DAILY SCIENCE LOG BOOK

MISSION NUMBER 2013-62/63

DATE: From: 11 Sept 2013 To: 25 Sept 2013

VESSEL:

PROJECT(S): World Class

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: #14

Data acquisition program: _____

CTD deck unit make: _____ model: _____ serial number: _____

Primary CTD

0 = 0
1 = 1
2 = 4
3 = 5

Make: SBE model: 25 serial number: 0334

Primary temperature serial number: 2968

Primary conductivity serial number: 2173

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: Westlabs Model: C-Star s/n: 723DR

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model FLNTURT Cable gain: _____ s/n: 2990 P, S or (NO) pump?

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

Oxygen sensor: SBE Model: 43 s/n: 0766 (P) S or NO pump?

PAR sensor: _____ Model: _____ s/n: 4694 Surface PAR? Y / (N)

Other sensors: Pressure s/n: 0464 P, S or NO pump?

Other sensors: Par s/n: 4694 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)

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2013 **Vessel** Vector **Cruise ID** 2013-62

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
✓ 1	P_18	16	00:43	BE	CTD		53° 38.392	130° 22.42	66	63	—	—	SM	☒☐	No cast ①
			00:48	BO			53° 38.353	130° 22.413			-			☐☐	
			:				° .	° .			-			☐☐	
✓ 2	P-19	16	00:05	BE	CTD		53° 36.853	130° 23.454	93	90	-			☐☐	cast ①
			00:11	BO			53° 36.857	130° 23.453			-			☐☐	
			:				° .	° .			-			☐☐	
✓ 3	P-21	16	01:27	BE	CTD		53° 37.285	130° 24.353	140	137	-			☐☐	cast ②
			01:33	BO			53° 35.290	130° 24.340			-			☐☐	
			:				° .	° .			-			☐☐	
✓ 4	P-20	16	01:49	BE	CTD		53° 39.693	130° 24.402	93	90	-			☐☐	③
			01:54	BO			53° 39.677	130° 24.397			-			☐☐	
			:				° .	° .			-			☐☐	
✓ 5	166	16	02:36	BE	CTD		53° 35.897	130° 26.616	144	141	-			☐☐	④
			02:44	BO			53° 35.857	130° 26.630			-			☐☐	
			:				° .	° .			-			☐☐	
✓ 6	167	16	03:05	BE	CTD		53° 41.199	130° 25.759	52	49	-			☐☐	⑤
			03:06	BO			53° 41.197	130° 25.753			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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
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MR = Messenger Release Time
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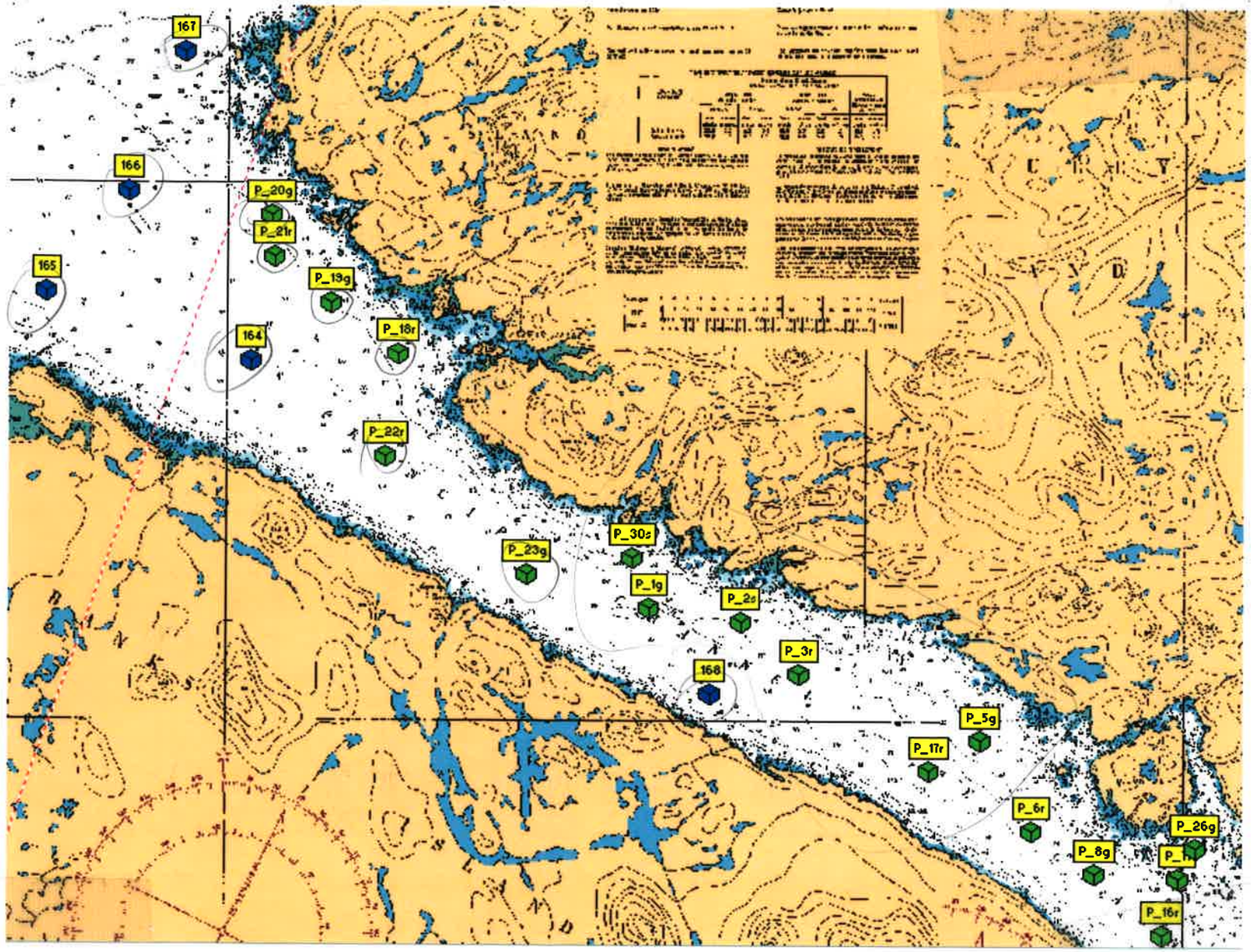
CTD Transmissometer and Fluorometer to be cleaned before each cast -- do not use Ammonia products

Notes: _____

Produced by the Water Properties Group, IOS

WaterProperties.ca
Version: 14 February 2013

This page is for any notes or observations



DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2013 **Vessel** Vector **Cruise ID** 2013-62

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
7	165	16	03:57	BE	CTD		53° 38.957	130° 27.999	136	133	-			☐☐	Note aborted cast may have been before (7)
			04:01	BO			53° 38.984	130° 27.955			-			☐☐	
			:				° .	° .			-			☐☐	
8	164	16	04:33	BE	CTD		53° 39.332	130° 24.657	188	168	-			☐☐	(8)
			04:39	BO			53° 39.374	130° 24.699			-			☐☐	
			:				° .	° .			-			☐☐	
9	P_22	16	05:01	BE	CTD		53° 37.437	130° 22.590	222	200	-			☐☐	rock wall (9) didn't go deeper
			05:09	BO			53° 37.509	130° 22.728			-			☐☐	
			:				° .	° .			-			☐☐	
10	P_23	16	05:35	BE	CTD		53° 36.332	130° 20.330	304 (est)	285	-			☐☐	(10)
			05:44	BO			53° 36.439	130° 20.552			-			☐☐	
			:				° .	° .			-			☐☐	
11	P-16	16	06:17	BE	CTD		53° 35.216	130° 17.518	204	188	-			☐☐	(11)
			06:25	BO			53° 35.209	130° 17.506			-			☐☐	
			:				° .	° .			-			☐☐	
12	P_30	17	02:00	BE	CTD		53° 36.502	130° 18.730	46	43	-			☐☐	(12)
			02:03	BO			53° 36.499	130° 18.719			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2013 **Vessel** Vector **Cruise ID** 2013-62

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
13	P-1	17	02:15	BE	CTD		53° 36.019	130° 18.490	347	340	-		SR	☐☐	(13)
			02:25	BO			53° 36.044	130° 18.460			-			☐☐	
			:				° .	° .			-			☐☐	
14	P-2	17	02:45	BE	CTD		53° 35.895	130° 17.034	192	185	-			☐☐	(14)
			02:52	BO			53° 35.891	130° 17.021			-			☐☐	
			:				° .	° .			-			☐☐	
15	P-3	17	03:05	BE	CTD		53° 35.414	130° 16.117	194	185	-			☐☐	(15)
			03:13	BO			53° 35.413	130° 16.126			-			☐☐	
			:				° .	° .			-			☐☐	
16	P-17	17	03:35	BE	CTD		53° 34.529	130° 14.032	176	160	-			☐☐	(16)
			03:43	BO			53° 34.556	130° 14.105			-			☐☐	
			:				° .	° .			-			☐☐	
17	P-5	17	04:58	BE	CTD		53° 34.795	130° 13.296	149	140	-			☐☐	(17)
			05:02	BO			53° 34.849	130° 13.394			-			☐☐	
			:				° .	° .			-			☐☐	
18	P-6	17	05:44	BE	CTD		53° 33.951	130° 12.537	137	140	-			☐☐	(18)
			05:49	BO			53° 34.027	130° 12.649			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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This page is for any notes or observations

17 –
18 – } Pay time believed 1 hr. late G.G.
19 –

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2013 **Vessel** Vector **Cruise ID** 2013-62

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
19	P-8	17	05:41	BE	CTD		53° 33.552	130° 11.493	89	84	-		SR	☐☐	19
			05:45	BO			° .	° .			-			☐☐	
			:				° .	° uploaded to here "Cast 19"						☐☐	
20	P-26	18	01:06	BE	CTD		53° 33.767	130° 09.945	56	53	-		SR	☐☐	20?
			01:09	BO			53° 33.773	130° 09.945			-			☐☐	
			:				° .	° .			-			☐☐	
21	P-16	18	01:27	BE	CTD		53° 32.582	130° 10.426	160	157	-			☑☑	First cleaning of
			01:33	BO			53° 33.023	130° 10.384			-			☐☐	sensors
			:				° .	° .			-			☐☐	
22	P12	18	01:50	BE	CTD		53° 32.337	130° 08.932	217	214	-			☑☑	
			01:57	BO			53° 32.340	130° 09.059			-			☐☐	
			:				° .	° .			-			☐☐	
23	P10	18	02:20	BE	CTD		53° 32.517	130° 06.604	84	80	-			☑☑	
			02:23	BO			53° 32.516	130° 06.596			-			☐☐	
			:				° .	° .			-			☐☐	
24	P26	18	02:38	BE	CTD		53° 31.697	130° 07.544	229	225	-			☑☑	position modified
			02:48	BO			53° 31.724	130° 07.547			-			☐☐	for current
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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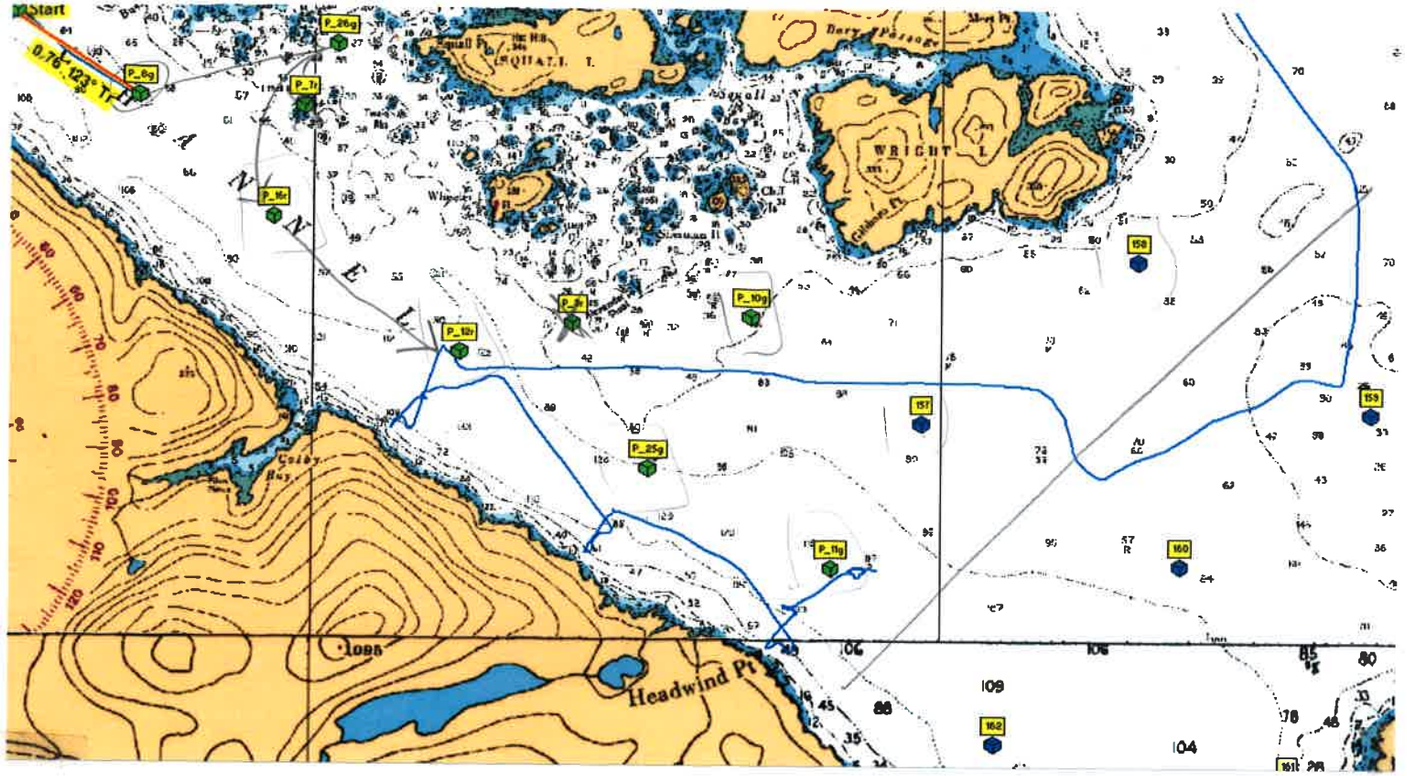

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2013 **Vessel** Vector **Cruise ID** 2013-62

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
25	P11	18	03:06	BE	CTD		53° 31.326	130° 05.955	415	242	-		SM	☒☒	cast 25
			03:12	BO			53° 31.377	130° 05.993			-			☐☐	
			:				° .	° .			-			☐☐	
26	P57	18	03:29	BE	CTD		53° 32.019	130° 05.270	155	152	-		SM	☒☒	cast 26
			03:33	BO			53° 32.024	130° 05.254			-			☐☐	
			:				° .	° .			-			☐☐	
27	P8	19	03:50	BE	CTD		53° 32.784	130° 03.530	199	90	-		SM	☒☒	cast 27
			03:53	BO			53° 32.732	130° 03.530			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-		CW	☒☒	
28	124	20	00:05	BE	CTD		53° 17.02	129° 27.59	518		-			☐☐	C28
			00:15	BO			53° 17.04	129° 27.56		~~218~~	- aborted			☐☐	
			:				° .	° .			-			☐☐	
29	152	20	01:56	BE	CTD		53° 17.454	129° 22.206	418		-			☒☒	cast 29 not sure but the ship isn't holding station well.
			02:12	BO			53° 17.483	129° 22.248		413	-			☐☐	
			:				° .	° .			-			☐☐	
30	S_11	20	02:49	BE	CTD		53° 16.524	129° 23.219	246		-			☒☒	cast 30
			02:57	BO			53° 16.54	129° 23.199		242	-			☐☐	

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Notes: _____

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The bathymetry here is highly variable and rapidly changes - not always sure where bottom really is.

aborted Event 28 → deep cast and divers waiting to be picked up - so will abort this cast and do it again later
- changed ascent rate @ one point to 1m/sec

will keep it as cast 28.

Cast 29, bad station holding

Using depth on transducer to indicate bottom depth.

Cast 30 depth decreasing throughout cast started @ 260m again not the best station holding; winch operator did not hear me change depth so she went to 255 - not sure if he did or not

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

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

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
31	125	20	03:32	BE	CTD		53 ° 16 . 721	129 ° 25 . 203	520		-		CW	☑☑	Cast 31
			03:52	BO			53 ° 16 . 765	129 ° 25 . 0725		515	-			☐☐	
			:				° .	° .			-			☐☐	
32	156	20	15:40	BE	CTD		53 ° 16 . 492	129 ° 28 . 998	90		-		CW	☑☑	0.5 m/s
			15:43	BO			53 ° 16 . 494	129 ° 29 . 006		85	-			☐☐	Cast 33
			:				° .	° .			-			☐☐	
33	124	20	16:06	BE	CTD		53 ° 17 . 007	129 ° 27 . 352	520		-			☑☑	1m/sec Cast 34
			16:14	BO			53 ° 17 . 011	129 ° 27 . 359		515	-			☐☐	-Ships transducer doesn't see real bottom
			:				° .	° .			-			☐☐	
34	S_15	20	16:45	BE	CTD		53 ° 17 . 975	129 ° 25 . 955	175		-			☑☑	0.5 m/s
			16:57	BO			53 ° 17 . 981	129 ° 25 . 960		170	-			☐☐	cast 35
			:				° .	° .			-			☐☐	
35	123	20	17:13	BE	CTD		53 ° 18 . 616	129 ° 27 . 064	460		-			☑☑	1m/s
			17:21	BO			53 ° 18 . 592	129 ° 27 . 007		455	-			☐☐	Cast 36
			:				° .	° .			-			☐☐	
36	S_14	20	17:46	BE	CTD		53 ° 19 . 207	129 ° 26 . 013	305		-			☑☑	0.5 m/s
			17:57	BO			53 ° 19 . 211	129 ° 25 . 981		300	-			☐☐	Cast 37
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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Notes: _____

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90sec soak @ 10m + 60sec soak @ surface
if not too rough.

Not sure why we are drifting off station so much
@ 200m upcast changed ascent to 1m/sec.

Because outside is a bit rough for deep casts will ↑ to 1m/s if windy/rough.

Friday - the seas inside Ferrat/Fin/Rt is
Sept 19th
20+ knots with 3 foot slop
< wind as we head north into Chum Passage. ~Seas ~2 feet.

$_14g we aren't quite on station but the cast has begun

I'm wondering if there is some conversion problems with Dom's app that converts o2i explorer waypts to Nobletec as we seem to be slightly off station.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2013 **Vessel** VECTOR **Cruise ID** 2013-062/63

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37	S13s	20	18:22	BE	CTD	—	53° 19.806	129° 24.813	156		-		CW	☑☑	0.5m/s
			18:27	BO			53° 19.778	129° 24.850		151	-			☐☐	Cast 38
	heading	back	South				° .	° .			-			☐☐	
38	S-129	20	19:19	BE	CTD	—	53° 15.026	129° 23.136	255		-			☑☑	0.5m/s
			19:27	BO			53° 15.031	129° 23.089		250	-			☐☐	Cast 39
			:				° .	° .			-			☐☐	
39	135	21	03:18	BE	CTD		53° 09.327	129° 22.634	500		-			☑☑	1m/s
			03:28	BO			53° 09.316	129° 22.720		495	-			☐☐	Cast 40
			:				° .	° .			-			☐☐	
40	136	21	04:02	BE	CTD		53° 09.048	129° 25.663	495		-			☑☑	1m/s
			04:10	BO			53° 09.046	129° 25.816		490	-			☐☐	Cast 41
			:				° .	° .			-			☐☐	
41	131	21	04:50	BE	CTD		53° 11.920	129° 27.716	498		-			☑☑	1m/s
			04:59	BO			53° 11.918	129° 27.702		495	-			☐☐	Cast 42
			:				° .	° .			-			☐☐	
42	SCO2	21	05:31	BE	CTD		53° 11.813	129° 24.986	515		-			☑☑	1m/s
			05:39	BO			53° 11.845	129° 24.970		510	-			☐☐	Cast 43
43	133	21	06:13	BE	CTD		53° 11.676	129° 22.022	147		-			☑☑	0.5m/s
			06:19	BO			53° 11.676	129° 22.063		144	-			☐☐	Cast 44

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The general area yesterday and todays seems to have a # of humpback whales

started up the Lake transducer for depth - bottom still changing quickly here
- lots of bathy. change

@ 19:18 UTC CTD stations cut off to do ROV - weather much improved

ROV @ S-23g
S-27g

~ 20:00 PDT - resume CTDs

all these stations are deep the first ~ 1000 meters rather par

→ got a revisit @ SCO2 → cross channel transect

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month Sept **Year** 2013 **Vessel** VECTOR **Cruise ID** 2013-62/63

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
✓44	S-10s	22	00:56	BE	CTD	—	53° 15.730	129° 23.069	265		-		W	☑☑	1m/s
			01:00	BO			53° 15.831	129° 23.080		260	-			☐☐	Cast 45
			:				° .	° .			-			☐☐	
✓45	126	22	01:22	BE	CTD	—	53° 15.572	129° 25.718	525		-			☑☑	1m/s
			01:32	BO			53° 15.567	129° 25.628		520	-			☐☐	Cast 46
			:				° .	° .			-			☐☐	
✓46	S-29s	22	02:03	BE	CTD	—	53° 15.189	129° 28.519	308		-			☑☑	1m/s
			02:10	BO			53° 15.218	129° 28.529		305	-			☐☐	Cast 47
			:				° .	° .			-			☐☐	
✓47	127	22	02:36	BE	CTD		53° 14.365	129° 25.630	493		-			☑☑	1m/s
			02:47	BO			53° 14.422	129° 25.501		490	-			☐☐	Cast 48
stn/128 about before we arrive ✓							° .	° .			-			☐☐	
			:				° .	° .			-			☑☑	
✓48	149	22	15:53	BE	CTD	—	53° 17.030	129° 17.530	545		-			☑☑	1m/s
			16:03	BO			53° 17.027	129° 17.456		540	-			☐☐	Cast 49
			:				° .	° .			-			☐☐	
✓49	148	22	16:35	BE	CTD	—	53° 15.316	129° 19.441	465		-			☑☑	1m/s cast 50
			16:44	BO			53° 15.320	129° 19.429		460	-			☐☐	bottom is
			:				° .	° .			-			☐☐	jumpy

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

Notes: _____

This page is for any notes or observations

Sat Sept 21

- Slight wind; pouring rain for first half of morning
ROV S_1s ; S_10s → took the morning
S_11r ; S_16g

Resume CTDs after dinner
- try to finish stations around Fin Island w/ Squally showers

- weather coming up - 15-20 kts + 2-3' slop
- rough enough for 1m/s even at shallower stations

@ 20:00 CTDs cut off due to weather.

Sunday Sept 22.
to Sandy for ROV work - heading to Hewis Channel to pick up 147, 148, 149.
and then head back
- Hewis Channel - 20kts white capping but only a little sloppy

DAILY SCIENCE LOG

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	Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
✓ 50	147	22	17:11	BE	CTD	—	53° 13.846	129° 19.534	535		-		(W)	☑☑	1m/s Cast 51
			17:21	BO			53° 13.816	129° 19.520		530	-			☐☐	bottom is jumpy
			:				° .	° .			-			☐☐	
✓ 51	155	22	20:56	BE	CTD	—	53° 21.756	129° 27.496	90		-			☑☑	0.5 m/s
			20:59	BO			53° 21.759	129° 27.495		85	-			☐☐	Cast 52
			:				° .	° .			-			☐☐	
✓ 52	S_19s	22	21:19	BE	CTD	—	53° 21.063	129° 26.074	135		-			☑☑	0.5m/s
			21:23	BO			53° 21.063	129° 26.061		130	-			☐☐	Cast 53
			:				° .	° .			-			☐☐	
✓ 53	S.16r	22	21:41	BE	CTD	—	53° 20.438	129° 25.260	160		-			☑☑	0.5m/s
			21:46	BO			53° 20.431	129° 25.242		155	-			☐☐	Cast 54
			:				° .	° .			-			☐☐	
✓ 54	128	22	22:50	BE	CTD	—	53° 13.053	129° 27.752	480		-			☑☑	1m/s
			22:56	BO			53° 13.023	129° 27.767		475	-			☐☐	Cast 55
			:				° .	° .			-			☐☐	
(*) 55	130	22	23:26	BE	CTD	—	53° 13.085	129° 24.785	513		-			☑☐	1m/s
✓			23:35	BO			53° 13.107	129° 24.797		510	-			☐☐	Cast 56
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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Notes: _____

Stn 147 bottom depth is super jumpy

↳ Heading back to pick up divers 10:30 am PDT

ROV after lunch S_195 ✓

1:35 pm PDT heading to top of inlet (Hoey Narrows) to pick up Stn 155
- blustery weather but no real seas

155 nice and sheltered and shallow = 0.5 m/s decent

Iber position is a little bit south of where we are

For Cast 56 (Event 55) appears the deck crew did not do a 10 m soak.
and they reverse direction @ 53.57 dbar?
→ Do not settled until 35 ish dbar

DAILY SCIENCE LOG

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Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
56	129	23	00:40	BE	CTD	—	53 ° 12.938	129 ° 22.162	520		-		CW	☑☑	1m/s
			00:50	BO			53 ° 12.920	129 ° 22.182		517	-			☐☐	cast 57
			:				° .	° .			-			☐☐	
57	150	23	01:55	BE	CTD	—	53° 18.438	129° 18.191	543		-			☑☑	1m/s
			02:04	BO			53° 18.383	129° 18.139		540	-			☐☐	C58
			:				° .	° .			-			☐☐	
58	154	23	02:40	BE	CTD	—	53° 20.285	129° 17.573	325		-			☑☑	1m/s
			02:46	BO			53° 20.280	129° 17.602		320	-			☐☐	C59
			:				° .	° .			-			☐☐	→
59	184	23	03:17	BE	CTD	—	53° 20.665	129° 13.958	510		-			☑☑	1m/s
			03:25	BO			53° 20.668	129° 14.000		505	-			☐☐	C61
			:				° .	° .			-			☐☐	
60	185	23	04:00	BE	CTD	—	53° 18.957	129° 10.734	493		-			☑☑	1m/s
			04:08	BO			53° 18.943	129° 10.700		490	-			☐☐	C62
			:				° .	° .			-			☐☐	
61	208	23	04:41	BE	CTD	—	53° 17.861	129° 07.493	475		-			☑☑	1m/s
			04:49	BO			53° 17.863	129° 07.449		472	-			☐☐	C63?
62	191	23	05:31	BE	CTD	—	53° 19.106	129° 02.633	475		-			☑☑	1m/s
			05:39	BO			53° 19.139	129° 02.557		472	-		✓	☐☐	C64?

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Dont know why cost 60 doesn't correspond to any datum