐☐	
125	LJ06	24	13:17	BE	ROS	US	49° 27.810	127° 28.630	1030		-		N^2	☑☐	ISOTOPE
			13:35	BO			49° 27.850	127° 28.610		1064	349	1		☐☐	
			13:54	EN			49° 27.890	127° 28.580			-			☐☐	
126	LJ06	24	14:02	BE	~~NET~~		49° 27.883	127° 28.429	1085		-			☐☐	BONGO
			14:11	BO			49° 27.716	127° 28.295		270	-			☐☐	
			14:15	EN			49° 27.676	127° 28.216			-			☐☐	
127	LJ07	24	15:09	BE	~~UOP~~ ROS	US	49° 23.910	127° 34.733	1812		/	/	RF	☑☐	
			15:40	BO			49° 23.990	127° 34.560		1814	-			☐☐	
			16:09	EN			49° 24.053	127° 34.460			-			☐☐	
			:				° .	° .			-			☐☐	

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

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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
128	LJ08	24	16:56	BE	ROS	US	49° 20.110	127 41.080	1740		350-	1	RF/N2	☑☐	
			17:28	BO			49° 20.110	127° 40.97		1754	-			☐☐	
			17:55	EN			49° 20.150	127° 40.860			-			☐☐	
129	LJ09	24	19:17	BE	Net		49° 15.982	127° 47.261	2492		/	/	MG	☐☐	BONGO
			19:25	BO			49° 15.979	127° 47.248		250	-			☐☐	
			19:30	EN			49° 15.973	127° 47.232			-			☐☐	
130	LJ09	24	19:45	BE	ROS	—	49° 15.970	127° 47.233	2491		/		JN	☑☐	
			20:19	BO			°15.973	°47.233	2492	2005.1	-			☐☐	
			20:53	EN			°15.973	°47.233	2492		-			☐☐	
131	LJ09	24	21:04	BE	VVP	—	49° 15.972	127° 47.232	2492		—	—	MG	☐☐	
			21:17	BO			°15.965	°47.202		250	-			☐☐	
			21:15	EN			°15.961	°47.187			-			☐☐	
132	LJ09	24	21:42	BE	NET	—	49° 15.97	127° 47.28	2491		—	—	MG	☐☐	MPS Vert
			22:52	BO			°15.98	°47.11		2005	-			☐☐	
			23:27	EN			°15.99	°44.03			-			☐☐	
133	LBP8	25	04:23	BE	ROS	US	49° 48.62	128° 16.78	2079		351-361	11	JN	☑☐	
			04:59	BO			°48.62	°16.72	2079	2005	-			☐☐	
			05:39	EN			°48.62	°16.72	2079		-			☐☐	
			:				° .	° .			-			☐☐	

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

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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month MAY **Year** 2021 **Vessel** JP TULLY **Cruise ID** 2021005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
134	LBP8	25	05:52	BE	NET	/	49° 48.58	128° 16.73	2079		-		MG	☐☐	Bongo
			05:59	BO			° 48.59	° 16.74		250	-			☐☐	
			06:04	EN			° 48.59	° 16.73	2079		-			☐☐	
135	LBP8	25	06:12	BE	NET		49° 48.58	128° 16.77	2079		-		MG	☐☐	Bongo
			06:18	BO			° 48.58	° 16.77		250	-			☐☐	
			06:22	EN			° .58	° .77	2079		-			☐☐	
136	LBP8	25	06:30	BE	NET		49° 48.58	128° 16.77	2079		-		MG	☐☐	deep bongo
			07:10	BO			49° 48.590	128° 16.783	'	1200	-			☐☐	
			07:30	EN			49° 48.588	128° 16.783			-			☐☐	
137	LBP8	25	07:40	BE	UVP		49° 48.589	128° 16.783	2079		-		JS	☐☐	
			07:47	BO			49° 48.589	128° 16.783		250	-			☐☐	
			07 52	EN			49° 48.586	128° 16.783			-			☐☐	
138	LBP7	25	08:37	BE	UVP		49° 52.330	128° 11.247	2196		-		JS	☐☐	
			08:46	BO			49° 52.338	128° 11.266		250	-			☐☐	
			08:51	EN			49° 52.326	128° 11.254			-			☐☐	
139	LBP7	25	08:56	BE	Net		49° 52.329	128° 11.259	2178		-			☐☐	Bongo to 250
			09:04	BO			49° 52.308	128° 11.253		250	-			☐☐	
			09:09	EN			49° 52.307	128° 11.245			-			☐☐	
			:				° .	° .			-			☐☐	

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

Notes: _____

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005 Page 24 of _____

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
140	LBP7	25	09:22	BE	ROS	US	49° 52.334	128° 11.250	2182		362-382	21	RF	☑ ☐	
			09:59	BO			49° 52.334	128° 11.267		2005	-			☐ ☐	
			10:52	EN			49° 52.339	128° 11.256			-			☐ ☐	
141	LBP6	25	11:42	BE	ROS	/	49° 56.224	128° 5.632	760		-		RF/N	☑ ☐	
			11:56	BO			49° 56.243	128° 5.686		770	-			☐ ☐	
			12:08	EN			49° 56.260	128° 5.702			/			☐ ☐	
142	LBP5	25	12:54	BE	Net		49° 59.953	128° 0.500	1285		-			☐ ☐	Bongo
			13:02	BO			49° 59.945	128° 00.095		250	-			☐ ☐	
			13:08	EN			49° 59.953	128° 00.092			-			☐ ☐	
143	LBP5	25	13:17	BE	UVP		49° 59.954	128° 00.080	1287		-			☐ ☐	
			13:26	BO			49° 59.93	128° 00.13		250	-			☐ ☐	
			13:31	EN			49° 59.93	128° 00.13			-			☐ ☐	
144	LBP5	25	13:39	BE	ROS	US	49° 59.940	128° 0.150	1287		363-401	18	RF	☑ ☐	
			14:01	BO			49° 59.930	128° 0.170		1283	-			☐ ☐	
			14:39	EN			49° 59.870	128° 0.150			-			☐ ☐	
145	LPB4	25	15:10	BE	ROS		50° 1.324	127° 58.214	1059		-		RF	☑ ☐	
			15:31	BO			50° 1.361	127° 58.194			-			☐ ☐	
			15:50	EN			50° 1.367	127° 58.194			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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

Notes: _____

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

ENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 25 of ____

May | **Year** 2021 | **Vessel** Tully | **Cruise ID** 2021-005

ation ame	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information: Latitude	Positional Information: Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
P3	25	16:19	BE	UVP	/	50 °03.214	127 °55.447	166		-		JS	☐☐	
		16:24	BO			50 °03.226	127 °55.423		160	-			☐☐	
		16:27	EN			50 °03.232	127 °55.407			-			☐☐	
3	25	16:33	BE	NET		50 °03.225	127 °55.398	166		-		JS/AS	☐☐	BONGO.
		16:39	BO			50 °03.237	127 °55.398		160	-			☐☐	
		16:41	EN			50 °03.244	127 °55.403			-			☐☐	
3	25	16:55	BE	NET		50 °03.265	127 °55.435	162		-		JS/AS	☐☐	BONGO
		17:00	BO			50 °03.277	127 °55.428		155	-			☐☐	
		17:03	EN			50 °3.288	127 °55.408			-			☐☐	
3	25	17:14	BE	ROS	US	50° 3.260	127 °55.290	162		402-418	17		☐☐	
		17:17	BO			50° 3.250	127 °55.330		155	-			☐☐	
		17:32	EN			50° 3.290	127 °55.400			-			☐☐	
2	25	17:50	BE	NET	—	50 °04.0360	127° 54.258	96		-		JS/AS	☐☐	BONGO
		17:55	BO			° 04.047	° 54.279		90	-			☐☐	
		17:56	EN			° 04.050	° 54.282			-			☐☐	
2	25	18:10	BE	ROS	/	50° 4.110	127° 54.280	90		-		RF	☑☐	
		18:12	BO			50° 4.120	127° 54.290		80	-			☐☐	
		18:14	EN			50° 4.120	127° 54.290			-			☐☐	
		:				° .	° .			-			☐☐	

o CTD)
TD
:e

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

Notes: _____

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

ENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Year 2021 | Vessel Tully | Cruise ID 2021-005

tion me	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
2	25	18:23	BE	UVP		50° 4.127	127° 54.303	90		-			☐☐	
		18:27	BO			50° 4.135	127° 54.300		80	-			☐☐	
		18:29	EN			50° 4.139	127° 54.302			-			☐☐	
1	25	19:07	BE	ROS	—	50° 4.71	127° 52.72	53		-		JN	☑☐	
		19:09	BO			° 4.68	° 52.71		42	-			☐☐	
		19:10	EN			° 4.67	° 52.70	52		-			☐☐	
1	25	22:59	BE	NET		50° 20.27	128° 24.19	399		-		CA	☐☐	MPS HNH
		23:12	BO			50° 20.43	128° 24.45		350	-			☐☐	
		23:33	EN			° 20.62	° 24.92			-			☐☐	
2	26	02:31	BE	ROS	—	50° 42.730	128° 40.290	126		—	—	CA	☐☐	
		02:33	BO			° 42.740	° 40.290		117	-			☐☐	
		02:35	EN			° 42.750	° 40.300	126		-			☐☐	
2	26	02:44	BE	NET	—	50° 42.766	128° 40.297	126		—	—	MG	☐☐	BONGO
		02:49	BO			° 42.835	° 40.470		120	-			☐☐	
		02:51	EN			° 42.860	° 40.526			-			☐☐	
2	26	03:08	BE	UVP	—	50° 42.98	128° 40.53	124		—	—	MG	☐☐	
		03:10	BO			° 43.03	° 40.59		120	-			☐☐	
		03:12	EN			° 43.05	° 40.61	124		-			☐☐	
		:				° .	° .			-			☐☐	

no CTD)
:TD
te

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

Notes: _____

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

1373

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 27 of _____

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
158	LQ03	26	05:04	BE	ROS	—	50°39.733	129° 2.206	1391		/ - /	—	JN	☑☐	
			05:26	BO			129°39.646	° 2.400		1413	-			☐☐	
			05:48	EN			°39.58	° 2.560	1490		-			☐☐	
159	LQ03	26	05:59	BE	NET	—	50°39.620	129°02.333	1348		—	—	MG	☐☐	Bongo
			06:08	BO			50°39.467	129°02.241		250	-			☐☐	
			06:13	EN			50°39.381	129°02.240			-			☐☐	
160	JI22	26	07:32	BE	ROS	/	50°40.160	129°17.540	1342		/	/	RF	☑☐	
			07:56	BO			50°40.140	129°17.480		1310	-			☐☐	
			08:17	EN			50°40.050	129°17.530			-			☐☐	
161	JI22	26	08:27	BE	Net	/	50°40.087	129°17.529	1386		-		JS/NZ	☐☐	Bongo to 250
			08:36	BO			50°40.023	129°17.575		250	-			☐☐	
			08:40	EN			50°39.973	129°17.580			-			☐☐	
162	CS00	26	12:03	BE	ROS	US	50°27.670	129°54.870	2182		419 - 439	21	RF/NZ	☐☐	All stop @ 752 on downcast. Windy, also @1764
			12:45	BO			°27.710	°54.680		2005	-			☐☐	
			13:41	EN			50°27.830	129°54.120			-			☐☐	Wind/waves too high to do bongo/UVP Wait...
163	CS00	27	01:02	BE	NET	—	50°27.83	129°54.913	2180		—	—	MG	☐☐	Stopped @ 2m to A a bit
			01:17	BO			°27.722	°54.809		250	-			☐☐	Bongo
			01:22	EN			°27.689	°54.780			-			☐☐	
			:				° .	° .			-			☐☐	

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

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

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 28 of _____

Month May **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
164	CS00	27	01:49	BE	ROS	—	50° 27.490	129° 54.620	2180		-	—	CS	☐☐	
			01:57	BO			50° 27.450	129° 54.580		500	-			☐☐	
			02:06	EN			50° 27.430	129° 54.560			-			☐☐	
165	CS01	27	03:43	BE	ROS	—	50° 34.975	129° 42.077	2112		/ - /	/	JN	☒☐	
			04:16	BO			°35.05	° 42.060		2001	-			☐☐	
			04:48	EN			°35.22	°42.120	2108		-			☐☐	
166	CS02	27	06:37	BE	ROS	US	50°41.563	129°27.010	1902	100	461 - 465	5	CS	☐☐	
			06:37	BO			° 41.587	° 28.026		100	-			☐☐	
			06:48	EN			° 41.707	° 28.120			-			☐☐	
167	CS02	27	07:04	BE	ROS	US	50 °41.818	129 °27.958	1900		440 -460	21	RP	☑☐	all stop at 1243 on downcast repositioning. Big swell! Drifting north
			07:43	BO			50 °42.190	129°28.236		1889	-			☐☐	
			08:39	EN			50 °42.460	129°27.894			-			☐☐	
168	CS02	27	10:14	BE	Net	/	50 °41.867	129°27.923	1893		-	/	JS	☐☐	Bongo to 250
			10:22	BO			50 °41.883	129°27.875		250	-			☐☐	
			10:27	EN			50 °41.897	129°27.858.			-			☐☐	
169	CS02	27	10:40	BE	Net		50 °41.904	129° 27.852	1864		/	/	JS	☒☐	Bongo to 250
			10:47	BO			50° 41.904	129° 27.849		250	-			☐☐	
			10:52	EN			50° 41.905	129° 27.850			-			☐☐	
			:				° .	° .			-			☐☐	

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

Notes: _____

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month: May | Year: 2021 | Vessel: Tully | Cruise ID: 2021-005 | Page 29 of _____

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information: Latitude	Positional Information: Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
170	CS03	27	12:01	BE	Net	/	50° 45.524	129° 20 .198	246		/	/	JS/NN	☐☐	Bongo
			12:10	BO			50° 45.434	129° 20 .040		238	-			☐☐	
			12:14	EN			50° 45.402	129° 19 .972			-			☐☐	
171	CS03	27	12:27	BE	Ros	US	50° 45.400	129° 19 .970	252		474-482	9		☑☐	
			12:33	BO			50° 45.400	129° 19 .970		248.6	-			☐☐	
			12:46	EN			50° 45.400	129° 19 .970			-			☐☐	
172	CS04	27	13:36	BE	Net		50° 49.196	129° 13 .133	~~1009~~ 96		-		JS	☐☐	Bongo
			13:38	BO			50° 49.214	129° 13 .146	"	93	-			☐☐	
			13:40	EN			50° 49.222	129° 13 .131			-			☐☐	
173	CS04	27	13:51	BE	Ros	US	50° 49.240	129° 13 .050	93		466-473	8	RF	☑☐	
			13:53	BO			50° 49.270	129° 13 .070		89.4	-			☐☐	
			14:04	EN			50° 49.360	129° 13 .220			-			☐☐	
174	New ODAS	27	17:34	BE	Ros	/	50° 56.429	129° 58 891	2115		/	/	RF/N2	☑☐	"Cool" warm layer
			18:11	BO			50° 56.534	129° 59.030		200S	-			☐☐	400-500m California
			18:44	EN			50° 56.580	129° 59.080			-			☐☐	Undercurrent?
175	New ODAS	27	19:15	BE	NET	—	50° 56.386	129° 58.880	2117		—	—	MG	☐☐	Bongo
			19:24	BO			50° 56.515	129° 59.091		260	-			☐☐	
			19:31	EN			° 56.567	° 59 .175			-			☐☐	
			:				° .	° .			-			☐☐	

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

Notes: _____

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

CIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Year 2021 | Vessel Tully | Cruise ID 2021-025 | Page 30 of ____

Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information: Latitude	Positional Information: Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
ODAS	27	19:43	BE	NET	—	50°56.343	129°58.784	2115		—	—	MG	☐☐	Bongo
		20:23	BO			°56.868	°59.363		1200	-			☐☐	
		20:43	EN			°57.178	°59.788	2124		-			☐☐	
ODAS	22	21:03	BE	NET	—	50°57.301	129°58.936	2107		—	—	CA	☐☐	
		21:18	BO			50°57.315	129°58.153		400	-			☐☐	XBT12 WPS
		21:38	EN			50°57.3111	129°57.292			-			☐☐	
3B	27	00:04	BE	POS	—	51°0.020	124°27.190	222		-			☐☐	
		00:08	BO			51°0.020	129°27.22		214	—		JN	☑☐	
		00:12	EN			51°0.010	129°27.25	223		-			☐☐	
3B	27	00:22	BE	NET	—	51°00.009	129°27.281	223		-			☐☐	
		00:28	BO			51°00.070	129°27.244		215	—	—	MG	☐☐	Bongo
		00:32	EN			°00.083	129°27.222	223		-			☐☐	
5	28	02:46	BE	ROS	—	50°56.29	129°00.170	65		-			☐☐	
		02:47	BO			°56.290	°00.200		56	—	—	CA	☐☐	
		02:48	EN			°56.310	°00.200			-			☐☐	
5	28	02:02	BE	NET	—	50°56.345	129°00.096	67		-			☐☐	
		03:07	BO			°56.4328	°00.196		60	-		MG	☐☐	Bongo
		03:09	EN			°56.459	°00.199	67		-			☐☐	
		:				° .	° .			-			☐☐	

CTD) LOOP = Sea Water Loop
TD MOR = Mooring
e 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
DE = Deployment Time
MR = Messenger Release Time
RE = Recover Mooring Time

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
182	CS1B	28	04:50	BE	ROS	~	50° 53.090	128° 39.790	77		-	-	A	☑☐	
			:51	BO			° 53.090	° 39.770		68	-			☐☐	
	CS1B		:53	EN			° 53.090	° 39.740			-			☐☐	
183	CS1B	28	05:00	BE	NET	—	50°53.126	128°39.62	79		-		MG	☐☐	Bongo
			05:02	BO			°53.132	°39.624		70	-			☐☐	
			05:03	EN			°53.135	°39.627	79		-			☐☐	
184	CS06	28	06:41	BE	Ros	US	50°59.710	128°51.290	68		183-490	8	CL	☑☐	
			06:43	BO			50°59.717	128°51.268		63	-			☐☐	
			06:54	EN			50°59.690	128°51.167			-			☐☐	
185	CS06	28	00:02	BE	NET	—	50°59.697	128°51.096	69		—	—	MG	☐☐	Bongo
		PDT → next UTC	00:05	BO			°59.724	°51.106		60	-			☐☐	
			00:07	EN			°59.712	°51.109	69		-			☐☐	
186	CS07	28	07:57	BE	Net	/	51°04.486	128°43.899	66		/	/	JS/NN	☒☒	Bongo
			08:01	BO			51°04.495	128°43.917	60	60	-			☐☐	
			08:02	EN			51°04.499	128°43.919			-			☐☐	
187	CS07	28	08:13	BE	ROS	/	51° 4.520	128° 43.880	66		-			☐☐	
			08:14	BO			° .510	° .890		58	-			☐☐	
			08:16	EN			° .510	° .900			-			☐☐	
			:				° .	° .			-			☐☐	

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

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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
188	CS06	28	09:08	BE	Net	/	51°08.521	128°35.983	146		/	/	JS/NN	☒☐	Bongo
			09:13	BO			°.503	°.956		140	-			☐☐	
			09:16	EN			°.495	°.971			-			☐☐	
189	CS08	28	09:25	BE	ROS	US	51°08.490	128°35.970	146		491-496	6	RF	☐☐	
			09:28	BO			°.490	°.990		142	-			☐☐	
			09:38	EN			°.420	°.960			-			☐☐	
190	CS09	28	10:29	BE	Net	/	51°12.514	128°28.034	197		-			☐☐	Bongo
			10:34	BO			°12.502	°28.123		192	/		JS	☐☐	
			10:42	EN			°12.493	°28.139			-			☐☐	
191	CS09	28	10:51	BE	Net	/	51°12.432	128°28.019	197		-			☐☐	Bongo
			16:57	BO			°.436	°.053		192	/		JS	☐☐	
			11:01	EN			°.432	°.099			-			☐☐	
192	CS09	28	11:14	BE	ROS		51°12.480	128°28.130	197		-		RF	☑☐	
			11:18	BO			°.450	°.160		192	-			☐☐	
			11:34	EN			°.440	°.180			-			☐☐	
193	CS10	28	12:31	BE	NET		51°16.566	128°20.230	87		-		JS	☐☐	Bongo
			12:34	BO			°16.581	°20.339		78	/			☐☐	
			12:35	EN			°16.597	°20.380			-			☐☐	
			:				° .	° .			-			☐☐	

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

Notes: _____

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 33 of _____

Month MAY **Year** 2021 **Vessel** JP TULLY **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
194	CS10	28	12:50	BE	ROS	US	51° 16.630	128° 20.440	82		514 - 518	5	RF	☑ ☐	
			12:52	BO			51° 16.620	128° 20.430		76	-			☐ ☐	
			13 00	EN			51° 16.580	128° 20.450			-			☐ ☐	
195	SS5	28	14:39	BE	NET		51° 28.144	128° 30.234	199		-		JS	☐ ☐	Bongo
			14:45	BO			°28.144	°30.332		194	/			☐ ☐	
			14:48	EN			°28.131	°30.416			-			☐ ☐	
196	SS5	28	14:58	BE	ROS	US	51° 28.110	128° 30.270	199		519-	1	N2	☑ ☐	downcast stopped @ 108 m
			15:04	BO			°28.130	°30.330		190	-			☐ ☐	fix cable angle
			15:09	EN			°28 110	°30.380			-			☐ ☐	
197	SS6	28	17:11	BE	Net		51° 19.973	127° 59.995	175		-		JS	☐ ☐	Bongo
			17:17	BO			°19.927	128° 00.005		170	-			☐ ☐	
			17:22	EN			°19.920	128° 00.010			-			☐ ☐	
198	SS6	28	17:33	BE	ROS	/	51° 19.924	127° 59.981	175		-		N2	☑ ☐	
			17:36	BO			°19.914	°59.981			-			☐ ☐	
			17:39	EN			°19.912	°59.984			-			☐ ☐	
199	CPE1	28	19:42	BE	ROS	US	50° 59.87	127° 49.810	155		520 - 527		JN	☑ ☐	
			19:45	BO			50° 59.82	127° 49.760		149	-			☐ ☐	
			19:59	EN			°59.627	°49.582	155		-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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

Notes: _____

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

IENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

MAY | **Year** 2021 | **Vessel** J P TULLY | **Cruise ID** 2021005

ation lame	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
E1	28	20:12	BE	NET	—	50° 59.74	127° 49.68	150		—	—	MG	☐☐	BONGO
		20:16	BO			° 59.69	° 49.64		145	-			☐☐	
		20:20	EN			° 59.69	° 49.64	148		-			☐☐	
1	29	01:18	BE	NET	—	50° 30.3933	126° 27.992	368		—	-	MG	☐☐	BONGO
		01:28	BO			° 30.386	° 28.173		360	-			☐☐	
		01 34	EN			° 30.392	° 28.257			-			☐☐	
01	29	01:44	BE	ROS	US	50° 30.428	126° 28.132	368		528-558	11	CS	☑☐	
		01:51	BO			° 30.416	° 28.134		358	-			☐☐	
		02:10	EN			° 30.377	° 28.088			-			☐☐	
01	29	02:21	BE	UVP	—	50° 30.23	126° 28.247	387		-			☐☐	
		02:33	BO		-	50° 30.18	126° 28.54		375	-			☐☐	
		02:39	EN			50° 30.12	126° 28.34	387		-			☐☐	
0	29	11:27	BE	ROS		49° 57.770	125° 8.720	154		539-542	4	RF	☑☐	
		11:30	BO			° .780	° .770		148	-			☐☐	
		11:38	EN			° .790	° .730			-			☐☐	
	29	11:46	BE	UVP	—	49° 57.770	125° 8.808	153		-			☐☐	
		11:51	BO			49° 57.783	125° 8.856		148	-			☐☐	
		11:53	EN			49° 57.795	125° 9.863			-			☐☐	
		:				° .	° .			-			☐☐	

(no CTD)
CTD
ette

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

Notes: _____

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month | **Year** | **Vessel** | **Cruise ID**

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information: Latitude	Positional Information: Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
206	14	29	12:55	BE	UVP	/	49°52.992	124°59.735	315		-	/	JS	☐☐	going down @ 1m/s normally 0.5 m/s
			13:01	BO			°.950	°.713		310	-			☐☐	
			13:07	EN			°.914	°.716			-			☐☐	
207	14	29	13:12	BE	Net	/	49°52.871	124°59.717	313		-	/	JS	☐☐	
			13:22	BO			49°52.788	124°59.772		303	-			☐☐	
			13:27	EN			49°52.733	124°59.828			-			☐☐	
208	14	29	13:45	BE	ROS	US	49°52.740	125°0.230	298		543 - 546	4	RF	☑☐	
			13:51	BO			49°52.750	125°0.330		290	-			☐☐	
			14:01	EN			49°52.800	125°0.500			-			☐☐	
209	12	29	15:54	BE	Net	/	49°43.639	125°40.727	357		-	/	JS	☐☐	
			16:07	BO			°.566	°.910		347	-			☐☐	
			16:13	EN			°.588	°.958			-			☐☐	
210	12	29	16:23	BE	UVP		49°43.581	125°41.018	369		-			☐☐	
			16:29	BO			°.577	°.001		347	-			☐☐	
			16:35	EN			°.582	°40.995			-			☐☐	
211	12	29	16:46	BE	ROS		49°43.580	124°40.960	354		547 - 557	11	RF	☑☐	
			16:53	BO			°.580	°.930		345	-			☐☐	
			17:12	EN			°.550	°.940			-			☐☐	
			:				° .	° .			-			☐☐	

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

Notes: _____

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
212	22	29	20:40	BE	UVP	—	49° 40.180	124° 16.284	350		——	—	MG	☐☐	
			20:51	BO			°40.188	°16.312		340	-			☐☐	
			20:57	EN			°40.189	°16.333			-			☐☐	
213	22	29	21:07	BE	NET	—	49° 40.171	124° 16.329	350		——	—	MG	☐☐	Bongo
			21:19	BO			49° 40.168	124° 16.326		340	-			☐☐	
			21:25	EN			49°40.,2	124° 16.302	349?		-			☐☐	
216	22	29	21:35	BE	ROS	US	49°40.18	124°16.340	349		558-561	4	JN	☒☐	
			21:42	BO			49°40..18	°16.37	349	340.5	-			☐☐	
			21:54	EN			°40.18	°16.40	349		-			☐☐	
217	24	29	23:18	BE	NET	—	49° 30.328	124° 06.062	424		——	—	MG	☐☐	Bongo
			23:29	BO			49°30 S01	124°06 1.44		415	-			☐☐	
			23:36	EN			49° 30.565	124° 06.181	424		-			☐☐	
218	24	29	23:49	BE	UVP	—	49° 30.336	12906.026	424	415	——	—	JN	☐☐	
			00:01	BO			°30.29	°06.032			-			☐☐	
		30	00:09	EN			°30.31	°06.07			-			☐☐	
219	24	30	00:16	BE	ROS	US	49°30.298	124°06.09	426		562-565	4	JN	☒☐	→ Put 5th
			00:24	BO			°30.310	°06.040	426	418	-			☐☐	9 in header
			00:31	EN			°30.320	°06.120			-			☐☐	by accident
			:				° .	° .			-			☐☐	

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

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

Notes: _____

DAILY SCIENCE LOG BOOK

MISSION NUMBER 2021-005

2021-005 Book 2.

DATE: From: 2 May 2021 To: 17 May 2021

VESSEL: CCGS Tully

PROJECT(S): Line P & Chatham Sound

0

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

35 Page Logbook

WaterProperties.ca

[redacted]

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

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

Data logging computer: _____

Data acquisition program: _____

CTD Deck Unit make _____ model _____ serial number _____

Primary CTD

Make: _____ model: _____ serial number: _____

Primary temperature serial number: _____

Primary conductivity serial number: _____

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: _____ Model: _____ serial: _____

Transmissometer: _____ Model: _____ serial: _____

Fluorometer: Model _____ Cable gain: _____ serial: _____ **P, S** or **NO** pump?

Oxygen sensor: _____ Model: _____ serial: _____ **P, S** or **NO** pump?

PAR sensor: _____ Model: _____ serial: _____ **Surface PAR? Y / N**

Other sensors: _____ serial: _____ **P, S** or **NO** pump?

Other sensors: _____ serial: _____ **P, S** or **NO** pump?

Other sensors: _____ serial: _____ **P, S** or **NO** pump?

Other sensors: _____ serial: _____ **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: _____ serial: _____

Transmissometer: _____ Model: _____ serial: _____

Fluorometer: Model _____ Cable gain: _____ serial: _____ **P, S** or **NO** pump?

Fluorometer: Model _____ Cable gain: _____ serial: _____ **P, S** or **NO** pump?

Oxygen sensor: _____ Model: _____ serial: _____ **P, S** or **NO** pump?

PAR sensor: _____ Model: _____ serial: _____ **Surface PAR? Y / N**

Other sensors: _____ serial: _____ **P, S** or **NO** pump?

Other sensors: _____ serial: _____ **P, S** or **NO** pump?

Other sensors: _____ serial: _____ **P, S** or **NO** pump?

Other sensors: _____ serial: _____ **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 (typical on small launches).

BOOK 2:

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 1 of _____

Month MAY **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-025

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
220	9	30	03:12	BE	ROS	US	49°35.540	124°38.230	171		562-565	4	CS	☑☐	
			03:15	BO			49°35.556	124°38.242		161	-			☐☐	
			03:23	EN			49°35.512	124°38.251	171		-			☐☐	
221	9	30	03:28	BE	UNP	/	49°35.58	124°38.25	170		/	/	JN	☐☐	
			03:35	BO			°35.59	°38.24		160	-			☐☐	
			03:39	EN			°35.59	°38.23	170		-			☐☐	
222	9	30	03:44	BE	NET	/	49°35.59	124°38.23	170		/	/	MG	☐☐	BONGO
			03:50	BO			°35.59	°38.22		160	-			☐☐	
			03:53	EN			°35.588	°38.221	170		-			☐☐	
223	6	30	05:07	BE	ROS	US	49°30.787	124°27.95	194		566-569	4	JN	☒☐	held @65m to
			05:15	BO			°30.922	°28.123		184	-			☐☐	↓inboard wire angle
			05:24	EN			°30.970	°28.061	193		-			☐☐	then cast continued
224	CPF2	30	06:03	BE	NET	—	49°28.984	124°29.880	327		—	—	MG	☐☐	BONGO
			06:12	BO			°27.927	°29.961		317	-			☐☐	
			06:17	EN			°27.892	°30.033			-			☐☐	
225	CPF2	30	06:33	BE	ROS	~~—~~	49°28.040	124°30.110	327		—	—	CS	☐☐	
			06:39	BO			°28.016	°30.128		321	-			☐☐	
			06:45	EN			°28.994	°30.091			-			☐☐	
			:				° .	° .			-			☐☐	

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
UVP = Underwater Vision Profiler

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

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

Notes:

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005 Page 2 of _____

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
226	CPF2	30	06:52	BE	UVP		49° 27.968	124° 30.019	330		-			☐☐	
			06:57	BO			° .945	° 29.984		320	-			☐☐	
			07:02	EN			° .920	° 29.947			-			☐☐	
227	3	30	07:53	BE	ROS	US	49° 26.630	124° 20.250	324		570 - 573	4	JS	☑☐	
			07:59	BO			49° 26.640	124° 20.260	"	313	-			☐☐	
			08:11	EN			49° 26.660	124° 20.240	[illegible]		574 - 577	4	JS	☑☐	
228	2	30	09:10	BE	ROS		49° 24.130	124° 09.260	279	265	574 - 577	4	JS	☑☐	
			09:16	BO			49° 24.130	124° 04.260	"	265	-			☐☐	
			09:27	EN			49° 24.140	124° 09.270			-			☐☐	
229	CPF1	30	10:02	BE	UVP	/	49° 22.016	124° 5.017	245		-	/	JS	☐☐	1 m/s on descent
			10:07	BO			° .019	° .094		235	-			☐☐	
			10:11	EN			° .023	° .184			-			☐☐	
230	CPF1	30	10:16	BE	Net		49° 22.014	124° 5.170	247	~~236~~	-		JS/NN	☐☐	Bongo
			10:24	BO			° .043	° .343		230	-			☐☐	
			10:28	EN			° .063	° .448			-			☐☐	
231	CPF1	30	10:37	BE	~~CTD~~	/	49° 22.120	124° 5.510	255		/	/	RF	☑☐	
			10:42	BO	ROS		° .130	° .500		248	-			☐☐	
			10:47	EN			° .130	° .490			-			☐☐	
			:				° .	° .			-			☐☐	

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

Notes: _____

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

ENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

1AY | **Year** 2021 | **Vessel** TULLY | **Cruise ID** 2021-005 | Page 3 of ____

tion me	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
F	30	12 :13	BE	ROS	US	49°19 . 170	123° 47. 940	349		578 - 584	11	JS	☑ ☐	
		12 :20	BO			49° 19. 160	123° 47. 980		339.9	-			☐ ☐	
		12 :40	EN			49° 19 . 080	123° 47. 810			-			☐ ☐	
01	30	13 :25	BE	ROS	US	49° 15. 010	123° 45. 230	404		589 - 592	4	N2	☑ ☐	Sal sensor diff. big @ surface / long time to settle.
		13 :32	BO			49° 15. 010	123° 45. 200		396	-			☐ ☐	
		13:43	EN			49° 15. 010	123° 45 . 150			-			☐ ☐	
01	30	13 :52	BE	Net	/	49° 15 .009	123° 45. 082	404		-	/	JS	☐ ☐	Bongo
		14 :06	BO			49° 15. 010	123° 45. 078		394	-			☐ ☐	
		14 :12	EN			49° 15 . 010	123° 45 . 077			-			☐ ☐	
01	30	14 :20	BE	UVP	/	49° 15. 010	123° 45 . 077	404		-	/	JS	☐ ☐	
		14 :27	BO			49° 15. 010	123° 45. 078		394	-			☐ ☐	
		14 :34	EN			49° 15 .009	123° 45. 079			-			☐ ☐	
	30	14 :45	BE	NET	/	49° 15. 010	123° 45. 079	404		-		RW/JS	☐ ☐	MPS Vertical tow
		14 :59	BO			49° 15. 009	123° 45. 079		395	/	/	MG	☐ ☐	
		15 :06	EN			49° 15 . 015	123° 45. 076			-			☐ ☐	
	30	16 :58	BE	ROS	US	49° 9 . 780	123° 33. 130	380		593 - 596	4	RF	☑ ☐	
		17 :05	BO			49° 9 . 767	123° 33 . 136		371	-			☐ ☐	
		17 :17	EN			° . 762	° . 169			-			☐ ☐	
		:				° .	° .			-			☐ ☐	

CTD)
)

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

Notes: _____

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

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 4 of _____

Month	Year	Vessel	Cruise ID

*Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
238	42	30	18:24	BE	ROS	US	49° 01.741	123° 26.209	320		597-607	11	JS	☑ ☐	
			18:30	BO			49° 01.702	123° 26.255		313	-			☐ ☐	
			18:49	EN			49° 01.548	123° 26.294			-			☐ ☐	
239	42	30	19:00	BE	UVP	✓	49° 01.61	123° 26.35	321		-	✓	JN	☐ ☐	
			19:12	BO			° 01.42	° 26.36		311	-			☐ ☐	
			19:18	EN			° 01.39	° 26.47			-			☐ ☐	
240	42	30	19:31	BE	NET	—	49° 01.55	123° 26.51	321		-	✓	MG	☐ ☐	BONGO
			19:41	BO			49° 01.56	123° 26.51		311	-			☐ ☐	
			19:46	EN			49° 01.558	123° 26.513			-			☐ ☐	
241	46	30	21:32	BE	ROS	US	48° 51.390	123° 10.700	174		608-611	4	JS	☐ ☐	
			21:35	BO			° 51.380	° 10.690		164	-			☐ ☐	
			21:43	EN			° 51.340	° 10.660			-			☐ ☐	
242	46	30	21:51	BE	NET	—	48° 51.36	123° 10.79	177		—	—	MG	☐ ☐	BONGO
			21:55	BO			° 51.34	° 10.82		170	-			☐ ☐	
			21:57	EN			° 51.32	° 10.82	190		-			☐ ☐	
243	46	30	22:09	BE	UVP	—	48° 51.283	123° 10.965		170	—	—	JN	☐ ☐	
			22:13	BO			° 51.285	° 10.982			-			☐ ☐	
			22:16	EN			° 51.274	° 11.019			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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

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

Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month May **Year** 2021 **Vessel** Tully **Cruise ID** 2021-005 **Page** 5 **of** ____

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information: Latitude	Positional Information: Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
244	56	30	23:47	BE	Ros	US	48° 46.294	123° 01.570	228		612-615	4	Ø	☑ ☐	
			23:50	BO			° 46.350	° 01.542		217	-			☐ ☐	
			23:59	EN			° 46.496	° 01.316			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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

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

Notes: ________________________________

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page ______ of ______

Month | **Year** | **Vessel** | **Cruise ID**

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/Fl Cleaned	Comments
							Latitude	Longitude							
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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

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

Notes: ____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020