DAILY SCIENCE LOG BOOK

MISSION NUMBER 2021-012

DATE:

From: Sept 8th 2021 To:

VESSEL: J.P. Tully

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

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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	Co
1	SIOS	8	15:44	BE	ROS	US	48° 39.250	123° 29.990	178		- 1	1	SR	☑ ☐	
			15:48	BO			°39.240	123° 29.990			-			☐ ☐	
			15:52	EN			48° 39.240	123° 30.00			-			☐ ☐	
2	Haro 59	8	17:58	BE	UVP	/	48° 36.840	123° 14.930	239		-	—	JS	☐ ☐	
			18:07	BO			48° 36.827	123° 14.922		229	230 -			☐ ☐	
			18:09	EN			48° 36.821	123° 14.900			-			☐ ☐	
3	Haro 59	8	18:16	BE	NET	/	48° 36.819	123° 14.905	237		-		JS/KY	☐ ☐	Bongo
			18:23	BO			48° 36.799	123° 14.931		232	-		L	☐ ☐	
			18:27	EN			48° 36.793	123° 14.937			-			☐ ☐	
4	Haro 59	8	18:42	BE	ROS	US	48° 36.860	123° 14.860	237		2 - 13	12	KY	☑ ☐	wrong dep
			18:46	BO			48° 36.760	123° 14.830		228	-			☐ ☐	
			19:02	EN			48° 36.680	123° 14.660			-			☐ ☐	
5	Loop 5005	8	21:17	BE	LOOP	UN	48° 22.701	123° 21.945	93		5005		KS	☐ ☐	ISAL
6	JF2	9	01:08	BE	NET	/	48° 18.008	124° 00.003	187		-		MG	☐ ☐	Bongo
			01:15	BO			48° 18.011	124° 00.000		182	-			☐ ☐	
			01:18	EN			48° 18.009	123° 59.972			-			☐ ☐	
7	JF2	9	01:32	BE	UPV	/	48° 18.005	124° 00.006	187		-		SR	☐ ☐	
			01:37	BD			°18.007	°00.028		182	-		KS	☐ ☐	
			01:40	EN			°18.011	°00.047			-			☐ ☐	

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 Video Profiler

Bottle Firing Method:
US = Up / Stop (default)
UN = Up / No stop
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Time Code:
BE = Beginning Time of Cast
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8	JF2	9	02:00	BE	ROS	US	48° 18.059	124° 00.168	187		-		SR	☑ ☐	
			02:04	BO			°18.073	°00.164		184	-			☐ ☐	
			02:18	EN			°18.056	°00.209			-			☐ ☐	
9	LB01	9	06:50	BE	ROS	US	48° 40.458	124° 59.668	35		24 - 28	5	KY	☑ ☐	
			06:51	BO			48° 40.457	124° 59.684		30	-			☐ ☐	
			06:56	EN			48° 40.520	124° 59.750			-			☐ ☐	
10	LB02	9	07:30	BE	ROS	US	48° 39.050	125° 2.440	56		29 - 33	5	KY	☑ ☐	
			07:32	BO			48° 39.080	125° 2.460		48	-			☐ ☐	
			07:37	EN			48° 39.130	125° 2.510			-			☐ ☐	
11	LB03	9	08:14	BE	ROS	US	48° 37.370	125° 5.510	94		- 34	1	KY	☑ ☐	→
			08:18	BO			48° 37.420	125° 5.540		84	-			☐ ☐	
			08:20	EN			48° 37.440	125° 5.550			2 -	7		☐ ☐	
12	LB04	9	08:50	BE	ROS	US	48° 35.700	125° 8.710	113		35 - 41	7	KY	☑ ☐	
			08:54	BO			48° 35.740	125° 8.720		105	-			☐ ☐	
			09:02	EN			48° 35.760	125° 8.750			-			☐ ☐	
13	E1	9	09:46	BE	NET	/	48° 32.043	125° 4.049	109		-			☐ ☐	BONGO
			09:49	BO			48° 32.065	125° 4.011		100	-			☐ ☐	
			09:51	EN			48° 32.077	125° 4.004			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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14	E1	9	10:03	BE	UVP	/	48° 32.109	125° 3.964	109		-	—	JS	☐☐	
			10:08	BO			48° 32.130	125° 3.937		99	-			☐☐	
			10:10	EN			48° 32.133	125° 3.929			-			☐☐	
15	E1	9	10:17	BE	ROS	/	48° 32.076	125° 3.906	109		-	—	KY	☑☐	
			10:19	BO			48° 32.080	125° 3.900		100	-			☐☐	
			10:21	EN			48° 32.090	125° 3.890			-			☐☐	
16	LB05	9	11:08	BE	ROS	US	48° 34.012	125° 11.980	102		- 42	1	KY	☑☐	
			11:11	BO			48° 34.006	125° 11.960		92	-			☐☐	
			11:13	EN			48° 33.996	125° 11.942			-			☐☐	
17	LB06	9	11:43	BE	ROS	US	48° 32.170	125° 15.490	115		43 - 50	8	KY	☑☐	
			11:46	BO			48° 32.150	125° 15.480		107	-			☐☐	
			11:54	EN			48° 32.150	125° 15.440			-			☐☐	
18	C1	9	12:25	BE	ROS	/	48° 28.870	125° 15.290	152		-	—	KY	☑☐	
			12:29	BO			48° 28.880	125° 15.270		144	-			☐☐	
			12:31	EN			48° 28.890	125° 15.250			-			☐☐	
19	C1	9	12:42	BE	NET	/	48° 28.871	125° 15.166	153		-		JS	☐☐	BONGO
			12:48	BO			48° 28.876	125° 15.117		145	-			☐☐	
			12:54	EN			48° 28.879	125° 15.114			-			☐☐	
			:				° .	° .			-			☐☐	

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Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

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20	C2	9	13:35	BE	ROS	/	48° 26.230	125° 9.290	159		-	—	KY	☑☐	
			13:38	BO			48° 26.280	125° 9.280		150	-			☐☐	
			13:41	EN			48° 26.240	125° 9.280			-			☐☐	
21	C2	9	13:47	BE	NET	/	48° 26.241	125° 9.280	160		-		JS	☐☐	BONGO
			13:51	BO			48° 26.246	125° 9.302		150	-			☐☐	
			13:53	EN			48° 26.246	125° 9.319			-			☐☐	
22	C2	9	14:02	BE	UVP	/	48° 26.216	125° 9.366	160		-		JS	☐☐	
			14:08	BO			48° 26.202	125° 9.393		150	-			☐☐	
			14:13	EN			48° 26.189	125° 9.395			-			☐☐	
23	C3	9	15:14	BE	ROS	/	48° 23.460	125° 20.860	121		-	—	KY	☑☐	
			15:17	BO			48° 23.450	125° 20.880		112	-			☐☐	
			15:19	EN			48° 23.450	125° 20.880			-			☐☐	
24	C3	9	15:25	BE	NET	/	48° 23.458	125° 20.880	121		-		JS	☐☐	BONGO
			15:29	BO			48° 23.458	125° 20.853		111	-			☐☐	
			15:31	EN			48° 23.456	125° 20.843			-			☐☐	
25	LB07	9	16:17	BE	ROS	US	48° 28.680	125° 22.110	155		51 -	1	KY	☑☐	→
			16:19	BO			48° 28.660	125° 22.120		146	-			☐☐	
			16:23	EN			48° 28.660	125° 22.120			-			☐☐	
			:				° .	° .			-			☐☐	

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26	LB07	9	16:30	BE	NET	/	48°28.655	125°22.125	156		-		JS	☐☐	BONGO
			16:35	BO			48°28.659	125°22.129		145	-			☐☐	
			16:38	EN			48°28.666	125°22.132			-			☐☐	
27	B8	9	17:48	BE	ROS	/	48°34.540	125°30.000	113		-	—	KY	☑☐	
			17:51	BO			48°34.540	125°30.010		107	-			☐☐	
			17:52	EN			48°34.530	125°30.000			-			☐☐	
28	B8	9	18:04	BE	NET	/	48°34.520	125°29.991	116		-		JS	☐☐	BONGO
			18:09	BO			48°34.513	125°29.988		107	-			☐☐	
			18:11	EN			48°34.516	125°29.987			-			☐☐	
29	B8	9	18:19	BE	UVP		48°34.520	125°29.987	117		-		JS	☐☐	
			18:23	BO			48°34.517	125°30.003		107	-			☐☐	
			18:27	EN			48°34.521	125°30.008			-			☐☐	
30	B7	9	19:13	BE	ROS	/	48°31.937	125°35.459	80		/	/	SR	☑☐	
			19:14	BO			°31.925	°35.447		77	-			☐☐	
			19:16	EN			°31.920	°35.436			-			☐☐	
31	B7	9	19:24	BE	NET		48°31.997	125°35.404	80		-			☐☐	BONGO
			19:27	BO			°31.978	°35.370		75	-			☐☐	
			19:29	EN			°31.954	°35.335			-			☐☐	
			:				° .	° .			-			☐☐	

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32	LB08	9	20:38	BE	NET		48°25.354	125°28.510	138		-		MG	☐☐	Bongo
			20:44	BO			°25.343	°28.474		133	-			☐☐	
			20:47	EN			°25.333	°28.435			-			☐☐	
33	LB08	9	20:58	BE	NET		48°25.351	125°28.754	157		-		MG	☐☐	Bongo
			21:03	BO			°25.328	°28.674		150	-			☐☐	
			21:05	EN			°25.300	°28.620			-			☐☐	
34	LB08	9	21:13	BE	UVP		48°25.302	125°28.567	137		-		MG	☐☐	
			21:17	BO			°25.295	°28.549		130	-			☐☐	
			21:19	EN			°25.292	°28.540			-			☐☐	
35	LB08	9	21:27	BE	NET		48°25.292	125°28.532	137		-			☐☐	
			21:29	BO			°25.295	°28.526		50	-	16	SR	☐☐	Trans not cleaned
			21:30	EN			°25.296	°28.520						☐☐	
36	LB08	9	21:42	BE	ROS	US	48°25.300	125°28.465	138		52-67			☐☐	DIC
			21:45	BO			°25.298	°28.464		133	-			☐☐	
			22:01	EN			°25.280	°28.440			-			☐☐	
37	LB09		22:55	BE	ROS	US	48°25.890	125°34.810	154		68-76	9	SR	☑☐	
			22:58	BO			°25.890	°34.780		144	-			☐☐	
			23:13	EN			°25.870	°34.550			-			☐☐	
			:				° .	° .			-			☐☐	

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38	LB10	10	00:06	BE	ROS	US	48° 18.560	125° 41.330	155		77-77	1	SR	☑ ☐	
			00:08	BO			°18.560	°41.311		145	-			☐ ☐	
			00:13	EN			°18.560	°41.290			-			☐ ☐	
39	LB11	10	01:06	BE	ROS	US	48° 15.130	125° 47.650	210		-			☐ ☐	NISKIN 4 not closed
			01:10	BO			°15.100	°47.600		202	78-88	11		☑ ☐	Trip mechanism
			01:28	EN			°15.020	°47.470			-			☐ ☐	replaced after cast #
~~40~~	LB11	10	01:44	BE	NET	~~US~~	~~48~~° 15.16	125° 47.66	208		-		MG	☐ ☐	Bongo
			01:51	BO			°15.03	125°47.58		200	-			☐ ☐	
			01:53	EN			°14.98	125°47.55			-			☐ ☐	
41	LB11	10	02:05	BE	UVP	/	48° 15.10	125° 47.59	209		-		MG	☐ ☐	UVP
			02:11	BO			°15.144	°47.572		200	-			☐ ☐	
			02:14	EN			°15.167	°47.557			-			☐ ☐	
42	LB12	10	02:59	BE	ROS	US	48° 12.980	125° 51.770	502		89-103	15	SR	☑ ☐	Bot 18 fired just
			03:09	BO			°12.960	°51.740			-			☐ ☐	in case #4 didn't
			03:41	EN			°13.030	°51.480			-			☐ ☐	trip :)
43	LB13	10	04:25	BE	ROS	US	48° 10.600	125° 56.180	920		104-104	1	SR	☐ ☐	
			04:40	BO			°10.510	°56.100			-			☐ ☐	
			04:59	EN			°10.370	°56.000			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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44	LB14	10	05:37	BE	ROS	US	48° 8.530	126° 0.160	1177	~~1187~~	105-122	18	SR	☑ ☐	
			05:57	BO			° 8.480	° 0.120		1187	-			☐ ☐	
			06:40	EN			° 8.440	° 0.000			-			☐ ☐	
45	LB15	10	07:43	BE	ROS	US	48° 4.350	126° 8.470	1550		123-123	1	KY	☑ ☐	
			08:11	BO			48° 4.340	126° 8.460		1557	-		JS	☐ ☐	
			08:37	EN			48° 4.350	126° 8.470			-			☐ ☐	
46	LB16	10	09:36	BE	ROS	US	48° 0.510	126° 17.000	1789		-124	1	KY	☑ ☐	→
			10:07	BO			48° 0.530	126° 16.990		1816	-			☐ ☐	
			10:37	EN			48° 0.529	126° 16.982			-			☐ ☐	
47	LB16	10	10:49	BE	NET	✓	48° 0.532	126° 17.018	1792		-		JS	☐ ☐	BONGO
			10:57	BO			48° 0.530	126° 17.034		250	-			☐ ☐	
			11:02	EN			48° 0.535	126° 17.100	1783		-			☐ ☐	
48	LB16	10	11:12	BE	UVP	✓	48° 0.549	126° 17.093		200	-		JS	☐ ☐	
			11:21	BO		~~✓~~	48° 0.562	126° 17.100			-			☐ ☐	
			11:26	EN			48° 0.550	126° 17.143			-			☐ ☐	
49	LB16	10	11:53	BE	NET	✓	48° 0.615	126° 17.269	1760		-		KY	☐ ☐	MPS
			12:42	BO			48° 0.887	126° 17.621		1200	-			☐ ☐	
			13:06	EN			48° 0.995	126° 17.881			-			☐ ☐	
50	LOOP50	10	20:44	BE	LOOP	UN	47° 58.31	128° 27.50	2607	4.5	5050	-	MG	☐ ☐	1 SAL 2 CHL

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month SEPT | **Year** 2021 | **Vessel** JP TULLY | **Cruise ID** 2021-012

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
51	END 1	10	23:33	BE	ROS	US	47° 56.940	129° 5.930	2200		125 - 136	12	SR	☑ ☐	UVIC
		11	00:04	BO			47° 56.94	129° 05.93		2175	-			☐ ☐	
			01:05	EN			47° 56.930	129° 05.920			-			☐ ☐	
52	END 1	11	01:55	BE	ROS	UN	47° 57.458	129° 05.662	2180		137 - 147	11	JC	☐ ☐	TMR →
53	END 2	11	03:47	BE	ROS	US	47° 55.22	129° 08.62	2354		148 - 160	13	MG	☑ ☐	UVIC
			04:27	BO			° 55.22	° 08.62		2200	-			☐ ☐	
			05:20	EN			° 55.22	° 08.62			-			☐ ☐	
54	END 3	11	06:20	BE	ROS	US	47° 52.25	129° 14.44	2377		161 - 173	13	MG	☑ ☐	UVIC
			06:59	BO			47° 52.25	129° 14.440		2200	-			☐ ☐	
			07:48	EN			47° 52.250	129° 14.440			-			☐ ☐	
55	END 4	11	09:11	BE	ROS	US	47° 46.031	129° 25.648	2494		~~174 - 186~~	~~13~~	JS	☑ ☐	UVIC left cap on July's
			:	BO			° .	° .		700	-			☐ ☐	sensor => cancelled cast and restarting on new
			09:35	EN			47° 46.031	129° 25.648			-			☐ ☐	event #56
56	END 4	11	09:51	BE	ROS	US	47° 46.030	129° 25.850	2494		174 - 186	13	JS	☑ ☐	UVIC
			10:29	BO			47° 46.030	129° 25.850		2200	-			☐ ☐	
			11:14	EN			47° 46.030	129° 25.850			-			☐ ☐	
57	END 5	11	12:35	BE	ROS	VS	47° 38.754	129° 36.340	2621		187 - 199	13	KY	☑ ☐	UVIC
			13:13	BO			47° 38.754	129° 36.343		2200	-			☐ ☐	
			14:01	EN			47° 38.754	129° 36.344			-			☐ ☐	

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** JP Tully **Cruise ID** 2021-012

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
58	END5	11	14:49	BE	ROS	UN	47° 38.753	129° 36.335	2632		200 - 210	11	JC	☐☐	UVIC-TMR
			15:23	BO			47° 38.753	129° 36.334		2210	-			☐☐	
			16:05	EN			47° 38.752	129° 36.336			-			☐☐	
59	END4	11	17:43	BE	ROS	UN	47° 46.023	129° 25.823	2503		211 - 221	11	JC	☐☐	UVIC - TMR
			18:25	BO			47° 46.027	129° 25.862		2210	-			☐☐	
			19:10	EN			47° 46.002	129° 25.841			-			☐☐	
60	END3	11	20:51	BE	ROS	UN	47° 52.256	129° 14.467	2339		222 - 232	11	JC	☐☐	TMR - UVIC
			21:43	BO			47° 52.257	129° 14.467		2210	-			☐☐	
			22:24	EN			47° 52.256	129° 14.466			-			☐☐	
61	LOOP61	11	22:44	BE	LOOP	UN	47° 52.77	129° 18.80	2396	415	5061	-	MG	☑☐	ISAL 2CHL
62	END2	11	23:44	BE	ROS	UN	47° 55.235	129° 08.651	2367		233 - 243	11	JC	☐☐	TMR - UVIC
		12	00:25	BO			47° 55.235	129° 08.650		2210	-			☐☐	
			01:15	EN			47° 55.234	129° 08.647			-			☐☐	
63	END1	12	02:37	BE	ROS	UN	47° 57.464	129° 05.658	2182		137 - 147	11	JC	☐☐	UVIC - TMR
			03:22	BO			47° 57.4635	129° 05.655		2140	-			☐☐	
			04:15	EN			47° 57.463	129° 05.659			-			☐☐	
64	END1b	12	04:44	BE	ROS	US	47° 57.450	129° 05.640	2178		244 - 252	9	SR	☐☐	IOS Rosette
			05:19				°57.449	°05.642		2100	-			☐☐	w/ sniffer
			06:00				°57.440	°05.620			-			☐☐	

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** JP Tully **Cruise ID** 2021-012

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
65	loop 65	12	10:11	BE	LOOP		48° 6.430	127° 51.908			5065		LH	☐☐	1 sal 2 chl
66	LC12/A4	12	14:19	BE	ROS	US	48° 14.980	126° 39.970	2527		-	—	KY	☑☐	
			14:51	BO			48° 14.980	126° 39.980		2005	-			☐☐	
			15:21	EN			48° 14.980	126° 39.970			-			☐☐	
67	LC12/A4	12	15:37	BE	NET		48° 14.993	126° 39.994	2526		-		JS	☐☐	Bongo VNH
			15:49	BO			48° 14.986	126° 39.976		250	-			☐☐	
			15:53	EN			48° 14.978	126° 39.982			-			☐☐	
68	LC12/A4	12	16:03	BE	UVP		48° 14.977	126° 39.990	2525		-		JS	☐☐	
			:12	BO			° 14.984	° 39.967		250	-			☐☐	
			:17	EN			° 14.981	° 40.005			-			☐☐	
69	LC12/A4	12	16:36	BE	NET		48° 14.996	126° 39.981	2527		/	/	KY/MG	☐☐	MPS VNH
			18:09	BO			° 14.988	° 39.983		2500	-			☐☐	
			19:02	EN			° 14.959	° 40.019			-			☐☐	
70	LC11	12	20:25	BE	ROS	US	48° 18.910	126° 26.700	1460		253-271		SR	☑☐	
			20:51	BO			° 18.940	° 26.730			-			☐☐	
			21:39	EN			° 18.900	° 26.640			-			☐☐	
71	LC10	12	22:28	BE			48° 22.380	126° 20.180	1250		/	/	SR	☑☐	
			22:49	BO			° 22.410	° 20.170			-			☐☐	
			23:08	EN			° 22.410	° 20.150			-			☐☐	

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept | **Year** 2021 | **Vessel** Tully | **Cruise ID** 2021-012

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
72	LC09	12	23:58	BE	NET	/	48°25.945	126°13.665	607		-		MG	☐☐	Bongo
		13	00:05	BO			°25.950	°13.659		250	-			☐☐	
			00:09	EN			°25.948	°13.665			-			☐☐	
73	LC09	13	00:17	BE	NET	/	48° 25.944	126° 13.679	607		-		MG	☐☐	Bongo
			00:24	BO			48° 25.944	126° 13.669		250	-			☐☐	
			00:29	EN			48° 25938	126° 13669			-			☐☐	
74	LC09	13	00:43	BE	NET	/	48° 25.944	126° 13.669	607		-		KS	☐☐	Mini bongo
			00:44	BO			48° 25.945	126° 13.643		50	-			☐☐	
			00:45	EN			48° 25.939	126° 13.621			-			☐☐	
75	LC09	13	00:58	BE	UVP	/	48° 25.944	126° 13.644	607		-		KS	☐☐	UVP
			01:08	BO			48° 25.942	126° 13.649		250	-			☐☐	
			01:13	EN			48° 25.946	126° 13.683			-			☐☐	
76	LC09	13	01:24	BE	ROS	US	48° 25.920	126° 13.630	607		272-294	23	SR	☑☐	
			01:36	BO			°25.940	°13.660		599	-			☐☐	
			02:08	EN			° 25.93	°13.66			-			☐☐	
77	A2	13	03:08	BE	ROS	/	48° 22.680	126° 03.780	357		/	/	SR	☑☐	
			03:14	BO			°22.680	°03.829		347	-			☐☐	
			03:19	EN			°22.680	°03.799			-			☐☐	
			:				° .	° .			-			☐☐	

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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 Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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
78	A2	13	03:27	BE	NET	/	48° 22.685	126° 03.817	355		/	/	MG	☐☐	
			03:33	BO			°22.688	°03.752		250	-			☐☐	
			03:37	EN			°22.715	°03.778			-			☐☐	
79	Loop 79	13	04:25	BE	Loop	/	48° 26.663	125° 59.542	174	4.5	/	/	MG	☐☐	1 SAL 2 CHL
80	LC08/A1	13	07:24	BE	NET		48° 29.436	126° 07.090	199		-	—	JS	☐☐	bongo VNH
			07:31	BO			48° 29.454	126° 07.102		189	-			☐☐	
			07:38	EN			48° 29.470	126° 07.080			-			☐☐	
81	LC08/A1	13	07:49	BE	UVP		48° 29.449	126° 07.059	198		-		JS	☐☐	
			07:56				48° 29.458	126° 07.080		189	-			☐☐	
			08:00				48° 29.463	126° 07.079			-			☐☐	
82	LC08/A1	13	08:12	BE	ROS	US	48° 29.460	126° 07.090	199		295-306	12	KY	☑☐	→
			08:17	BO			48° 29.450	126° 07.100		189	-			☐☐	
			08:34	EN			48° 29.440	126° 7.100			-			☐☐	
83	LC07	13	09:23	BE	ROS	—	48° 32.930	126° 0.540	127		-	—	KY	☑☐	
			09:25	BO			48° 32.930	126° 0.560		119	-			☐☐	
			09:27	EN			48° 32.930	126° 0.570			-			☐☐	
84	LC06/B6	13	10:20	BE	NET		48° 36.498	125° 54.144	92		-		JS	☐☐	Bongo VNH
			10:24	BO			48° 36.507	125° 54.125		82	-			☐☐	
			10:26	EN			48° 36.520	125° 54.139			-			☐☐	

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WaterProperties.ca
Version: 17 Feb 2020

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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
85	LC06/B6	13	10:34	BE	UVP		48° 36.597	125° 54.102	92		-		JS	☐☐	
			:38	BO			° .639	°54.071		82	-			☐☐	
			:40	EN			° .659	° .071			-			☐☐	
86	LC06/B6	13	10:51	BE	ROS	US	48° 36.760	125° 53.980	92		307-313	7	KY	☑☐	→
			10:53	BO			48° 36.750	125° 53.990		84	-			☐☐	
			11:03	EN			48° 36.760	125° 54.050			-			☐☐	
87	LC05/B5	13	11:54	BE	ROS	-	48° 39.960	125° 47.480	65		-	-	KY	☑☐	
			11:55	BO			48° 39.960	125° 47.490		57	-			☐☐	
			11:56	EN			48° 39.960	125° 47.490			-			☐☐	
88	LC05/B5	13	12:04	BE	NET		48° 40.050	125° 47.502	65		-		JS	☐☐	
			12:08	BO			48° 40.077	125° 47.514		55	-			☐☐	
			12:09	EN			48° 40.090	125° 47.513			-			☐☐	
89	LC04	13	12:59	BE	NET		48° 43.429	125° 40.829	167		-		JS	☐☐	Bongo UNH
			13:05	BO			48° 43.414	125° 40.834		157	-			☐☐	for UVic
			13:11	EN			48° 43.51	125° 40.840			-			☐☐	
90	LC04	13	13:17	BE	NET		48° 43.576	125° 40.840	167		-		JS/KY	☐☐	Bongo UNH
			13:22	BO			48° 43.613	125° 46.852		157	-			☐☐	
			13:24	EN			48° 43.624	125° 40.878			-			☐☐	
			:				° .	° .			-			☐☐	

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Month September **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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91	LC04	13	13:36	BE	NET		48° 43.648	125° 40.964	168		-		KY/KS	☐☐	M.n Boogo
			13:38	BO			48° 43.658	125° 40.965		50	-			☐☐	VNH
			13:39	EN			48° 43.667	125° 40.967			-			☐☐	
92	LC04	13	13:55	BE	UVP		48° 43.700	125° 40.046	169		/	/	KY/KS	☐☐	Underwater Video
			14:00	BO			48° 43.723	125° 40.028		157	-			☐☐	Profiler
			14:02	EN			48° 43.746	125° 40.004			-			☐☐	
93	LC04	13	14:11	BE	ROS	US	48° 43.798	125° 40.975	169		314 - 330	17	KY	☑☐	
			14:14	BO			° .798	° 41.000		161	-			☐☐	
			14:30	EN			48° 43.840	125° 41.080			-			☐☐	
94	LC03	13	15:18	BE	ROS	-	48° 46.973	125° 34.246	135		-	—	KY	☑☐	
			15:21	BO			48° 46.963	125° 34.241		126	-			☐☐	
			15:23	EN			48° 46.964	125° 34.255			-			☐☐	
95	LC02	13	16:13	BE	ROS		48° 48.710	125° 30.900	109		331 - 338	8	KY	☑☐	
			16:15	BO			48° 48.690	125° 30.900		101	-			☐☐	
			16:26	EN			48° 48.680	125° 30.920			-			☐☐	
96	LC01	13	17:09	BE	ROS		48° 50.458	125° 27.703	95		339 - 345	7	KY	☑☐	
			17:11	BO			48° 50.471	125° 27.696		87	-			☐☐	
			17:21	EN			48° 50.494	125° 27.689			-			☐☐	
			:				° .	° .			-			☐☐	

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97	LD01	13	19:07	BE	ROS	US	49° 0.070	125° 43.770	37		346-349		BR	☑☐	
			19:08	BO			° 0.070	° 43.770		27	-			☐☐	
			19:16	EN			° 0.060	° 43.780			-			☐☐	
98	LD02	13	19:48	BE	NET	/	48° 58.369	125° 47.035	45		-		MG	☐☐	
			19:49	BO			° 58.367	° 47.039		38	-			☐☐	
			19:49	EN			° 58.367	° 47.047			-			☐☐	
99	LD02	13	20:02	BE	UVP	/	48° 58.394	125° 47.107	44		-		MG	☐☐	
			20:03	BO			° 58.397	° 47.107		38	-			☐☐	
			20:04	EN			° 58.397	° 47.104			-			☐☐	
100	LD02	13	20:16	BE	ROS	US	48° 58.364	125° 47.071	45		350-354	5	SR	☑☐	
			20:17	BO			° 58.369	° 47.070		35	-			☐☐	
			20:25	EN			° 58.380	° 47.105			-			☐☐	
101	LD03	13	21:01	BE	UVP	/	48° 56.636	125° 50.462	47		-		SR	☐☐	
			21:02	BO			° 56.636	° 50.461		42	-			☐☐	
			21:03	EN			° 56.635	° 50.398			-			☐☐	
102	LD03	13	21:14	BE	ROS	US	48° 56.630	125° 50.360	48		—	/	SR	☑☐	
			21:15	BO			° 56.630	° 50.360		39	-			☐☐	
			21:16	EN			° 56.630	° 50.360			-			☐☐	
			:				° .	° .			-			☐☐	

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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 Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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
103	LD04	13	22:05	BE	UVP	/	48° 53.1338	125° 56.8471	63		-		SR	☐☐	
			22:08	BO			°53.1334	°56.8472		58	-			☐☐	
			22:09	EN			°53.1320	°56.8472			-			☐☐	
104	LD04	13	22:15	BE	NET	/	48°53.1333	125°56.8663	63		-		MG	☐☐	Bongo
			22:18	BO			°53.1374	°56.8724		58	-			☐☐	
			22:21	EN			°53.1376	°56.9066			-			☐☐	
105	LD04	13	22:29	BE	ROS	US	48°53.140	125°56.900	64		-		SR	☑☐	
			22:31	BO			°53.140	°56.880		56	-			☐☐	
			22:38	EN			°53.150	°56.820			-			☐☐	
106	LD05	13	23:36	BE	ROS	/	48° 49.685	126° 3.535	93		/	/	SR	☑☐	
			23:38	BO			°49.687	°3.518		84	-			☐☐	
107	LD06		23:39	EN			°49.686	°3.516			-			☐☐	
107	LD06	14	00:34	BE	NET	/	48° 46.233	126° 10.128	138		-		MG	☐☐	Bongo
			00:41	BO			°46.232	°10.147		133	-			☐☐	
			00:44	EN			°46.241	°10.161			-			☐☐	
108	LD06	14	00:50	BE	UVP	/	48° 46.232	126° 10.192	138		-		MG	☐☐	
			00:56	BO			°46.218	°10.259		133	-			☐☐	
			00:57	EN			°46.219	°10.259			-			☐☐	
			:				° .	° .			-			☐☐	

Event Type:
BOT = Bottle cast (no CTD)
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DN = Down / No stop

Time Code:
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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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	LD06	14	01:09	BE	ROS	US	48° 46.223	126° 10.264	140		360-367	8	SR	☑	
			01:11	BO			° 46.223	° 10.244		130	-			☐	
			01:25	EN			° 46.274	° 10.147			-			☐	
110	LD07	14	02:18	BE	ROS	/	48° 42.643	126° 16.789	490		-	/	SR	☑	
			02:26	BO			° 42.670	° 16.830		482	-			☐	
			02:33	EN			° 42.670	° 16.860			-			☐	
111	LD08	14	03:25	BE	ROS	US	48° 39.180	126° 23.400	775		368-384		SR	☑	Pump wash'd on.!! Stopped @
			03:31	BO			° 39.190	° 23.407			-			☐	
			03:38	EN			° 39.215	° 23.413			-			☐	330 m ≈
112	LD08	14	03:40	BE	ROS	US	48° 39.215	126° 23.413	777		368-384		SR	☒	Stayed in the water
			03:54	BO			° 39.206	° 23.413		772	-			☐	for cast #2 of
			04:28	EN			° 39.295	° 23.384			-			☐	LD08
113	LD09	14	05:24	BE	UVP	/	48° 35.749	126° 29.847	1058		-		MG	☐	
			05:30	BO			° 35.750	° 29.845		250	-			☐	
			05:34	EN			° 35.751	° 29.858			-			☐	
114	LD09	14	05:38	BE	NET	/	48° 35.692	126° 29.943	1060		-		MG	☐	BONGO
			05:45	BO			° 35.689	° 29.942		250	-			☐	
			05:53	EN			° 35.718	° 29.990			-			☐	
			:				° .	° .			-			☐	

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BOT = Bottle cast (no CTD)
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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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	LD09	14	06:09	BE	ROS	/	48°35.720	126°29.920	1055		/	/	SR	☑☐	
			06:27	BO			°35.770	°29.930		1052	-			☐☐	
			06:43	EN			°35.790	°29.950			-			☐☐	
116	LD10	14	07:39	BE	ROS	—	48°32.100	126°36.560	~~1440~~ 1494		-	—	JS/KY	☑☐	
			08:06	BO			48°31.920	126°36.560		1492	-			☐☐	
			08:31	EN			48°31.750	126°36.630			-			☐☐	
117	LD11	14	09:18	BE	NET	/	48°28.735	126°42.896	1599		-		JS	☐☐	
			09:27	BO			48°28.723	126°42.928		250	-			☐☐	Bongo VNH
			09:31	EN			48°28.731	126°42.952			-			☐☐	
118	LD11	14	09:39	BE	NET	/	48°28.733	126°42.965	1597		-		JS	☐☐	
			10:30	BO			48°28.785	126°42.978		1200	-			☐☐	Bongo VNH
			10:50	EN			48°28.806	126°42.980			-			☐☐	
119	LD11	14	11:03	BE	UVP	/	48°28.794	126°42.980	1595		-		JS	☐☐	
			11:11	BO			48°28.802	126°42.968		250	-			☐☐	
			11:16	EN			48°28.820	126°42.952			-			☐☐	
120	LD11	14	11:29	BE	ROS	US	48°28.802	126°42.976	1589		385-405	21	KY	☑☐	→
			11:56				48°28.663	126°42.875		1610	-			☐☐	
			12:43				48°28.591	126°43.124			-			☐☐	
			:				° .	° .			-			☐☐	

Event Type:
BOT = Bottle cast (no CTD)
CTD = Standalone CTD
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CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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	LD09	14	06:09	BE	ROS	/	48 °35.720	126 °29.920	1055		/	/	SR	☑☐	
			06:27	BO			°35.770	°29.930		1052	-			☐☐	
			06:43	EN			°35.790	°29.750			-			☐☐	
116	LD10	14	07:39	BE	ROS	—	48 °32.100	126 °36.560	~~1460~~ 1494		-	—	JS/KY	☑☐	
			08:06	BO			48 °31.920	126 °36.560		1492	-			☐☐	
			08:31	EN			48 °31.750	126 °36.630			-			☐☐	
117	LD11	14	09:18	BE	NET	/	48 °28.735	126 °42.896	1599		-		JS	☐☐	
			09:27	BO			48 °28.723	126 °42.928		250	-			☐☐	Bongo VNH
			09:31	EN			48 °28.731	126 °42.952			-			☐☐	
118	LD11	14	09:39	BE	NET	/	48 °28.733	126 °42.965	1597		-		JS	☐☐	
			10:30	BO			48 °28.785	126 °42.978		1200	-			☐☐	Bongo VNH
			10:50	EN			48 °28.806	126 °42.980			-			☐☐	
119	LD11	14	11:03	BE	UVP	/	48 °28.794	126 °42.980	1595		-		JS	☐☐	
			11:11	BO			48 °28.802	126 °42.968		250	-			☐☐	
			11:16	EN			48 °28.820	126 °42.952			-			☐☐	
120	LD11	14	11:29	BE	ROS	US	48 °28.802	126 °42.976	1589		385-405	21	KY	☑☐	→
			11:56				48 °28.663	126 °42.875		1610	-			☐☐	
			12:43				48 °28.591	126 °43.124			-			☐☐	
			:				° .	° .			-			☐☐	

Event Type:
BOT = Bottle cast (no CTD)
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Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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	LD06	14	01:09	BE	ROS	US	48° 46.223	126° 10.264	140		360-367	8	SR	☑	
			01:11	BO			° 46.223	° 10.244		130	-			☐	
			01:25	EN			° 46.274	° 10.147			-			☐	
110	LD07	14	02:18	BE	ROS	/	48° 42.643	126° 16.789	490		-	/	SR	☑	
			02:26	BO			° 42.670	° 16.830		482	-			☐	
			02:33	EN			° 42.670	° 16.860			-			☐	
111	LD08	14	03:25	BE	ROS	US	48° 39.180	126° 23.400	775		368-384		SR	☑	Pump wash'd on.!! Stopped @
			03:31	BO			° 39.190	° 23.407			-			☐	
			03:38	EN			° 39.215	° 23.413			-			☐	330 m ≈
112	LD08	14	03:40	BE	ROS	US	48° 39.215	126° 23.413	777		368-384		SR	☒	Stayed in the water
			03:54	BO			° 39.206	° 23.413		772	-			☐	for cast #2 of
			04:28	EN			° 39.295	° 23.384			-			☐	LD08
113	LD09	14	05:24	BE	UVP	/	48° 35.749	126° 29.847	1058		-		MG	☐	
			05:30	BO			° 35.750	° 29.845		250	-			☐	
			05:34	EN			° 35.751	° 29.858			-			☐	
114	LD09	14	05:38	BE	NET	/	48° 35.692	126° 29.943	1060		-		MG	☐	BONGO
			05:45	BO			° 35.689	° 29.942		250	-			☐	
			05:53	EN			° 35.718	° 29.970			-			☐	
			:				° .	° .			-			☐	

Event Type:
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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 Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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	LD09	14	06:09	BE	ROS	/	48° 35.720	126° 29.920	1055		-		SR	☑☐	
			06:27	BO			°35.770	°29.930		1052	-			☐☐	
			06:43	EN			°35.790	°29.950			-			☐☐	
116	LD10	14	07:39	BE	ROS	—	48° 32.100	126° 36.560	~~1440~~ 1494		-	—	JS/KY	☑☐	
			08:06	BO			48° 31.920	126° 36.560		1492	-			☐☐	
			08:31	EN			48° 31.750	126° 36.630			-			☐☐	
117	LD11	14	09:18	BE	NET	/	48° 28.735	126° 42.896	1599		-		JS	☐☐	
			09:27	BO			48° 28.723	126° 42.928		250	-			☐☐	Bongo VNH
			09:31	EN			48° 28.731	126° 42.952			-			☐☐	
118	LD11	14	09:39	BE	NET	/	48° 28.733	126° 42.965	1597		-		JS	☐☐	
			10:30	BO			48° 28.785	126° 42.978		1200	-			☐☐	Bongo VNH
			10:50	EN			48° 28.806	126° 42.980			-			☐☐	
119	LD11	14	11:03	BE	UVP	/	48° 28.794	126° 42.980	1595		-		JS	☐☐	
			11:11	BO			48° 28.802	126° 42.968		250	-			☐☐	
			11:16	EN			48° 28.820	126° 42.952			-			☐☐	
120	LD11	14	11:29	BE	ROS	US	48° 28.802	126° 42.976	1589		385-405	21	KY	☑☐	→
			11:56				48° 28.663	126° 42.875		1610	-			☐☐	
			12:43				48° 28.591	126° 43.124			-			☐☐	
			:				° .	° .			-			☐☐	

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Bottle Firing Method:
US = Up / Stop (default)
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DN = Down / No stop

Time Code:
BE = Beginning Time of Cast
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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 Sept **Year** 2021 **Vessel** JP Tully **Cruise ID** 2021-012

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
121	LG09	14	15:57	BE	ROS	US	48° 51.301	127° 19.324	2059		406-411	6	KY	☑ ☐	
			16:30	BO			48° 51.226	127° 19.352		2005	-			☐ ☐	
			17:08	EN			48° 51.194	127° 19.378			-			☐ ☐	
122	LG09	14	18:07	BE	NET	/	48° 51.170	127° 19.361	2069		-			☐ ☐	Bongo VNH
			18:15	BO			48° 51.166	127° 19.374		250	-		JS/LH	☐ ☐	~~for~~ UVic
			19:20	EN			48° 51.166	127° 19.380			-			☐ ☐	
123	LG09	14	18:31	BE	NET	/	48° 51.188	127° 19.382	2069		-		JS	☐ ☐	Bongo VNH
			18:39	BO			48° 51.200	127° 19.388		250	-		LH	☐ ☐	~~for UVic~~
			18:45	EN			48° 51.199	127° 19.397			-			☐ ☐	IOS
124	LG09	14	18:55	BE	UVP	/	48° 51.188	127° 19.347	2061		-		MG	☐ ☐	
			19:02	BO			°51.183	°19.363		250	-			☐ ☐	
			19:07	EN			°51.186	°19.383			-			☐ ☐	
125	LG09	14	19:14	BE	NET	/	48° 51.188	127° 19.409	2061		-		MG	☐ ☐	Mini bongo
			19:16	BO			°51.189	°19.421		50	-			☐ ☐	
[illegible]	LG09		19:17	EN			°51.192	°19.426			-			☐ ☐	
126	LG09	14	19:55	BE	NET	/	48° 51.207	127° 19.349	2069		-			☐ ☐	multi Net
			21:02	BO			48° 51.199	127° 19.365		2050	-		MG	☐ ☐	
			21:40	EN			48° 51.194	127° 19.383			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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Bottle Firing Method:
US = Up / Stop (default)
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Time Code:
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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 Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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
127	LG08	14	22:27	BE	ROS	/	48° 55.340	127° 13.250	2070		-		SR	☑ ☐	
			23:02	BO			°55.330	°13.330		2076	-			☐ ☐	
			23:32	EN			°55.330	°13.250			-			☐ ☐	
128	LG07	15	00:20	BE	ROS	/	48° 59.410	127° 7.123	1769		-		SR	☑ ☐	
			00:50	BO			°59.420	° 7.152		1769	-			☐ ☐	
			01:19	EN			°59.440	° 7.300			-			☐ ☐	
129	LG07	15	01:28	BE	NET	/	48° 59.390	127° 7.209	1770		-		MG/MZ	☐ ☐	Bongo
			01:35	BO			° 59.414	° 7.186		250	-			☐ ☐	
			01:39	EN			° 59.419	° 7.178			-			☐ ☐	
130	LG07	15	01:47	BE	UVP	/	48° 59.406,	127° 7.189	1770		-		MG/SR	☐ ☐	
			01:53	BO			° 59.430	° 7.149		250	-			☐ ☐	
			01:57	EN			° 59.476	° 7.114			-			☐ ☐	
131	LG06	15	03:43	BE	ROS	US	49° 3.500	127° 01.120	965		412 - 429	18	SR	☑ ☐	
			03:28	BO			° 3.500	°01.150		957	-			☐ ☐	
			04:04	EN			° 3.430	°01.180			-			☐ ☐	
132	LG05	15	05:02	BE	ROS	/	49° 7.350	126° 5.270	278		-		SR	☑ ☐	
			05:06	BO			° 7.340	° 5.280		268	-			☐ ☐	
			05:11	EN			° 7.340	° 5.270			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

Event Type:
BOT = Bottle cast (no CTD)
CTD = Standalone CTD
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SET = Fish Set

LOOP = Sea Water Loop
MOR = Mooring
NET = Plankton Net Haul
DRF = Drifter
UVP = Underwater Video 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
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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept | **Year** 2021 | **Vessel** Tully | **Cruise ID** 2021-012

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
133	LG04	15	06:03	BE	UVP	/	49° 11.293	126° 49.409	145		-			☐☐	
			06:07	BO			° 11.279	° 49.426		140	-			☐☐	
			06:10	EN			° 11.292	° 49.394			-			☐☐	
134	LG04	15	06:15	BE	NET	/	49° 11.291	126° 49.380	145		-			☐☐	BONGO
			06:18	BO			° 11.289	° 49.382		140	-			☐☐	
			06:23	EN			° 11.288	° 49.395			-			☐☐	
135	LG04	15	:	BE	ROS	US	49° 11.257	126° 49.388	147		430-438	9	SR + KY	☑☐	
			06:47	BO			49° 11.252	126° 49.357		136	-			☐☐	
			07:01	EN			49° 11.200	126° 49.390			-			☐☐	
136	LG03	15	07:50	BE	ROS	—	49° 14.958	126° 43.720	121		-	—	KY	☑☐	
			07:52	BO			49° 14.950	126° 43.730		113	-			☐☐	
			07:55	EN			49° 14.960	126° 43.730			-			☐☐	
137	LG02	15	08:41	BE	NET		49° 18.678	126° 38.079	99		-		JS/LH	☐☐	Bongo - VVic VNH
			08:46	BO			49° 18.683	126° 38.093		90	-			☐☐	
			08:48	EN			49° 18.685	126° 38.087			-			☐☐	
138	LG02	15	08:56	BE	NET		49° 18.678	126° 38.114	99		-		JS	☐☐	Bongo VNH
			09:01	BO			49° 18.669	126° 38.124		90	-			☐☐	
			09:02	EN			49° 18.669	126° 38.132			-			☐☐	
			:				° .	° .			-			☐☐	

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139	LG02	15	09:12	BE	UVP		49° 18.680	126° 38.154	99		-		JS	☐☐	
			09:15	BO			49° 18.684	126° 38.154		90	-			☐☐	
			09:17	EN			49° 18.677	126° 38.151			-			☐☐	
140	LG02	15	09:24	BE	Net		49° 18.693	126° 38.144	100		-			☐☐	mini bongo
			09:26	BO			49° 18.695	126° 38.149		50	-			☐☐	
			09:27	EN			49° 18.694	126° 38.157			-			☐☐	
141	LG02	15	09:41	BE	ROS		49° 18.700	126° 38.160	99		439 - 450	12	KY	☑☐	
			09:44	BO			49° 18.700	126° 38.170		91	-			☐☐	
			09:54	EN			49° 18.710	126° 38.170			-			☐☐	
142	LG01	15	10:25	BE	ROS		49° 20.490	126° 35.010	49		451 - 455	5	KY	☑☐	
			10:26	BO			49° 20.490	126° 35.000		44	-			☐☐	
			10:33	EN			49° 20.490	126° 35.030			-			☐☐	→
143	LJ09	15	15:04	BE	NET		49° 16.138	127° 47.322	~~1721~~		-		JS/LH	☐☐	
			15:12	BO			49° 16.148	127° 47.340		250	-			☐☐	
			15:16	EN			49° 16.173	127° 47.335			-			☐☐	
144	LJ09	15	15:25	BE	NET		49° 16.128	127° 47.347	~~1722~~		-		JS/LH	☐☐	
			16:01	BO			49° 16.253	127° 47.424		1200	-			☐☐	
			16:23				49° 16.312	127° 47.438			-			☐☐	
			:				° .	° .			-			☐☐	

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145	LJ09	15	16:37	BE	UVP	—	49 °16 . 282	127°47.394	~~1722~~		-		JS	☐☐	
			16:44	BO			49 °16 . 253	127°47.404		250	-			☐☐	
			16:48	EN			49 °16 . 252	127°47.413			-			☐☐	
146	LJ09	15	16:58	BE	ROS	VS	49°16 . 118	127° 47. 342	~~1713~~		- 456	1	KY	☑☐	* →
			17:34	BO			49°16 . 102	127° 47. 336		2006	-			☐☐	
			18:10	EN			49°16 . 073	127° 47. 448			-			☐☐	
147	Loop 147	15	19:38	BE	Loop	/	49° 30.456	127° 59 . 989	2398	4.5	5147	—	MG	☐☐	1 SAL 2 CHL
148	LBP08	15	21:34	BE	NET	/	49° 48. 616	128° 16 . 899	2085		-			☐☐	Bongo 10S
			21:43	BO			° 48.625	° 16.924		250	-			☐☐	
			21:47	EN			° 48 . 628	° 16 . 930			-			☐☐	
149	LBP08	15	21:54	BE	NET	/	49° 48.607	128° 16 . 906	2084		-	/	MG/MZ	☐☐	Bongo UVic
			22:00	BO			°48 (.632)	° 16 (888)		250	-			☐☐	
			22:04	EN			° 48.642	° 16 . 903			-			☐☐	
150	LBP08	15	22:11	BE	NET	/	49° 48. 599	128° 16 . 924	2085		-	/	MG/MZ	☐☐	Bongo 10S Deep
			22:44	BO			° 48 . 631	° 16 . 803		1200	-			☐☐	
			23:02	EN			° 48 . 668	° 16 . 797			-			☐☐	
151	LBP08	15	23:08	BE	UVP	/	49° 48 . 670	128° 16 . 711	2085		/	/	MG/MZ	☐☐	
			23:14	BO			° 48 . 651	° 16 . 696		250	-			☐☐	
			23:	EN			° 48 . 614	° 16 . 790			-			☐☐	

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Month September **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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152	LBP08	15	23:22	BE	NET	/	49° 48.615	128° 16.793	2085	[illegible]	-	/	MG	☐☐	Mini Bongo
			23:23	BO			°48.619	°16.794		50	-			☐☐	
			23:24	EN			°48.616	°16.789			-			☐☐	
153	LBP08	16	00:07	~~BE~~	ROS	US	49° 48.570	128° 16.760	2078		457-462	6	SR	☑☐	
			00:44	BO			°48.60	°16.83		2086	-			☐☐	
			01:23	EN			°48.610	°16.750			-			☐☐	
154	LBP07	16	02:16	BE	NET	/	49° 52.416	128° 11.122	2194		-			☐☐	Bongo
			02:23	BO			°52.393	°11.177		250	-			☐☐	
			02:30	EN			°52.401	°11.199	2200		-			☐☐	
155	LBP07	16	02:37	BE	UVP	/	49° 52.383	128° 11.201	2200		-			☐☐	
			02:44	BO			°52.384	°11.215		250	-			☐☐	
			02:48	EN			°52.376	°11.241			-			☐☐	
156	LBP07	16	02:59	BE	ROS	US	49° 52.350	128° 11.230	2185		-		SR	☑☐	
			03:34	BO			°52.380	°11.170		2200	-			☐☐	
			04:41	EN			°52.410	°11.360			-			☐☐	
157	LBP06	16	05:40	BE	ROS	/	49° 56.130	128° 5.520	940		-		SR	☑☐	
			05:55	BO			°56.100	°5.510		916	-			☐☐	
			06:10	EN			°56.150	°5.570			-			☐☐	
			:				° .	° .			-			☐☐	

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Ocean Sciences Division, Institute of Ocean Sciences

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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	LBP05	16	06:58	BE	UVP		49° 59.977	127° 59.981	1289		-		JS	☐☐	
			07:09	BO			49° 59.986	127° 59.970		250	-			☐☐	
			07:13	EN			49° 59.983	127° 59.977			-			☐☐	
159	LBP05	16	07:22	BE	NET		49° 59.984	127° 59.951	1289		-		JS	☐☐	Bongo VNH
			07:29	BO			49° 59.978	127° 59.940		250	-			☐☐	
			07:34	EN			49° 59.979	127° 59.947			-			☐☐	
160	LBP05	16	07:49	BE	ROS	US	49° 59.940	127° 59.950	1280		484-502	19	KY	☑☐	
			08:12	BO			49° 59.950	127° 59.960		1280	-			☐☐	
			08:53	EN			49° 59.940	127° 59.950			-			☐☐	
161	LBP04	16	09:34	BE	ROS		50° 1.380	127° 58.050	1033		-	—	KY	☑☐	Sounder having hard time finding bottom Slope?
			09:53	BO			50° 1.310	127° 57.980		1065	-			☐☐	
			10:10	EN			50° 1.285	127° 57.886			-			☐☐	
162	LBP3	16	10:39	BE	Net		50° 3.215	127° 55.309	164		-		JS/LH	☐☐	Bongo VNH - UVic
			10:46	BO			50° 3.213	127° 55.374		154	-			☐☐	
			10:48	EN			50° 3.219	127° 55.364			-			☐☐	
163	LBP3	16	10:55	BE	Net		50° 3.228	127° 55.320	162		-		JS	☐☐	Bongo VNH 105
			11:01	BO			50° 3.237	127° 55.318		154	-			☐☐	
			11:03	EN			50° 3.229	127° 55.311			-			☐☐	
			:				° .	° .			-			☐☐	

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Month September **Year** 2021 **Vessel** JP Tully **Cruise ID** 2021-012

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164	LBP3	16	11:14	BE	UVP		50° 03.238	127° 55.281	161		-		JS	☐☐	
			11:18	BO			50° 03.246	127° 55.265		151	-			☐☐	
			11:21	EN			50° 03.240	127° 55.254			-			☐☐	
165	LBP3	16	11:29	BE	NET		50° 03.224	127° 55.248	163		-		JS	☐☐	mini bongo
			11:32	BO			50° 03.210	127° 55.244		50	-			☐☐	
			11:34	EN			50° 03.203	127° 55.241			-			☐☐	
166	LBP3	16	11:52	BE	ROS		50° 3.190	127° 55.250	164		503-517	15	KY	☑☐	
			11:55	BO			50° 3.190	127° 55.240		157	-			☐☐	
			12:09	EN			50° 3.110	127° 55.150			-			☐☐	
167	LBP2	16	12:43	BE	ROS		° . '	° .			-			☐☐	didn't work
168	LBP2	16	13:21	BE	ROS		50° 3.990	127° 54.150	97		-		KY	☑☐	
~~167~~	LBP2	16	13:23	BO	ROS		° 3.980	° 54.170		89	-			☑☐	
			13:25	EN			° 3.980	° 54.180			-			☐☐	
169	LBP2	16	13:37	BE	NET		50° 3.938	127° 54.182	98		-		KS	☐☐	Bongo VNH
			13:40	BO			50° 3.909	127° 54.164	100	~~100~~ 80	-			☐☐	
			13:42	EN			50° 3.910	127° 54.157			-			☐☐	
170	LBP2	16	13:53	BE	UVP		50° 3.953	127° 54.183	98		-		JS/KS	☐☐	
			13:56	BO			50° 3.948	127° 54.167		88	-			☐☐	
			13:58	EN			50° 3.951	127° 54.159			-			☐☐	

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171	LBP 1	16	14 : 19	BE	ROS	—	50 ° 4 . 753	127 ° 52 . 692	51		-	—	KY	☑ ☐	* →
			14 : 20				50 ° 4 . 746	127 ° 52 . 676		42	-			☐ ☐	
			14 : 23				50 ° 4 . 733	127 ° 52 . 651			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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171	LBP 1	16	14:19	BE	ROS	—	50° 4.753	127° 52.692	51		-	—	KY	☑ ☐	* →
			14:20	BO			50° 4.746	127° 52.676		42	-			☐ ☐	
			14:23	EN			50° 4.733	127° 52.651			-			☐ ☐	
172	CPE2	16	19:04	BE	ROS	/	50° 43.000	128° 39.730	128		-	/	SR	☑ ☐	
			19:06	BO			° 43.008	° 39.730		120	-			☐ ☐	
			19:08	EN			°43.010	° 39.730			-			☐ ☐	
173	CPE2	16	19:16	BE	Net	/	50° 42.964	128° 39.734	128		-		MG	☐ ☐	Bongo
			19:19	BO			°42.951	°30.736		123	-			☐ ☐	
			19:21	EN			°42.937	°30.737			-			☐ ☐	
174	CS1B	16	21:12	BE	ROS	/	50°53.030	128°40.110	74		-	/	SR	☑ ☐	
			21:13	BO			°53.020	°40.100		65	-			☐ ☐	
			21:14	EN			°53.030	°40.100			-			☐ ☐	
175	CS1B	16	21:20	BE	NET		50° 53.059	128° 40.159	74		-	/	MG	☐ ☐	
			21:22	BO			°53.076	° 40.160		68	-			☐ ☐	
			21:23	EN			°53.086	°40.159			-			☐ ☐	
176	CS1B	16	21:32	BE	MVP		50°53.095	128°40.073	74		-	/	SR	☐ ☐	
			21:34	BO			°53.093	°40.090		68	-			☐ ☐	
			21:35	EN			°53103	°40.06			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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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
177	CS05	16	23:09	BE	ROS	/	50°56.070	129°00.050	65		-		SR	☑☐	
			23:10	BO			°56.070	°00.060		55	-			☐☐	
			23:11	EN			°56.070	°00.070			-			☐☐	
178	CS05	16	23:22	BE	UVP	/	50°56.065	129°00.043	63		-		SR	☐☐	
			23:24	BO			°56.063	°00.063		55	-			☐☐	
			23:26	EN			°56.073	°00.092			-			☐☐	
179	CS05	16	23:30	BE	NET	/	50°56.056	129°00.134	63		-			☐☐	BONGO
			23:33	BO			°56.057	°00.139		55	-			☐☐	
			23:36	EN			°56.048	°00.209			-			☐☐	
180	CS06	17	00:36	BE	ROS	US	51°0.101	128°51.716	66		-		SR	☐☐	
			00:38	BO			°0.115	°51.718		62	518-525		SR	☑☐	
			00:49	EN			°0.190	°51.700			-			☐☐	
181	CS07	17	01:57	BE	ROS	/	51°4.560	128°43.860	65		-		SR	☑☐	BONGO
			01:58	BO			°4.570	°43.800		60	-			☐☐	
			02:00	EN			°4.590	°43.780			-			☐☐	
182	CS07	17	02:13	BE	NET	/	51°04.539	128°43.795	65		-			☐☐	BONGO
			02:14	BO			°04.527	°43.802		60	-			☐☐	
			02:19	EN			°04.495	°43.827			-			☐☐	
9181	CS06	17	00:59	BO	NET	/	51°0.19	128°51.7	65	60	—	—	MG	☐☐	BONGO

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Notes: _____

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** JP Tully **Cruise ID** 2021-12

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
183	CS07	17	02:24	BE	UVP	/	51° 04.486	128° 43.745	65		-		MG	☐☐	
			02:27	BO			51° 04.461	° 43.710		60	-			☐☐	
			02:28	EN			° 04.460	° 43.711			-			☐☐	
184	CS08	17	03:29	BE	ROS		51° 8.550	128° 36.020	146		/	/	SR	☑☐	
			03:32	BO			° 8.570	° 36.020		136	-			☐☐	
			03:35	EN			° 8.560	° 36.950			-			☐☐	
185	CS08	17	03:48	BE	NET	/	51° 08.554	128° 35.820	146		-		MG	☐☐	BONGO
			03:53	BO			° 08.536	° 35.683		140	-			☐☐	
			03:58	EN			° 08.520	° 35.676			-			☐☐	
186	CS09	17	05:01	BE	ROS	US	51° 12.540	128° 28.080	198		526-543	18	SR	☑☐	
			05:04	BO			° 12.540	° 28.070		193	-			☐☐	
			05:23	EN			° 12.500	° 20.040			-			☐☐	
187	CS09	17	05:35	BE	Net		51° 12.537	128° 27.90	197		-		MG	☐☐	BONGO UVIC + IOS
			:40	BO			° 12.568	° 27.758		190	-			☐☐	
			:45	EN			° 12.564	° 27.614			-			☐☐	
188	CS10	17	:	BE	ROS		CANCELLED	DUE TO	197	WEATHER	-			☐☐	
			:	BO			° .	° .		190	-			☐☐	
			:	EN			° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** JP Tully **Cruise ID** 2021-012

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	SBOT Sponge Bob	17	07:46	DE	DRF	/	51 °18.757	128 °45.265	205	0	-	/	KY/JS/LH	☐☐	# 1307, 1310, 1311 →
189	Loop 189	17	16:22	BE	LOOP	/	51 °11.828	128 °39.835	177	4.5	-5189		JS	☐☐	1 sal 2 chl
190	LOOP 190	17	21:14	BE	LOOP	/	51 °25.291	127 °45.900	148	4.5	5190	/	MG	☐☐	1 SAL 2 CHL
191	RI06	18	00:38	BE	ROS	/	51 °40.550	127 °17.050	143		/	/	SR	☑☐	
			00:40	BO			°40.550	°17.060		137	-			☐☐	
	rib		00:43	EN			°40.540	°17.058			-			☐☐	
192	RI06	18	01:24	BE	NET	/	51 °40.521	127 °17.109	146		-	/	MG	☐☐	Bongo
			01:29	BO			°40.513	°17.096		140	-			☐☐	
			01:32	EN			°40.512	°17.121			-			☐☐	
193	RI06	18	01:41	BE	UVP	/	51 °40.531,	127 °17.117	147		-		KS	☐☐	
			01:45	BO			°40.515	°17.087		140	-			☐☐	
			01:48	EN			°40.515	°17.092	202		-			☐☐	
194	RI05	18	02:21	BE	UVP	/	51 °40.667	127 °19.950	202		-			☐☐	
			02:28	BO			°40.672	°19.945		195	-			☐☐	
			02:32	EN			°40.664	°19.961			-			☐☐	
195	RI05	18	02:37	BE	NET	/	51 °40.654	127 °19.970	202		-			☐☐	Bongo
			02:43	BO			°40.660	°19.970		195	-			☐☐	
			02:51	EN			°40.652	°19.970			-			☐☐	
			:				° .	° .			-			☐☐	

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** JP Tully **Cruise ID** 2021-012

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
196	R105	18	03:13	BE	NET		51° 40.656	127° 19.977	202		-			☐☐	multinet
			03:20	BO			° 40.654	° 19.990		195	-			☐☐	
			03:30	EN			° 40.658	° 19.976			[redacted]			☐☐	
197	R105	18	03:45	BE	ROS	US	51° 40.700	127° 20.020	203		544-555	12	SR	☑☐	
			03:49	BO			° 40.700	° 20.030		193	-			☐☐	
			04:05	EN			° 40.700	° 20.020			-			☐☐	
198	R14	18	04:50	BE	ROS	/	51° 38.930	127° 26.900	302		-	/	SR	☑☐	
			04:55	BO			° 38.930	° 26.890		294	-			☐☐	
			04:59	EN			° 38.940	° 26.870			-			☐☐	
199	R14	18	05:10	BE	NET	/	51° 38.946	127° 26.843	301		-			☐☐	BONGO
			05:18	BO			° 38.945	° 26.832		295	-			☐☐	
			05:26	EN			° 38.946	° 26.816			-			☐☐	
200	R14	18	05:34	BE	UVP	/	51° 38.960	127° 26.826	301		-			☐☐	
			05:41	BO			° 38.964	° 26.844		295	-			☐☐	
			05:48	EN			° 38.997	° 26.850			-			☐☐	
201	R13	18	06:38	BE	ROS	/	51° 35.870	127° 32.150	330		-	/	SR	☑☐	
			06:43	BO			° 35.850	° 32.140		321	-			☐☐	
			06:48	EN			° 35.840	° 32.120			-			☐☐	
			:				° .	° .			-			☐☐	

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Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012

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
202	Ri3	18	06:59	BE	UVP		51 ° 35.836	127° 32.096	330		-		JS/	☐☐	
			07:09	BO			51 ° 35.826	127° 32.093		320	-		LH	☐☐	
			07:13	EN			51 ° 35.829	127° 32.092			-			☐☐	
203	Ri 3	18	07:21	BE	NET		51 °35.827	127° 32.108	330		-		JS LH	☐☐	Bongo VNH
			07:30	BO			51 °35.848	127° 32.108		320	-			☐☐	
			07:35	EN			51 °35.842	127° 32.093			-			☐☐	
204	Ri 2	18	08:16	BE	NET		51 ° 31.209	127° 33.555	333		-		JS LH	☐☐	Bongo VNH
			08:24	BO			51 ° 31.214	127° 33.546		250	-			☐☐	for VVic
			08:28	EN			51 °31.216	127° 33.557			-			☐☐	
205	Ri 2	18	08:38	BE	NET		51 ° 31.226	127° 33.545	334		-		JS	☐☐	Bongo VNH
			08:47	BO			51 ° 31.209	127° 33.558		324	-			☐☐	
			08:53	EN			51 ° 31.201	127° 33.571			-			☐☐	
206	Ri 2	18	09:04	BE	UVP		51 ° 31.223	127° 33.530	333		-		JS	☐☐	
			09:15	BO			51 ° 31.222	127° 33.525		323	-			☐☐	
			09:20	EN			51 °31.234	127° 33.520			-			☐☐	
207	Ri 2	18	09:31	BE	NET		51° 31.255	127° 33.518	333		-		KY JS	☐☐	MPS-vnh
			09:43	BO			° 31.308	127° 33.573		320	-			☐☐	
			:	EN			° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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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 Sept | **Year** 2021 | **Vessel** JP Tully | **Cruise ID** 2021-012

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
208	R:2	18	10:03	BE	ROS	US	51°31.333	127°33.508	334		556-573	18	KY	☑☐	
			10:09	BO			°.326	°.522		325	-			☐☐	
			10:26	EN			51°31.346	127°33.506			-			☐☐	
209	R:1	18	11:24	BE	ROS	—	51°26.430	127°38.410	311		-	—	KY	☑☐	
			11:29	BO			51°26.420	127°38.470		300	-			☐☐	
			11:34	EN			51°26.410	127°38.470			-			☐☐	
210	R:1	18	11:47	BE	NET		51°26.337	127°38.427	323		-		JS LH	☐☐	
			11:58	BO			51°26.305	127°38.376	325	~~313~~ 315	-			☐☐	
			12:02	EN			51°26.288	127°38.359			-			☐☐	
211	R:1	18	12:14	BE	UVP		51°26.334	127°38.497	321		-		JS	☐☐	
			12:23	BO			51°26.286	127°38.548	325	~~314~~ 315	-			☐☐	
			12:28	EN			51°26.269	127°38.539			-			☐☐	
212	SS7	18	13:21	BE	ROS		51°24.730	127°47.590	122		-	—	KY	☑☐	
			13:24	BO			51°24.730	127°47.570		114	-			☐☐	
			13:26	EN			51°24.740	127°47.530			-			☐☐	
213	SS7	18	13:33	BE	NET		51°24.732	127°47.522	123		-		JS LH	☐☐	
			13:37	BO			51°24.725	127°47.566		113	-			☐☐	
			13:39	EN			51°24.730	127°47.531			-			☐☐	
			:				° .	° .			-			☐☐	

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Notes: _____

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WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept | **Year** 2021 | **Vessel** JP Tully | **Cruise ID** 2021-012

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
214	SS7	18	13:49	BE	UVP		51° 24.720	127° 47.518	122		-		JS	☐☐	
			13:53	BO			51° 24.710	127° 47.529		112	-			☐☐	
			13:55	EN			51° 24.705	127° 47.523			-			☐☐	
215	SS6	18	:	BE	ROS	–	°.	°.			-			☐☐	→
			:	BO			°.	°.			-			☐☐	no cast
			:	EN			°.	°.			-			☐☐	
216	SS6	18	15:33	BE	NET		51° 20.049	127° 59.983	178		-		JS LH	☐☐	Bongo VNH
			15:39	BO			51° 20.021	127° 59.993		167	-			☐☐	
			:43	EN			51° 20.012	127° 59.994			-			☐☐	
217	SS6	18	15:56	BE	UVP		51° 20.008	128° 00.002	178		-			☐☐	
			16:02	BO			51° 20.003	128° 0.016		168	-			☐☐	
			16:06	EN			51° 20.014	128° 0.018			-			☐☐	sit @ surface @ end due to A-frame issue
218	SS6	18	16:26	BE	ROS	–	51° 19.901	128° 0.074	176		-	–	KY	☑☐	
			16:29	BO			51° 19.888	128° 0.079		167	-			☐☐	
			16:32	EN			51° 19.889	128° 0.019			-			☐☐	
219	CS10	18	18:45	BE	ROS		51° 16.543	128° 19.987	83		-		KY/JS	☑☐	
			18:47	BO			°16.540	°19.975		74	-		+SR!	☐☐	
			18:48	EN			°16.540	°19.960			-			☐☐	
			:				°.	°.			-			☐☐	

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WaterProperties.ca
Version: 17 Feb 2020

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept | **Year** 2021 | **Vessel** Tully | **Cruise ID** 2021-012

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	CS10	18	18:58	BE	NET		51 ° 16.509	128° 19.890	80		/	/	~~MG~~	☐☐	Bongo
			19:01	BO			°16.503	°19.890		75	-			☐☐	
			19:03	EN			°16.512	°19.881			-			☐☐	
221	CS10	18	19:10	BE	UVP		51 ° 16.488	128 ° 19.922	82		/	/	MG	☐☐	
			19:12	BO			° 16.482	° 19.909		75	-			☐☐	
			19:14	EN			° 16.482	° 19.904			-			☐☐	
222	CPE1	18	22:27	BE	ROS	/	51 ° 0.005	127° 50.023	147		/	/	SR	☑☐	
			22:29	BO			° 0.006	° 50.015		136	-			☐☐	
			22:32	EN			° 0.030	° 49.975			-			☐☐	
223	CPE1	18	22:41	BE	UVP	/	51° 00.015	127° 50.037	145		-			☐☐	
			22:44	BO			° 00.025	° 50.010		140	-			☐☐	
			22:48	EN			° 00.058	° 49.973			-			☐☐	
224	CPE1	18	22:52	BE	NET	/	51° 00.066	127° 49.936	145		-			☐☐	Bongo
			22:55	BO			° 00.043	° 49.966		140	-			☐☐	
			22:59	EN			° 00.059	° 49.953			-			☐☐	
225	CPE1	18	23:17	DE	DRF		50° 59.489	127° 49.278	156	0	-		MG, KS	☐☐	SB# 1308, 1309
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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Notes: _____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month SEPT | **Year** 2021 | **Vessel** VP TULLY | **Cruise ID** 2021012

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
226	JS1	19	05:30	BE	NET	/	50°30.384	126°28.056	370		-			☐☐	BONGO
			05:42	BO			°30.335	°27.974		365	-			☐☐	
			05:49	EN			°30.313	°27.951			-			☐☐	
227	JS1	19	05:59	BE	UVP	/	50°30.331	126°27.956	375		-			☐☐	
			06:09	BO			°30.356	°27.847		365	-			☐☐	
			06:16	EN			°30.311	°27.898			-			☐☐	
228	JS01	19	06:30	BE	ROS		50°30.280	126°28.050	375		574-584	11	SR/KY	☑☐	CTD file 2021-012-0227.hex →
			06:38	BO			°30.310	°27.990		378	-			☐☐	
			06:57	EN			°30.320	°27.880			-			☐☐	
229	16	19	12:46	BE	NET		49°57.130	125°08.150	163		-		JS LH	☐☐	Bongo UVP
			12:52	BO			49°57.079	125°08.213	146	~~154~~ 138	-			☐☐	
			12:54	EN			49°57.061	125°08.258			-			☐☐	
230	16	19	13:04	BE	UVP		49°57.075	125°08.287	145		-		JS	☐☐	
			13:09	BO			49°57.057	125°08.258		135	-			☐☐	
			13:11	EN			49°57.054	125°08.241			-			☐☐	
231	16	19	13:21	BE	ROS	US	49°57.060	125°08.230	146		585-588	4	KY	☑☐	
			13:23	BO			49°57.060	125°08.222		136	-			☐☐	
			13:32	EN			49°56.981	125°08.111			-			☐☐	
			:				° .	° .			-			☐☐	

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Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 20 April 2016

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept | **Year** 2021 | **Vessel** JP Tully | **Cruise ID** 2021-012

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
232	14	19	14:24	BE	UVP		49° 52.982	124° 59.576	316		-	—	JS/LH	☐☐	
			14:33	BO			49° 53.002	124° 59.590		306	-			☐☐	
			14:38	EN			49° 53.010	124° 59.609			-			☐☐	
233	14	19	14:44	BE	NET		49° 53.005	124° 59.597	316		-		JS/LH	☐☐	
			14:53	BO			49° 53.023	124° 59.592		306	-			☐☐	
			14:57	EN			49° 53.033	124° 59.611			-			☐☐	
234	14	19	15:08	BE	ROS	US	49° 53.054	124° 59.606	314		589-592	4	KY	☑☐	
			15:14	BO			49° 53.057	124° 59.603		307	-			☐☐	
			15:24	EN			49° 53.026	124° 59.603			-			☐☐	
235	SOGN	19	16:14	BE	ROS	—	49° 50.080	124° 51.770	333		-	—	KY	☑☐	
			16:20	BO			49° 50.080	124° 51.780		324	-			☐☐	
			16:26	EN			49° 50.080	124° 51.770			-			☐☐	
236	12	19	17:39	BE	NET		49° 43.616	124° 40.816	355		-		JS/LH	☐☐	
			17:49	BO			49° 43.620	124° 40.826		345	-			☐☐	
			17:55	EN			49° 43.625	124° 40.825			-			☐☐	
237	12	19	18:04	BE	UVP		49° 43.624	124° 40.824	355		-		JS	☐☐	
			18:16	BO			49° 43.635	124° 40.840		345	-			☐☐	
			18:22	EN			49° 43.638	124° 40.851			-			☐☐	
			:				° .	° .			-			☐☐	

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Ocean Sciences Division, Institute of Ocean Sciences

Month Sept | **Year** 2021 | **Vessel** JP Tully | **Cruise ID** 2021-012

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238	12	19	18:31	BE	ROS	US	49° 43.636	124° 40.849	354		593 - 603	11	KY	☑ ☐	
			18:37	BO			49° 43.637	124° 40.844		345	-			☐ ☐	
			18:54	EN			° 43.698	°40.843			-			☐ ☐	
239	9	19	20:27	BE	ROS	US	49° 35.520	124° 38.320	168		-		SR	☐ ☐	Trans not cleaned
			20:36	BO			°35.520	°38.320		160	-			☐ ☐	
			20:39	EN			°35.560	°38.310			-			☐ ☐	
240	6	19	21:50	BE	ROS	US	49° 30.690	124° 27.900	192		608-611	4	SR	☑ ☐	
			21:54	BO			°30.700	°27.870		184	-			☐ ☐	
			22:03	EN			°30.720	°27.840			-			☐ ☐	
241	CPF2	19	22:38	BE	ROS	/	49° 27.990	124° 30.060	328		-	/	SR	☑ ☐	
			22:44	BO			°27.990	°30.060			-			☐ ☐	
			22:53	EN			° .	° .			-			☐ ☐	
242	CPF2	19	22:58	BE	UVP	/	49° 27.981	124° 30.048	330		-		MG	☐ ☐	
			23:07	BO			°27.957	°30.044		324	-			☐ ☐	
			23:14	EN			°27.973	°30.059			-			☐ ☐	
243	CPF3	19	23:19	BE	NET	/	49° 27.989	124° 30.092	330		-		MG	☐ ☐	BONGO
			23:28	BO			°28.017	°30.119		324	-			☐ ☐	
			23:35	EN			°27.998	°30.082			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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Month September **Year** 2021 **Vessel** Tully **Cruise ID** 2021-012 Page 40 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	3	20	00:32	~~BE~~	ROS	US	49° 26.660	124° 20.300	323		612-615	4	SR	☑ ☐	
			00:37	BO			°26.660	°20.300		316	-			☐ ☐	
			00:48	EN			°26.670	°20.310			-			☐ ☐	
245	2	20	01:52	~~BE~~	ROS	US	49° 24.050	124° 9.260	278		66-69	4	SR	☑ ☐	
			01:56	BO			° 24.040	° 9.290			-			☐ ☐	
			02:06	EN			° 24.030	° 9.260			-			☐ ☐	
246	CPF1	20	02:41	~~BE~~	ROS	/	49° 22.090	124° 5.040	247		-	/	SR	☑ ☐	
			02:45	BO			° 22.080	° 5.050		239	-			☐ ☐	
			02:49	EN			° 22.060	° 5.030			-			☐ ☐	
247	CPF1	20	02:57	BE	NET	/	49° 22.007	124° 05.035	246		-		MG	☐ ☐	BONGO
			03:02	BO			° 22.021	° 05.041		240	-			☐ ☐	
			03:09	EN			° 22.037	° 04.999			-			☐ ☐	
248	CPF1	20	03:15	BE	UVP	/	49° 22.023	124° 04.999	246		-		MG	☐ ☐	
			03:20	BO			° 22.037	° 05.005		240	-			☐ ☐	
			03:25	EN			° 22.035	° 04.993			-			☐ ☐	
249	24	20	04:48	~~BE~~	ROS	/	49° 30.320	124° 5.980	425		/	/	SR	☑ ☐	
			04:56	BO			° 30.330	° 5.950		418	-			☐ ☐	
			05:03	EN			° 30.330	° 5.930			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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DAILY SCIENCE LOG

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Month Sept | **Year** 2021 | **Vessel** JP Tully | **Cruise ID** 2021-012

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
250	24	20	05:13	BE	UVP		49 ° 30.311	124 ° 05.980	425		-		MG	☐☐	
			05:27	BO			° 30.324	° 05.971		420	-			☐☐	
			05:37	EN			° 30.334	° 05.948			-			☐☐	
251	24	20	05:40	BE	NET		49 ° 30.328	124 ° 05.973	425		-		MG	☐☐	BONGO
			05:52	BO			° 30.345	° 06.087		420	-			☐☐	
			06:02	EN			° 30.382	° 06.128			-			☐☐	
252	22	20	07:22	BE	NET		49 ° 40.233	124 ° 16.274	353		-		JS LH	☐☐	Bongo VNH
			07:33	BO			49 ° 40.198	124 ° 16.231		348	-			☐☐	
			07:39	EN			49 ° 40.212	124 ° 16.215			-			☐☐	
253	22	20	07:47	BE	UVP		49 ° 40.156	124 ° 16.203	352		-		JS	☐☐	
			07:59	BO			49 ° 40.135	124 ° 16.180			-			☐☐	
			08:05	EN			49 ° 40.139	124 ° 16.168			-			☐☐	
254	22	20	08:14	BE	ROS	US	49 ° 40.130	124 ° 16.168	351		620 - 623	4	KY	☑☐	
			08:20	BO			49 ° 40.126	124 ° 16.152		342	-			☐☐	
			08:31	EN			49 ° 40.110	124 ° 16.135			-			☐☐	
255	28	20	11:33	BE	NET		49 ° 24.215	123 ° 45.610	133		-		JS LH	☐☐	
			11:38	BO			49 ° 24.225	123 ° 45.586		128	-			☐☐	
			11:40	EN			49 ° 24.225	123 ° 45.585			-			☐☐	
			:				° .	° .			-			☐☐	

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DAILY SCIENCE LOG

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Month Sept | **Year** 2021 | **Vessel** JP Tully | **Cruise ID** 2021-012

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
256	28	20	11:50	BE	UVP		49°24.233	123°45.579	133		-		JS	☐☐	
			11:54	BO			49°24.229	123°45.556		128	-			☐☐	
			11:56	EN			49°24.225	123°45.548			-			☐☐	
257	28	20	12:04	BE	ROS	—	49°24.210	123°45.560	133		-	—	KY	☑☐	
			12:06	BO			49°24.210	123°45.550		125	-			☐☐	
			12:09	EN			49°24.200	123°45.540			-			☐☐	
258	27	20	12:55	BE	ROS	US	49°19.170	123°47.950	346		624-634	11	KY	☑☐	
			13:02	BO			49°19.170	123°47.960		341	-			☐☐	
			13:21	EN			49°19.170	123°47.920			-			☐☐	
259	GEO1	20	14:01	BE	ROS	US	49°14.992	123°44.962	402		-	7	KY	☑☐	
			14:09	BO			49°15.047	123°44.845		394	635-641			☐☐	
			14:22	EN			49°15.059	123°44.886			-			☐☐	
260	GEO1	20	14:31	BE	UVP		49°15.017	123°44.940	403		/	/	JS	☐☐	
			14:44	BO			49°14.999	123°44.948		393	-			☐☐	
			14:51	EN			49°14.993	123°44.946			-			☐☐	
261	GEO1	20	14:58	BE	NET		49°14.984	123°44.946	403		/	/	KY/JS	☐☐	Bongo
			15:09	BO			49°14.985	123°44.949		398 3	-			☐☐	
			15:15	EN			49°14.990	123°44.956			-			☐☐	
			:				° .	° .			-			☐☐	

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Month September **Year** 2021 **Vessel** JP Tully **Cruise ID** 2021-012

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
262	GEO1	20	15:28	BE	NET		49 ° 14.997	123 ° 45.026	403		/	/	KY/JS	☐☐	MPS
			15:43	BO			49 ° 14.997	123 ° 44.987		393	-			☐☐	
			15:49	EN			49 ° 14.995	123 ° 44.977			-			☐☐	
263	39	20	16:56	BE	ROS	US	49 ° 9.840	123 ° 33.010	374		642 - 645	4	KY	☑☐	
			17:03	BO			49 ° 9.830	123 ° 32.990		367	-			☐☐	
			17:13	EN			49 ° 9.820	123 ° 33.000			-			☐☐	
264	38	20	17:54	BE	ROS	—	49 ° 12.020	123 ° 26.400	305		-	—	KY	☑☐	
			17:59	BO			49 ° 12.020	123 ° 26.390		297	-			☐☐	
			18:05	EN			49 ° 12.020	123 ° 26.390			-			☐☐	
265	38	20	18:16	BE	NET		49 ° 12.018	123 ° 26.372	305		-		JS LH	☐☐	Bongo
			18:27	BO			49 ° 12.032	123 ° 26.354		300	-			☐☐	
			18:32	EN			49 ° 12.023	123 ° 26.362			-			☐☐	
266	38	20	18:41	BE	UVP		49 ° 12.025	123 ° 26.368	305		-		JS	☐☐	
			18:51	BO			° 12.012	° 26.387		300	-			☐☐	
			18:56	EN			° 12.012	° 26.387			-			☐☐	
267	41	20	20:31	BE	ROS	/	49 ° 3.300	123 ° 22.390	244		/	/	SZ	☑☐	
			20:36	BO			° 3.300	° 22.400		236	-			☐☐	
			20:40	EN			° 3.310	° 22.42			-			☐☐	
			:				° .	° .			-			☐☐	

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268	41	20	20:48	BE	UVP		49°03.314	123°22.352	245		/	/	KS	☐☐	
			20:56	BO			°03.308	°22.357		240	-			☐☐	
			21:01	EN			°03.301	°22.356			-			☐☐	
269	41	20	21:05	BE	NET		49°03.293	123°22.312	240		-		MG	☐☐	Bongo
			21:14	BO			°03.282	°22.333		235	-			☐☐	
			21:19	EN			°03.271	°22.330			-			☐☐	
270	42	20	21:49	BE	ROS	US	49° 1.170	123°26.090	320		-		SR	☐☐	
			21:55	BO			° 1.180	°26.160		313	-			☐☐	
			22:05	EN			° 1.220	°26.100			-			☐☐	
271	42	20	22:10	BE	NET	/	49° 01.205	123° 26.137	321		-		MG	☐☐	Bongo
			22:20	BO			° 01.195	° 26.102		315	-			☐☐	
			22:26	EN			° .183	° .105			-			☐☐	
272	43.42	20	22:34	BE	UVP	/	49°01.154	123°26.103	321		-			☐☐	
			22:42	BO			°01.148	°26.103		315	-			☐☐	
			22:47	EN			° 01.136	°26.107			-			☐☐	
273	46	21	00:34	BE	ROS	US	48°51.510	123°10.890	174		650-653		SR	☐☐	Stopped @ 50m
			00:40	BO			°51.500	°10.850		166	-			☐☐	to correct the
			00:48	EN			°51.500	°10.940			-			☐☐	wire angle
			:				° .	° .			-			☐☐	+138m

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274	46	21	0:56	BE	UVP		48°51.501	123°10.994	178		-		MG	☐ ☐	
			01:03	BO			48°51.495	123°11.063		170	-			☐ ☐	
			01:06	EN			48°51.494	123°11.092			-			☐ ☐	
275	46	21	01:11	BE	NET		48°51.497	123°11.128	183		-		MG	☐ ☐	
			01:18	BO			48°51.504	123°11.221		175	-			☐ ☐	
			01:21	EN			48°51.504	123°11.235			-			☐ ☐	
276	56	21	02:55	BE	ROS	US	48°46.120	123°01.720	232		654-657	4	8r	☑ ☐	
			03:00	BO			°46.070	°01.720		225	-			☐ ☐	
			03:09	EN			°46.010	Ø1.810			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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: 20 April 2016

DAILY SCIENCE LOG BOOK

MISSION NUMBER 2021-012

Book 2 of 2

DATE: From: Sept 8th 2021 To: Sept 21st 2021

VESSEL: J.P. Tully

PROJECT(S): La Perouse

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

**** 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: WP #102

Data acquisition program: Seasave

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

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: C-Star s/n: 1185DR

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

Fluorometer: Model Seapoint Cable gain: 3x s/n: 3950 P (S) or NO pump?

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

Oxygen sensor: SBE Model: 43 s/n: 3791 (P) **S or NO** pump?

PAR sensor: Biospherical Model: QSP2350 s/n: 70613 **Surface PAR? Y (N)**

Other sensors: Altimeter s/n: 78341 **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: IOS
Volume of bottles (litres): 10L

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

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

Salinometer:
Make: _____ Model: _____ Serial Number: _____

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

Oxygen Kit(s):
Make: _____ Model: _____ Kit Number: _____
Make: _____ Model: _____ Kit Number: _____

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

Thermosalinograph System (SBE21):
Program: _____ Version: _____
Sampling interval (seconds): 30
Fluorometer sensor serial number: WSCHL-1656

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

ADCP Setup:
Computer time zone: _____
Sampling interval (sec): _____
Bin Length: (2^x): _____
Pulse Length: _____
Buffer (bytes): _____
Gyro Offset: _____

User Exits: Name: _____ Exit points: _____
Name: _____ Exit points: _____
Name: _____ Exit points: _____
Work File: _____

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: _____cm Mesh: _____ µm Flowmeter: _____
Bongo #2 Frame Size: _____cm Mesh: _____ µm Flowmeter: _____
_____ Frame Size: _____cm Mesh: _____ µm Flowmeter: _____
_____ Frame Size: _____cm Mesh: _____ µm 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. _____

**** 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: WP 102

Data acquisition program: Seasave

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

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: C-Star serial: 1185DR

Transmissometer: Wetlabs Model: C-Star serial: 1883DG

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

Fluorometer: Model Seapoint Cable gain: 3X serial: 3950 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: Altimeter serial: 76341 **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).

<u>Rosette Setup:</u>

Number of bottles: 24

Manufacturer: IOS

Volume of bottles (litres): 10L

<u>Rosette/Niskin Bottle Serial Numbers:</u>

1: _____	2: _____	3: _____	4: _____	5: _____
6: _____	7: _____	8: _____	9: _____	10: _____
11: _____	12: _____	13: _____	14: _____	15: _____
16: _____	17: _____	18: _____	19: _____	20: _____
21: _____	22: _____	23: _____	24: _____	

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

Rosette Setup:
Number of bottles: 24
Manufacturer: IOS
Volume of bottles (litres): 10L

Rosette/Niskin Bottle Serial Numbers:

1: _____	2: _____	3: _____	4: _____	5: _____
6: _____	7: _____	8: _____	9: _____	10: _____
11: _____	12: _____	13: _____	14: _____	15: _____
16: _____	17: _____	18: _____	19: _____	20: _____
21: _____	22: _____	23: _____	24: _____	

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

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

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

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

Label Printers:
Primary Printer Kit #: _____
Secondary Printer Kit #: _____
Software Version: _____

Thermosalinograph System (SBE21/45):
Program: _____ Version: _____
Sampling interval (seconds): 30
TSG serial number: 45-0620
Fluorometer sensor serial number: WSCHL-1656
Comments on performance during cruise (comments should also be reflected in the post-cruise report):
_____

ADCP Setup:
Computer time zone: _____
Sampling interval (sec): _____
Bin Length: (2^x): _____
Pulse Length: _____
Buffer (bytes): _____
Gyro Offset: _____

User Exits: Name: _____ Exit points: _____
Name: _____ Exit points: _____
Name: _____ Exit points: _____
Work File: _____

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/~~SCOR #1~~	Frame Size:	56	cm	Mesh:	236	µm	Flowmeter: TSK 7129
mini Bongo/~~SCOR #2~~	Frame Size:	30	cm	Mesh:	64	µm	Flowmeter: 5333
_____	Frame Size:	_____	cm	Mesh:	_____	µm	Flowmeter: _____
_____	Frame Size:	_____	cm	Mesh:	_____	µm	Flowmeter: _____

Multinet ☒ BIONESS ☐ Neuston ☐ Others:
250µm nets

_____

_____

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:

UVP = Underwater Vision Profiler ("e-Bongo")