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

These pages are to be

Data logging computer: WP Mini #102

Data acquisition program: Seasave

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

Primary CTD

Make: model: serial number: _____

Primary temperature serial number: 4700

Primary conductivity serial number: 31

Secondary temperature serial number: 4888

Secondary conductivity serial number: 451

Transmissometer: Wetlabs Model: C-Star serial 1185DR

Transmissometer: Wetlabs Model: C-Star serial 1883DG

Fluorometer: Model oint 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: serial: **Surface PAR?** (Y) N

Other sensors: Altimeter serial: 76341 **P**, **S** or **NO** pump?

Other sensors: SPAR 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)

> 100 m 30 s soak
< 100 m 60 s soak

check middle error count

30 s 10 m
30 s soak

+3 m depth

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page _____ of _____

Month	OCT	Year	2021	Vessel	TULLY	Cruise ID	2021-022

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	6	02:03	BE	ROS	US	48°39.020	123°30.050	187		1 - 4	4	RC	☑ ☐	
			02:08	BO			°39.020	°30.040		100	-			☐ ☐	
			02:15	EN			°39.010	°30.030			-			☐ ☐	
2	58	6	04:07	BE	ROS		48°42.980	123°14.660	335		-		RC	☑ ☐	rosette cleaned
			04:14	BO			°42.930	°14.750		327	-			☐ ☐	surface on recovery
			04:20	EN			°42.870	°14.840			-			☐ ☐	
3	58	6	04:21	DE	DRF		48°42.870	123°14.840			-		MB	☐ ☐	1326
4	58	6	04:21	DE	DRF		48°42.870	123°14.840			-		MB	☐ ☐	1327
5	59	6	05:01	BE	NET		48°37.694	123°14.421	235		-		KY	☐ ☐	
			05:09	BO			°37.555	°14.335		225	-			☐ ☐	
			05:14	EN			°37.447	°14.274			-			☐ ☐	
6	59	6	05:32	BE	ROS	US	48°37.788	123°14.434	237		5 - 19	15	RC	☑ ☐	
			05:36	BO			°37.730	°14.320		233	-			☐ ☐	
			05:55	EN			°37.466	°13.942			-			☐ ☐	
7	60	6	06:44	BE	ROS		48°33.563	123°12.546	285		-		RC	☑ ☐	
			06:49	BO			°33.450	°12.500		284	-			☐ ☐	
			06:54	EN			°33.440	°12.430			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

Event Type:
BOT = Bottle cast (no CTD)
CTD = Standalone CTD
ROS = CTD in Rosette
SET = Fish Set
LOOP = Sea Water Loop
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NET = Plankton Net Haul
DRF = Drifter
____ = _____

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US = Up / Stop (default)
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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

depart 18:25 local time, diminishing wind.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month OCT **Year** 2021 **Vessel** TULLY I **Cruise ID** 2021-022

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
8	101	6	14:04	BE	ROS	/	48° 25.470	124° 45.090	239		-	/	SR	☑ ☐	
			14:09	BO			° 25.500	° 45.180		241	-			☐ ☐	
			14:15	EN			° 25.550	° 45.220			-			☐ ☐	
9	102	6	15:02	BE	ROS	US	48° 29.980	124° 44.260	258		20 - 34	15	SR	☑ ☐	
			15:07	BO			° 30.010	° 44.350		254	-			☐ ☐	
			15:32	EN			° 30.060	° 44.690			-			☐ ☐	
10	103	6	16:23	BE	ROS	/	48° 33.040	124° 43.050	120		/	/	SR	☑ ☐	
			16:25	BO			° 33.050	° 43.070		117	-			☐ ☐	
			16:27	EN			° 33.060	° 43.080			-			☐ ☐	
11	76	6	17:44	BE	ROS	/	48° 31.410	124° 30.060	90		/	/	SR	☑ ☐	
			17:45	BO			° 31.400	° 30.090		88	-			☐ ☐	
			17:47	EN			° 31.390	° 30.120			-			☐ ☐	
12	75	6	18:22	BE	ROS	US	48° 28.190	124° 32.840	228		35 - 48	14	SR	☐ ☐	
			18:26	BO			° 28.180	° 32.870		223	-			☐ ☐	
			18:53	EN			° 28.207	° 32.918			-			☐ ☐	
13	74	6	19:31	BE	ROS	/	48° 25.082	124° 35.448	190		-		R	☑ ☐	
			19:34	BO			° 25.062	° 35.393		189	-			☐ ☐	
			19:38	EN			° 25.037	° 35.323			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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Notes: _____

offset

par ↑ values changed - see Scott

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month OCT | **Year** 2021 | **Vessel** TULLY | **Cruise ID** 2021-022

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
14	73	6	22:43	BE	ROS	/	48 ° 14 .983	124 ° 06 .607	162		-	/	RC	☑ ☐	Oxy 1 @ 90 mm
			22:45	BO			° 14 .983	° 06 .527		159	-			☐ ☐	
			22:48	EN			° 14 .972	° 06 .456			-			☐ ☐	
15	72	6	23:24	BE	NET	-	48 ° 18 .552	124 ° 04 .082	188		-	/	KY	☐ ☐	
			23:30	BO			° 18 .543	° 04 .134		178	-			☐ ☐	
			23:33	EN			° 18 .519	° 04 .127			-			☐ ☐	
16	72	6	23:43	BE	ROS	US	48 ° 18 .430	124 ° 04 .020	188		49 - 62	14	RC	☑ ☐	min oxy
			23:47	BO			° 18 .440	° 04 .030		186	-			☐ ☐	
			00:02	EN			° 18 .410	° 04 .010			-			☐ ☐	
17	72	7	00:09	DE	DRF		48 ° 18 .410	124 ° 04 .010			-		MB	☐ ☐	1324
18	72	7	00:09	DE	DRF		48 ° 18 .410	124 ° 04 .010			-		MB	☐ ☐	1331
19	71	7	00:53	BE	ROS	/	48 ° 22 .170	123 ° 59 .270	111		-	/	RC	☑ ☐	min oxy 1.1
			00:55	BO			° 22 .160	° 59 .261		106	-			☐ ☐	
			00:56	EN			° 22 .158	° 59 .248			-			☐ ☐	
20	70	7	02:20	BE	ROS	/	48 ° 19 .230	123 ° 42 .260	151		-	/	RC	☑ ☐	
			02:23	BO			° 19 .230	° 43 .300			-			☐ ☐	
			02:26	EN			° 19 .260	° 43 .340			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

fire and boat exercise 13:15 - 14:10 local time

Inflate 1324, ~~1328~~ 1331

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month OCT **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-027

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
21	69	7	03:03	BE	ROS	US	48 ° 15.660	123 ° 43.410	180		63 - 74	12	R	☑ ☐	
			03:06	BO			° 15.670	° 43.540			-			☐ ☐	
			03:23	EN			° 15.630	° 44.170			-			☐ ☐	
22	69	7	03:27	DE	DRF		48 ° 15.600	123 ° 44.150			-			☐ ☐	1314
23	69	7	03:27	DE	DRF		48 ° 15.600	123 ° 44.150			-			☐ ☐	1317
24	68	7	04:06	BE	ROS	/	48 ° 12.325	123 ° 43.441	140		-	/	R	☑ ☐	
			04:09	BO			° 12.343	° 43.548		136	-			☐ ☐	
			04:11	EN			° 12.358	° 43.637			-			☐ ☐	
25	105	7	06:42	BE	ROS	/	48 ° 11.029	123 ° 19.205	88		-	/	R	☑ ☐	
			06:44	BO			° 11.040	° 19.266		85	-			☐ ☐	
			06:46	EN			° 11.038	° 19.286			-			☐ ☐	
26	ADCP	7	07:21	BE	ROS	US	48 ° 13.920	123 ° 17.960	117		75 - 84	10	SR	☐ ☐	Con file was
			07:24	BO			° 13.930	° 17.980			-			☐ ☐	wrong 10x gain
			07:40	EN			° 14.030	° 18.000			-			☐ ☐	setting with 3x cable
27	104	7	08:57	BE	ROS	/	48 ° 20.030	123 ° 17.930	85		/	/	SR	☑ ☐	
			08:58	BO			° 20.030	° 17.920		81	-			☐ ☐	
			09:00	EN			° 20.030	° 17.900			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 17 Feb 2020

Drifters activated at 0237, deployed at 0327

Up until and including ADCP, the gain cable was a 3x and the con file was set to 10x. The con file now calls for a 3x cable. SR

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Oct | **Year** 2021 | **Vessel** Tully | **Cruise ID** 2021-022

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
28	67	7	09:32	BE	ROS	/	48° 22.642	123° 17.854	118		/	/	SR	☑☐	Stopped @ 82 m
			09:36	BO			°22.675	° 17.689		115	-			☐☐	to correct wire
			09:37	EN			°22.691	° 17.586			-			☐☐	angle
29	66	7	10:16	BE	ROS	/	48° 19.360	123° 14.000	103		-	/	SR	☑☐	
			10:18	BO			°19.370	° 13.950		98	-			☐☐	
			10:20	EN			°19.380	° 13.910			-			☐☐	
30	66	7	10:27	DE	DRF	/	°19.324	° 13.607	102	0	-		SR	☐☐	1312, 1328
31	65	7	11:02	BE	ROS	US	48° 15.822	123° 9.997	130		85-94	10	SR	☑☐	
			11:05	BO			°15.827	° 9.940		127	-			☐☐	
			11:21	EN			°15.887	° 9.572			-			☐☐	
32	64	7	11:57	BE	ROS	/	48° 12.920	123° 5.710	103		/	/	SR	☑☐	
			11:59	BO			°12.930	° 5.680		98	-			☐☐	
			12:01	EN			°12.940	° 5.640			-			☐☐	
33	63	7	12:42	BE	NET		48° 14.579	122° 58.552	155		-		N2	☐☐	
			12:46	BO			° 14.603	° 58.648		144	-			☐☐	
			12:49	EN			° 14.627	° 58.726			-			☐☐	
34	63	7	13:02	BE	ROS		48° 14.780	122° 58.840	152		95-98	4	SR	☑☐	
			13:05	BO			°14.790	°58.840			-			☐☐	
			13:13	EN			°14.810	°58.820			-			☐☐	

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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 October **Year** 2021 **Vessel** Tully **Cruise ID** 2021-022

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
35	61	7	15:12	BE	ROS	/	48° 29.150	123° 9.450	278		/	/	SR	☑☐	
			15:17	BO			° 29.160	° 9.470		271	-			☐☐	
			15:21	EN			° 29.170	° 9.490			-			☐☐	
36	62	7	16:21	BE	ROS	US	48° 22.730	123° 2.670	148		99 - 109	11	KS	☑☐	
			16:21	BO			° 22.720	° 2.690		146	-			☐☐	
			16:43	EN			° 22.590	° 2.800			-			☐☐	
37	54	7	19:13	BE	ROS	/	48° 26.520	122° 44.420	80		-		R	☑☐	
			19:14	BO			° 26.490	° 44.430		76	-			☐☐	
			19:16	EN			° 26.470	° 44.430			-			☐☐	
38	53	7	20:11	BE	ROS	-	48° 33.168	122° 44.960	61		-	—	KY	☑☐	x wrong bottom depth in header
			20:12	BO			48° 33.163	122° 44.954		55	-			☐☐	
			20:13	EN			48° 33.154	122° 44.945			-			☐☐	
39	52	7	20:59	BE	ROS	—	48° 38.826	122° 43.246	84		-	—	KY	☑☐	
			21:00	BO			48° 38.812	122° 43.241		77	-			☐☐	
			21:02	EN			48° 38.800	122° 43.241			-			☐☐	
40	51	7	22:13	BE	ROS	-	48° 46.700	122° 51.515	160		-		MB	☑☐	
			22:17	BO			48° 46.703	122° 51.430		153	-			☐☐	
			22:20	EN			48° 46.686	122° 51.395			-			☐☐	
			:				° .	° .			-				

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month OCT **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-022

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
41	57	7	23:38	BE	ROS	—	48° 44.040	123° 08.130	165		-		MB	☑ ☐	Archiving started during SOAK
			23:40	BO			49° 44.070	123° 08.000		150	-			☐ ☐	
			23:44	EN			48° 44.090	123° 07.910			-			☐ ☐	
42	56	8	00:36	BE	ROS	US	48° 46.472	123° 01.550	213		110 - 123	14	RC	☑ ☐	
			0:40	BO			48° 46.525	123° 01.476		203	-			☐ ☐	
			0:58	EN			48° 46.654	123° 0.889			-			☐ ☐	
43	56	8	01:02	DE	DRF		48° 46.661	123° 0.823	190		-	—	MB	☐ ☐	1330
44	56	8	01:02	DE	DRF		48° 46.661	123° 0.823	"		-	—	MB	☐ ☐	1329
45	47	8	01:46	BE	ROS	/	48° 49.270	123° 06.150	185		-	/	RC	☑ ☐	
			01:49	BO			°49.260	°06.110		181	-			☐ ☐	
			01:52	EN			°49.250	°06.090			-			☐ ☐	
46	48	8	02:27	BE	ROS	/	48° 51.600	123° 03.210	219		-			☑ ☐	SST 11°C
			02:30	BO			°51.580	°03.230			-			☐ ☐	
			02:34	EN			°51.530	°03.240			-			☐ ☐	
47	49	8	03:17	BE	ROS	/	48° 54.929	122° 59.641	134		-	/	RC	☑ ☐	air temp 9°C
			03:19	BO			°54.917	°59.642		131	-			☐ ☐	
			03:22	EN			°54.899	°59.636			-			☐ ☐	
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month OCT **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-022

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
48	44	8	04:11	BE	ROS	/	48 ° 56.640	123 ° 05.910	121		-	/	RC	☑ ☐	
			04:13	BO			° 56.600	° 05.870		116	-			☐ ☐	
			04:16	EN			° 56.560	° 05.840			-			☐ ☐	
49	45	8	4:44	BE	ROS	/	48° 53.870	123° 08.390	128		-	/	MB	☑ ☐	
			4:47	BO			48° 53.810	123° 08.370		125	-			☐ ☐	
			4:50	EN			48° 53.760	123° 08.340			-			☐ ☐	
50	46	8	05:17	BE	NET	/	48 ° 51.427	123 ° 10.742	175		-	/	KY	☐ ☐	not do-over
			:	BO			° .	° .		165	-			☐ ☐	
			05:40	EN			° 51.396	° 10.809			-			☐ ☐	
51	46	8	05:48	BE	NET	/	48 ° 51.392	123 ° 10.793	175		[illegible]	12	KY	☐ ☐	
			05:53	BO			° 51.333	° 10.652		165	-			☐ ☐	
			05:56	EN			° 51.327	° 10.577			-			☐ ☐	
52	46	8	06:10	BE	ROS	US	48 ° 51.324	123 ° 10.667	179		124 - 135	12	RC	☑ ☐	
			06:14	BO			° 51.320	° 10.584		175	-			☐ ☐	
			06:34	EN			° 51.284	° 10.129			-			☐ ☐	
53	109	8	07:55	BE	ROS	/	48 ° 56.436	123 ° 21.656	194		/	/	SR	☑ ☐	
			07:59	BO			° 56.446	° 21.643		190	-			☐ ☐	
			08:02	EN			° 56.455	° 21.634			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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DRF = Drifter
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Bottle Firing Method:
US = Up / Stop (default)
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Notes: _____

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Produced by the Water Properties Group, IOS

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Version: 17 Feb 2020

This page is for any notes or observations

265 m of line rather than 165 m line paid out, not sitting on bottom, recovered and mud cleared, re-do not

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Tully **Cruise ID** 2021-022

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	43	8	08:57	BE	ROS	/	49°00.160	123°30.110	195		-	/	SR	☑☐	
			09:01	BO			°00.160	°30.110		188	-			☐☐	
			09:04	EN			°00.160	°30.120			-			☐☐	
55	42	8	09:35	BE	NET		49°01.799	123°26.657	322		-		N2	☐☐	
			09:44	BO			°01.796	°26.680		312	-			☐☐	
			09:49	EN			°01.802	°26.689			-			☐☐	
56	42	8	10:02	BE	ROS	US	49°01.810	123°26.670			136 - 152	17	SR	☑☐	
			10:08	BO			°01.810	°26.700			-			☐☐	
			10:33	EN			°01.820	°26.710			-			☐☐	
57	41	8	11:19	BE	ROS	/	49°03.250	123°22.260	237		-	/		☐☐	
			11:24	BO			°3.250	°22.220		235	-			☐☐	
			11:28	EN			°3.250	°22.220			-			☐☐	
58	41	8	11:34	DE	DRF		49°3.373	123°22.180	231	0	-		SR	☐☐	Drifters 1320+1325
59	37	8	12:50	BE	ROS	/	49°13.640	123°20.740	217		-	/	SR	☑☐	
			12:54	BO			°13.650	°20.720		212	-			☐☐	
			12:58	EN			°13.650	°20.710			-			☐☐	
60	38	8	13:37	BE	ROS	/	49°12.070	123°26.310	309		-	/	SR	☑☐	
			13:42	BO			°12.080	°26.310		306	-			☐☐	
			13:48	EN			°12.050	°26.330			-			☐☐	

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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 October **Year** 2021 **Vessel** Tully **Cruise ID** 2021-022

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
61	38	8	13:54	BE	NET		49 °12.011	123 °26.394	310		-		N2	☐☐	
			14:02	BO			°11.937	°26.439		300	-			☐☐	
			14:07	EN			°11.886	°26.446			-			☐☐	
62	38	8	14:18	BE	DRF		49° 11.764	123° 26.641			-		KS	☐☐	1322, 1323
63	39	8	15:02	BE	ROS	US	49° 9.799	123° 32.806	375		153-168	16	SR	☑☐	
			15:10	BO			° 9.809	° 32.788		371	-			☐☐	Bot1@ 371db
			15:37	EN			° 9.808	° 32.704			-			☐☐	No Rosette sheet
64	40	8	16:15	BE	ROS	/	49 ° 8.610	123 ° 36.650	154		-	/	SR	☑☐	
			16:18	BO			° 8.610	° 36.660		149	-			☐☐	
			16:20	EN			° 8.610	° 36.660			-			☐☐	
65	40	8	16:27	BE	NET		49 ° 8.565	123 ° 36.652	160		-		N2	☐☐	
			16:32	BO			° 8.532	° 36.651		150	-			☐☐	
			16:35	EN			° 8.520	° 36.651			-			☐☐	
66	GEO1	8	17:45	BE	NET		49 ° 14.921	123 ° 44.744	402		-		N2	☐☐	
			17:57	BO			° 14.799	° 44.663		390	-			☐☐	
			18:04	EN			° 14.751	° 44.609			-			☐☐	
67	GEO1	8	18:14	BE	ROS	US	49° 14.690	123° 44.630	402		170-173	/	SR	☑☐	
			18:20	BO			° 14.660	° 44.620			-			☐☐	
			18:33	EN			° 14.630	° 44.530			-			☐☐	

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Notes: _____

Produced by the Water Properties Group, IOS

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DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Tully **Cruise ID** 2021-022

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
68	26	8	19:12	BE	ROS	/	49 ° 14 . 287	123 ° 50 . 744	246		-	/		☑ ☐	256 depth at
			19:17	BO			° 14 . 296	° 50 . 681		254	-			☐ ☐	bottom of cast
			19:21	EN			° 14 . 296	° 50 . 636			-			☐ ☐	gradient @ 75m
69	265	8	19:49	BE	ROS	/	49 ° 16 . 757	123 ° 49 . 432	409		-	/		☑ ☐	
			19:56	BO			° 16 . 748	° 49 . 351		407	-			☐ ☐	
			20:03	EN			° 16 . 741	° 49 . 291			-			☐ ☐	
70	27	8	20:32	BE	ROS	US	49 ° 19 . 090	123 ° 47 . 990	346		174-189	16		☑ ☐	343 @ bottom
			20:38	BO			49 ° 19 . 090	° 47 . 970		340	-			☐ ☐	
			21:03	EN			° 19 . 030	° 47 . 820			-			☐ ☐	
71	275	8	21:42	BE	ROS	/	49 ° 21 . 810	123 ° 46 . 760	126		-			☑ ☐	gradient @ 30m
			21:45	BO			° 21 . 810	° 46 . 750		122	-	/		☐ ☐	
			21:47	EN			° 21 . 810	° 46 . 760			-			☐ ☐	
72	28	8	22:15	BE	NET	/	49 ° 24 . 118	123 ° 45 . 379	134		-	/		☐ ☐	
			22:19	BO			° 24 . 115	° 45 . 342		124	-			☐ ☐	
			22:21	EN			° 24 . 114	° 45 . 323			-			☐ ☐	
73	28	8	22:33	BE	ROS	/	49 ° 24 . 170	123 ° 45 . 330	134		-	/		☑ ☐	
			22:35	BO			° 24 . 170	° 45 . 340		131	-			☐ ☐	
			22:37	EN			° 24 . 180	° 45 . 350			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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Notes: _____

Tully responded to SAR call out - Kayaker - boat away ~1410
did not lose science time from program

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month OCT **Year** 2021 **Vessel** TULLY **Cruise ID** 2012-022

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
74	24	9	00:21	BE	NET	/	49°30.288	124°06.079	427		-		KY	☐☐	
			00:36	BO			°30.254	°06.176		417	-			☐☐	
			00:44	EN			°30.221	°06.240			-			☐☐	
75	24	9	01:01	BE	ROS	US	49°30.320	124°05.929	427		190-193	4	MB	☑☐	
			01:09	BO			49°30.318	124°05.928		423	-			☐☐	
			01:22	EN			49°30.281	124°05.963			-			☐☐	
76	25	9	01:54	BE	ROS	/	49°27.710	124°07.450	294		-	/	R	☑☐	
			01:59	BO			°27.710	°07.440		289	-			☐☐	
			02:04	EN			°27.720	°07.430			-			☐☐	
77	2	9	02:40	BE	ROS	US	49°24.110	124°09.270	278		194-208	15	R	☑☐	
			02:46	BO			°24.120	°09.250		276	-			☐☐	
			03:08	EN			°24.120	°09.220			-			☐☐	
78	CPF1	9	03:45	BE	NET	/	49°22.066	124°05.058	245		-		KY	☐☐	
			03:52	BO			°22.046	°05.013		235	-			☐☐	
			03:56	EN			°22.036	°04.991			-			☐☐	
79	CPF1	9	04:07	BE	ROS	US	49°22.030	124°04.930	245		209-212	4	R	☑☐	
			04:11	BO			°22.050	°04.920		242	-			☐☐	
			04:20	EN			°22.080	°04.870			-			☐☐	
80	CPF1	9	04:23	DE	DRF		49°22.102	124°04.874			-		MB	☐☐	1313 1321

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Notes: _____

- dd computer went through spontaneous restart
  seasave started and files set to 2021-022
  header set to 2021-022
  used default cnv file 443 Oct 2021 Tully main

after event 79
switched cnvfile to 443 Oct 2021 Tully main fixed PAR and gain cable 3x

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month OCT **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-022

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
81	1	9	05:11	BE	ROS	/	49 ° 20.350	124 ° 12.090	250		-	/	RE	☑☐	
			05:16	BO			° 20.370	° 12.070		248	-			☐☐	
			05:20	EN			° 20.390	° 12.040			-			☐☐	
82	4	9	06:25	BE	ROS	/	49 ° 24.470	124 ° 22.080	340		-	/	RE	☑☐	
			06:31	BO			° 24.460	° 22.060		337	-			☐☐	
			06:37	EN			° 24.440	° 22.030			-			☐☐	
83	3	9	07:08	BE			49 ° 26.590	124 ° 20.220	325		213 -228	16	SR	☑☐	
			07:14	BO			° 26.560	° 20.260		321	-			☐☐	
			07:39	EN			° 26.560	° 20.420			-			☐☐	
84	CPF2	9	08:34	BE	ROS		49 ° 28.010	124 ° 29.910	325		-		SR	☑☐	
			08:39	BO			° 28.000	° 29.890		321	-			☐☐	
			08:44	EN			° 27.990	° 29.870			-			☐☐	
85	CPF2	9	08:51	BE	NET		49 ° 27.932	124 ° 29.755	325		-		N2	☐☐	
			09:01	BO			° 27.864	° 29.622		315	-			☐☐	
			09:06	EN			° 27.824	° 29.540			-			☐☐	
86	6	9	09:42	BE	ROS	US	49 ° 30.540	124 ° 27.868	190		229-241	13	SR	☑☐	
			09:45	BO			° 30.522	° 27.856			-			☐☐	
			10:05	EN			° 30.590	° 27.860			-			☐☐	
			:				° .	° .			-			☐☐	

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notice considerable floating vegetation - perhaps tide line / convergence line of floating eel grass type plants

DAILY SCIENCE LOG

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Month October **Year** 2021 **Vessel** Tully **Cruise ID** 2021-022

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87	7	9	10:46	BE	ROS	/	49° 34.400	124° 24.290	348		/	/	SR	☑ ☐	
			10:52	BO			°34.420	°24.260		345	-			☐ ☐	
			10:58	EN			°34.430	°24.220			-			☐ ☐	
88	8	9	11:55	BE	ROS	/	49° 39.293	124° 32.928	335		-	/	SR	☑ ☐	
			12:01	BO			°39.305	°32.886		333	-			☐ ☐	
			12:07	EN			°39.317	°32.884			-			☐ ☐	
89	9	9	12:54	BE	ROS	US	49° 35.550	124° 38.290	169		242-253	12	SR	☑ ☐	
			12:58	BO			°35.550	°38.250		166	-			☐ ☐	
			13:16	EN			°35.580	°38.180			-			☐ ☐	
90	9	9	13:23	DE	DRF		49° 35.506	124° 38.304	169	0	-			☐ ☐	1316 + 1318
91	10	9	14:20	BE	ROS	/	49° 40.705	124° 47.293	98		/	/	SR	☑ ☐	
			14:22	BO			°40.690	°47.297		91	-			☐ ☐	
			14:24	EN			°40.684	°47.306			-			☐ ☐	
92	11	9	14:55	BE	ROS	/	49° 42.370	124° 43.550	297		/	/	SR	☑ ☐	
			15:01	BO			°42.370	°43.550		293	-			☐ ☐	
			15:05	EN			°42.370	°43.550			-			☐ ☐	
93	12	9	15:30	BE	NET		49° 43.637	124° 41.063	355		-		N^2	☐ ☐	
			15:40	BO			°43.579	°41.042		345	-			☐ ☐	
			15:47	EN			°43.533	°41.008			-			☐ ☐	

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94	12	9	15:56	BE	ROS	US	49° 43.560	124° 40.940	355		254-~~270~~ 269	16	SR	☑ ☐	
			16:03	BO			°43.560	°40.920						☐ ☐	
			16:29	EN			°43.640	°40.850			-			☐ ☐	
95	12	9	16:30	BE, BO+EN	ROS	US	49° 43.640	124° 40.850	355	3	270-270	1		☐ ☐	Just to close
96	13	9	18:11	BE			49° 55.280	124° 55.130	243		-			☐ ☐	bottle 17 for
			18:16	BO			°55.290	°55.160		237	-			☐ ☐	station 92
			18:20	EN			°55.310	°55.170			-			☐ ☐	Event 94
97	14	9	18:57	BE	NET	✓	49° 53.018	124° 59.608	315		-	✓	KY	☐ ☐	
			19:07	BO			°53.003	°59.551		305	-			☐ ☐	
			19:14	EN			°52.994	°59.531			-			☐ ☐	
98	14	9	19:25	BE	ROS	US	49° 52.980	124° 59.490	315		271-286	16	PC	☑ ☐	
			19:31	BO			°52.990	°59.480			-			☐ ☐	
			19:52	EN			°53.000	°59.530			-			☐ ☐	
99	15	9	20:18	BE	ROS	✓	49° 51.610	125° 01.600	128		-	✓	R	☐ ☐	
			20:21	BO			°51.610	°01.620		122	-			☐ ☐	
			20:23	EN			°51.610	°01.620			-			☐ ☐	
100	QU39	9	22:18	BE	NET	✓	50° 01.841	125° 05.935	273		-	✓	KY	☐ ☐	Winds +30 knts
			22:27	BO			°01.822	°05.886		263	-			☐ ☐	
			22:32	EN			°01.818	°05.926			-			☐ ☐	

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. wind gusting to +40 kts from SE

DAILY SCIENCE LOG

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Month OCT **Year** 2021 **Vessel** TULLY **Cruise ID** 2021-022

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101	QU39	9	22:42	BE	ROS	US	50° 01.852	125° 05.950	274		298-301	4	PC	☑ ☐	
			22:47	BO			°01.860	°05.950		267	-			☐ ☐	stormy
			22:56	EN			°01.925	°06.044			-			☐ ☐	gusting to 40 kts
102	16	10	03:26	BE	ROS	US	49° 57.550	125° 08.755	160		287-297	11	PC	☑ ☐	descent slowed
			03:29	BO			°57.518	°08.772		153	-			☐ ☐	@ 100m - large
			03:44	EN			°57.450	°08.550			-			☐ ☐	lead off - resumed
103	17	10	04:14	BE	ROS	/	49° 58.770	125° 04.430	268		-	/	PC	☑ ☐	stormy
			04:20	BO			°58.750	°04.390		267	-			☐ ☐	35 kt + winds
			04:24	EN			°58.770	°04.340			-			☐ ☐	
104	17	10	04:29	DE	DRF		49° 58.717	125° 04.283			-			☐ ☐	1319 1315
105	18	10	05:05	BE	ROS	/	49° 59.100	124° 59.110	148		-	/	PC	☑ ☐	
			05:07	BO			°59.100	°59.160		144	-			☐ ☐	
			05:10	EN			°59.100	°59.180			-			☐ ☐	
106	19	10	05:32	BE	ROS	/	50° 01.276	124° 52.861	289		-	/	PC	☑ ☐	dn WL 297
			05:57	BO			°01.303	°52.836		293	-			☐ ☐	at bottom of cast
			06:02	EN			°01.294	°52.847			-			☐ ☐	
107	20	10	08:06	BE	ROS	/	49° 47.320	124° 32.360	279		/	/	SR	☑ ☐	
			08:11	BO			°47.310	°32.340		280	-			☐ ☐	
			08:16	EN			°47.310	°32.350			-			☐ ☐	

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: _____

proceed to stn 16, reverse course to pick up FRC from Hoskyns Channel, reverse course to respond to SAR off Oyster River, reverse course to pick up FRC @ Hoskin proceed to stn 16

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month October **Year** 2021 **Vessel** Tully **Cruise ID** 2021-022

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
108	22	10	09:42	BE	NET		49 ° 40.426	124 ° 16.550	359		-		N2	☐☐	
			09:54	BO			° 40.552	° 16.733		349	-			☐☐	
			10:00	EN			° 40.578	° 16.775			-			☐☐	
109	22	10	10:23	BE	ROS	US	49 ° 40.387	124 ° 16.613	362		302 - 305	4	SR	☑☐	
			10:29	BO			° 40.367	° 16.758		367	-			☐☐	
			10:41	EN			° 40.435	° 16.969			-			☐☐	
110	G101	10	19:45	BE	NET	/	48 ° 45.853	123 ° 20.533	66		-	/	KY	☐☐	
			19:47	BO			° 45.851	° 20.518		56	-			☐☐	
			19:48	EN			° 45.848	° 20.514			-			☐☐	
111	G101	10	19:59	BE	ROS	/	48 ° 45.806	123 ° 20.507	66		-	/	PC	☑☐	
			20:00	BO			° 45.786	° 20.502		64	-			☐☐	
			20:01	EN			° 47.780	° 20.501			-			☐☐	
112	SC04	10	20:32	BE	NET	/	48 ° 43.496	123 ° 24.897	90		-		KY	☐☐	
			20:36	BO			° 43.497	° 24.896		80	-			☐☐	
			20:37	EN			° 43.497	° 24.881			-			☐☐	
113	SC04	10	20:47	BE	ROS	US	48 ° 43.530	123 ° 24.950	94		306 - 309	4	PC	☐☐	Nagged fluorescence signal
			20:49	BO			° 43.530	° 24.940		90	-			☐☐	
			20:55	EN			° 43.540	° 24.880			-			☐☐	
			:				° .	° .			-			☐☐	

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Notes: _____

stations complete @ 2055 10 Oct 2021

proceed to 105