

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

2020-047

DATE:

From:

17 Feb 2020

To:

21 Feb 2020

VESSEL:

Neocaligus

PROJECT(S):

SOG zooplankton

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

WaterProperties.ca

**** 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: Notebook #10

Data acquisition program: Seaterm

CTD deck unit make: ~~SBE~~ model: ~~25~~ serial number: ~~0456~~

Primary CTD

Make: SBE model: 25 serial number: 0456

Primary temperature serial number: 5130

Primary conductivity serial number: 3500

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: _____ Model: _____ s/n: _____

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model FCO Cable gain: 25 s/n: 4185 P, S or NO pump?

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

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

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

Other sensors: _____ s/n: _____ P, S or NO pump?

Other sensors: SBE 29 Pressure s/n: 0573 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): 1 m

This also includes the bottle location above the CTD on non-rossette casts (e.g., W.E. Ricker)

Rosette Setup:

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

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): _____
Fluorometer sensor serial number: _____

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

ADCP Setup:

Computer time zone: _____ User Exits: Name: _____ Exit points: _____
Sampling interval (sec): _____ Name: _____ Exit points: _____
Bin Length: (2^x): _____ Name: _____ Exit points: _____
Pulse Length: _____ Work File: _____
Buffer (bytes): _____
Gyro Offset: _____

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

CTD Test Cast Information

Test Cast along side? Yes ☒ No ☐

Comments *test casts x 3 Feb 14th in Saanich Inlet pre-trip (test 1 -> 3 files)*

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:

SCAR

Frame Size: 56 cm

Mesh: 236 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.

SoG Zooplankton Survey

CTD casts: 2 min startup $\rightarrow$ switch on + start timer, go to 10m and wait $\sim$ 1 min
return to surface + wait until 2 min is up, start cast

Surface bottles done on opposite side of vessel with Niskin on a pike pole, usually
(5L)
during the CTD cast.

Akash's dilution experiment: 3×5 L collected from 5m, mixed + filtered. 5×2 L surface
collected for sample to dilute. 4L cubetainer, 100%, 75, 50, 25, 10% dilutions
48 hr incubation. Incubated in overflowing cooler (filled with ship's seawater hose)
on back deck in unshaded location (forward of rot drum) continuously running
Done at GEO1

Net casts with SCOR (56cm) 236 μ m black mesh, to 10m off bottom. Preserved in formalin 10%

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Month <u>Feb</u>			Year <u>2020</u>			Vessel <u>Neocaligus</u>			Cruise ID <u>2020-047</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
							Latitude	Longitude							
1	GEO1	17	21:00	BE	CTD		49° 15.011	123° 45.381	406		-		KY/AS	☐ ☐	No data →
			21:10	BO			° 14.975	° 45.190		396	-			☐ ☐	
			21:10	EN			° 14.945	° 45.028			-			☐ ☐	
3	GEO1	17	21:10	MR	BOT		° 14.975	° 45.190		389	-	1		☐ ☐	did not trip
2	GEO1	17	21:05	MR	BOT		49° 15.004	123° 45.291	406	0	- 2	1	AS	☐ ☐	HPLC + chla + nut
4	GEO1	17	21:24	BE	NET		49° 15.014	123° 45.390	406		-		KY	☐ ☐	
			21:34	BO			49° 14.993	123° 45.220		396	-			☐ ☐	
			:41	EN			49° 14.981	123° 45.113			-			☐ ☐	
5	GEO1	17	21:56	MR	BOT		49° 15.008	123° 45.383	400	0	-		AS	☐ ☐	dilution exp
6	GEO1	17	22:34	BE	CTD		49° 14.992	123° 45.360	406		-		KY	☐ ☐	returned for
			22:42	BO			49° 14.949	123° 45.204		396	-			☐ ☐	2 nd CTD →
			22:48	EO			49° 14.893	123° 45.064			-			☐ ☐	
7	3	18	15:29	BE	CTD		49° 26.636	124° 20.209	323		-		KY/AS	☐ ☐	
			15:37	BO			49° 26.646	124° 20.109		313	-			☐ ☐	
			15:42	EN			49° 26.670	124° 20.018			-			☐ ☐	
8	3	18	15:31	MR	BOT		49° 26.636	124° 20.209	323	0	- 3	1	AS	☐ ☐	HPLC chla nuts
9	6	18	16:28	BE	CTD		49° 30.590	124° 27.779	193		-		KY	☐ ☐	cast 7
			16:34	BO			49° 30.560	124° 27.732		183	-			☐ ☐	
			16:37	EN			49° 30.545	124° 27.708			-			☐ ☐	

Event Type:

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

LOOP = Sea Water Loop
MOR = Mooring
NET = Plankton Net Haul
DRF = Drifter
=

Bottle Firing Method:

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

Notes:

Time Code:

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

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

DE = Deployment Time
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RE = Recover Mooring Time

Produced by the Water Properties Group, IOS

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switch not all the way on?

messenger got caught between bottle + wire

fluoro data very spiky @ depth. Sent ^{file} to Germaine → Also seen in oxy. Both happened ~ 60m on way down.
Akash collected another SL Niskin while CTD going down for his dilution exp. (8m)
Anchored off Lasqueti 18:00

On the water 7am. before 1st cast: (event 7)

Unplugged DO/fluoro connector @ CTD + checked for water - none? blew out w/ compressed air + re-connected

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10	6	18	16:31	MR	BOT		49° 30.574	124° 27.759	193	0	- 4	1	MS	☐ ☐	HAC chla net
11	CPF2	18	16:59	BE	CTD		49° 28.019	124° 29.996	328		-		KY	☐ ☒	cast 8
			17:06	BO			49° 27.970	124° 29.944		318	-			☐ ☐	
			17:12	EN			49° 27.935	124° 29.901			-			☐ ☐	
12	CPF2	18	17:15	BE	NET		49° 28.010	124° 30.013	328		-		KY	☐ ☐	
			17:22	BO			49° 27.976	124° 29.970		318	-			☐ ☐	
			:28	EN			° . 957	° . 950			-			☐ ☐	
13	BS-11	18	18:39	BE	CTD		49° 28.988	124° 45.982	61		-		KY	☐ ☒	cast 9
			:	BO			° .	° .		51	-			☐ ☐	
			18:43	EN			49° 28.991	124° 46.014			-			☐ ☐	
14	BS-11	18	18:40	MR	BOT		49° 28.987	124° 46.984	61	0	- 5	1	AS	☐ ☐	HAC chla net phyto
15	BS-11	18	18:45	BE	NET		49° 28.983	124° 46.011	60		-		KY	☐ ☐	
			18:46	BO			49° 28.985	124° 46.016		50	-			☐ ☐	
			18:47	EN			49° 28.986	124° 46.020			-			☐ ☐	
16	9	18	20:23	BE	CTD		49° 35.501	124° 38.328	170		-		KY	☐ ☒	cast 10
			20:28	BO			49° 35.491	124° 38.367		160	-			☐ ☐	
			20:30	EN			49° 35.501	124° 38.397			-			☐ ☐	
17	9	18	20:24	MR	BOT		49° 35.500	124° 38.325	170	0	- 6	1	AS	☐ ☐	HPLC chla net
			:				° .	° .			-			☐ ☐	

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

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18	11	18	21:18	BE	CTD		49°42.421	124°43.421	303		-		KY	☐ ☐	cast 11
			21:26	BO			49°42.389	124°43.381		293	-			☐ ☐	
			21:31	EN			49°42.365	124°43.391			-			☐ ☐	
19	11	18	21:33	BE	NET		49°42.428	124°43.431	303		-		AS	☐ ☐	Euphausiids
			21:39	BO			49°42.406	124°43.408		293	-			☐ ☐	
			21:45	EN			49°42.388	124°43.422			-			☐ ☐	
20	12	18	22:06	BE	CTD		49°43.601	124°40.797	357		- 7	1	KY	☐ ☐	Niskin 1m above CTD for SAL, nufs
			22:15	BO/MR			49°43.589	124°40.747		347	(346m)			☐ ☐	cast 12
			22:23	EN			49°43.551	124°40.730			-			☐ ☐	
21	12	18	22:07	MR	BOT		49°43.599	124°40.785	357	0	- 8	1	AS	☐ ☐	HPLC chl a phyto nufs
22	12	18	22:27	BE	NET		49°43.614	124°40.830	357		-		KY	☐ ☐	
			22:35	BO			49°43.608	124°40.799		347	-			☐ ☐	
			22:41	EN			49°43.625	124°40.753			-			☐ ☐	
23	20	18	23:44	BE	CTD		49°47.208	124°32.316	310		-		KY	☒ ☐	cast 13
			23:52	BO			49°47.178	124°32.261		300	-			☐ ☐	
			23:57	EN			49°47.131	124°32.255			-			☐ ☐	
24	22	19	01:15	BE	CTD		49°40.207	124°16.322	353		9 -	1		☐ ☐	cast 14
			01:24	BO/MR			49°40.109	124°16.274		343	-			☐ ☐	SAL, nufs
			01:31	EN			49°40.032	124°16.238			-			☐ ☐	

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After downloading, Fluoro/DO data looks spiky again @ depth (~150m?).
Re-checked connections on ~~all~~ sensors before station 22 - dried + silicon sprayed
DO + ¹ Wetlabs only

No data file for stn 22

Anchored in Malapina 6:45pm

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25	22	19	01:16	MR	BOT		49° 40.189	124° 16.311	353	0	- 10	1	AS	☐	HPLC chla net
26	22	19	01:35	BE	NET		49° 40.207	124° 16.315	353		-		KY	☐	
			01:43	BO			49° 40.136	124° 16.249		343	-			☐	
			01:	EN			49° 40.	124° 16.			-			☐	didn't get end time / pos
27	15-2	19	16:11	BE	CTD		49° 38.198	124° 05.026	28		-		KY	☒	cast 15
			16:14	BO			49° 38.177	124° 05.037		23	-			☐	
			16:14	EN			49° 38.175	124° 05.024			-			☐	
28	15-2	19	16:16	BE	NET		49° 38.189	124° 5.015	28		-		AS	☐	
			16:17	BO			49° 38.182	124° 5.017		23	-			☐	
			16:17	EN			49° 38.182	124° 5.018			-			☐	
29	24	19	17:11	BE	CTD		49° 30.308	124° 5.977	427		- 11	1	KY	☒	deep SAL + net
			17:21	BO/MR			49° 30.220	124° 5.964		417	-			☐	1m above CTD
			17:29	EN			49° 30.150	124° 5.965			-			☐	cast 16
30	24	19	17:31	BE	NET		49° 30.330	124° 5.998	427		-		AS	☐	
			17:44	BO			49° 30.269	124° 6.010		417	-			☐	
			17:51	EN			49° 30.231	124° 6.050			-			☐	
31	2	19	18:34	BE	CTD		49° 24.107	124° 9.306	280		-		KY	☒	cast 17
			18:42	BO			49° 24.068	124° 9.337		270	-			☐	
			18:47	EN			49° 24.038	124° 9.390			-			☐	

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On water 7am

Turned CTD on on deck to test switch - seems fine? (cast 14)

Brought CTD out of water briefly after 10m soak to check for fluoro light on - ✓

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							Latitude	Longitude							
32	2	19	18:37	MR	BOT		49° 24.098	124° 9.317	280	0	- 12	1	AS	☐ ☐	HAC chla phyto nuts
33	CPF1	19	19:13	BE	CTD		49° 21.987	124° 5.015	246		-		KY	☐ ☒	egg 18
			19:20	BO			49° 21.935	124° 5.030		236	-			☐ ☐	
			19:25	EN			49° 21.877	124° 5.062			-			☐ ☐	
34	CPF1	19	19:28	BE	NET		49° 21.998	124° 4.998	246		-		AS	☐ ☐	Euphausiids picked
			19:34	BO			49° 21.960	124° 4.996		236	-			☐ ☐	
			19:39	EN			49° 21.936	124° 4.995			-			☐ ☐	
35	28	19	21:06	BE	CTD		49° 24.115	123° 45.310	136		-		KY	☐ ☐	cast 19
			21:09	BO			49° 24.100	123° 45.329		126	-			☐ ☐	
			21:11	EN			49° 24.088	123° 45.351			-			☐ ☐	
36	28	19	21:07	MR	BOT		49° 24.109	123° 45.316	136	0	- 13		AS	☐ ☐	chla nuts
37	28	19	21:14	BE	NET		49° 24.107	123° 45.302	136		-		KY	☐ ☐	Euphausiids picked
			21:18	BO			49° 24.100	123° 45.303		126	-			☐ ☐	
			21:20	EN			49° 24.096	123° 45.336			-			☐ ☐	
38	27	19	21:59	BE	CTD		49° 19.113	123° 47.998	347		-		KY	☐ ☒	cast 20
			22:08	BO			49° 19.103	123° 48.023		337	-			☐ ☐	
			22:13	EN			49° 19.098	123° 47.975			-			☐ ☐	
39	27	19	22:01	MR	BOT		49° 19.108	123° 47.998	347	0	- 14	1	AS	☐ ☐	HAC chla nuts
			:				.	.			-			☐ ☐	phyto

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40	38	19	23:52	BE	CTD		49° 12.000	123° 26.392	309		-		KY	☒	cast 21
			00:00	BO			49° 11.967	123° 26.345		299	-			☐	
			0:05	EN			49° 11.989	123° 26.308			-			☐	
41	38	20	00:08	BE	NET		49° 11.997	123° 26.378	309		-		KY	☐	
			00:15	BO			49° 11.968	123° 26.331		299	-			☐	
			00:20	EN			49° 11.946	123° 26.296			-			☐	
42	39	20	00:56	BE	CTD		49° 9.799	123° 32.980	377		-		KY	☐	cast 22
			01:05	BO/MR			49° 9.775	123° 32.915		367	- 15	1		☐	SAL + nats
			01:13	EN			49° 9.675	123° 32.865			-			☐	1m above (pic)
43	39	20	00:58	MR	BOT		49° 9.783	123° 32.966	377	0	- 16	1	AS	☐	HPLC chla not
44	40	20	15:34	BE	CTD		49° 8.605	123° 36.789	152		-		KY	☒	cast 23 →
			15:39	BO			49° 8.593	123° 36.790		142	-			☐	
			15:41	EN			49° 8.580	123° 36.803			-			☐	
45	40	20	15:43	BE	NET		49° 8.575	123° 36.816	152		-		KY	☐	Euphausiids
			15:47	BO			49° 8.564	123° 36.840		142	-			☐	picked
			15:49	EN			49° 8.571	123° 36.823			-			☐	
46	108	20	17:06	BE	CTD		49° 4.401	123° 19.096	89		-		KY	☒	cast 24
			17:10	BO			49° 4.387	123° 19.137		79	-			☐	
			17:12	EN			49° 4.382	123° 19.180			-			☐	

Event Type:

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Bottle Firing Method:

US = Up / Stop (default)
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Notes:

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* Looks like DO sensor doesn't like coming out of water @ start, doesn't return to "normal" until almost 8-10m of downcast. May have to use part of upcast?
Only affects casts/event 31 → 42.

Anchored near Gabiola ~ 6pm
On the water 7am

→ No longer taking CTD out of water @ start to check if turned on.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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Month <u>Feb</u>			Year <u>2020</u>			Vessel <u>Neocaligus</u>			Cruise ID <u>2020-047</u>						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information		Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
47	41	20	17:27	BE	CTD		49° 03.294	123° 22.299	243		-		KY	☐ ☐	Cast 25
			17:34	BO			49° 3.299	123° 22.288		233	-			☐ ☐	
			17:38	EN			49° 3.285	123° 22.272			-			☐ ☐	
48	41	20	17:39	BE	NET		49° 3.271	123° 22.262	240		-		KY	☐ ☐	
			17:46	BO			49° 3.248	123° 22.236		230	-			☐ ☐	
			17:50	EN			49° 3.242	123° 22.223			-			☐ ☐	
49	42	20	18:12	BE	CTD		49° 1.801	123° 26.196	322		-		KY	☐ ☒	Cast 26
			18:19	BO/MR			49° 1.768	123° 26.056		312	- 17	1		☐ ☐	SAL + nuts
			18:27	EN			49° 1.740	123° 25.956			-			☐ ☐	1m above CTD
50	42	20	18:12	MR	BOT		49° 1.800	123° 26.194	322	0	- 18	1	AS	☐ ☐	HPLC, phyto, chla
51	42	20	18:32	BE	NET		49° 1.811	123° 26.208	322		-		KY	☐ ☐	nuts
			18:39	BO			49° 1.771	123° 26.114		312	-			☐ ☐	
			18:45	EN			49° 1.722	123° 26.059			-			☐ ☐	
52	46	20	20:14	BE	CTD		48° 51.395	123° 10.788	180		-			☐ ☐	Cast 27
			20:19	BO			48° 51.385	123° 10.764		170	-			☐ ☐	
			20:22	EN			48° 51.379	123° 10.725			-			☐ ☐	
53	46	20	20:14	MR	BOT		48° 51.394	123° 10.777	180	0	- 19	1	AS	☐ ☐	HPLC chla nuts
			:				° .	° .			-			☐ ☐	
			:				° .	° .			-			☐ ☐	

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DAILY SCIENCE LOG

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Month Feb			Year 2020			Vessel Neocaligus			Cruise ID 2020-047						
Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Latitude	Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/FI Cleaned	Comments
54	46	20	20:24	BE	NET		48° 51.402	123° 10.787	180 178		-		KY	☐	
			20:29	BO			48° 51.403	123° 10.753		170 163	-			☐	
			20:32	EN			48° 51.409	123° 10.734			-			☐	
55	56	20	21:27	BE	CTD		48° 46.406	123° 01.618	212		-		KY	☒	cast 28
			21:33	BO			48° 46.441	123° 01.585		202	-			☐	
			21:37	EN			48° 46.460	123° 01.574			-			☐	
56	56	20	21:27	MR	BOT		48° 46.404	123° 01.616	212	0	- 20	1	AS	☐	HPLC nits chla
57	59	20	23:10	BE	CTD		48° 36.951	123° 14.966	237 41		-		KY	☒	cast 29
			23:17	BO			48° 36.854	123° 14.927		227 31	-			☐	
			23:20	EN			48° 36.791	123° 14.874			-			☐	
58	59	20	23:11	MR	BOT		48° 36.940	123° 14.962	237	0	- 21	1	AS	☐	HPLC nits chla
59	59	20	23:24	BE	NET		48° 36.957	123° 14.975	237		-		KY	☐	
			23:30	BO			48° 36.853	123° 14.887		227	-			☐	
			23:35	EN			48° 36.806	123° 14.854			-			☐	
60	GI-01	21	15:54	BE	CTD		48° 45.864	123° 20.528	65		-		KY	☒	cast 30
			15:57	BO			48° 45.781	123° 20.509		55	-			☐	
			15:59	EN			48° 45.772	123° 20.499			-			☐	
			:				°	°			-			☐	
			:				°	°			-			☐	

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