DAILY SCIENCE LOG BOOK

MISSION NUMBER 2019-009

DATE: From: MARCH 2, 2019 To: MARCH 7, 2019

VESSEL: VECTOR

PROJECT(S): OPP - MEQ - NOISE

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

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North Saanich, BC, Canada

Captain: _____ First Officer: _____

Second Officer: _____ Third Officer: _____

Fishing Master: _____ Chief Engineer: _____

Mission Participants / Agencies:

_____

**** Chief Scientist to complete section below OR cut and tape from cruise plan ****

1st Leg Scientific Personnel: Chief Scientist: _____

Name	Watch	Cabin	Name	Watch	Cabin

2nd Leg Scientific Personnel: Chief Scientist: _____

Name	Watch	Cabin	Name	Watch	Cabin

**** 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 (silver)

Data acquisition program: Seaterm

CTD deck unit make: N/A model: _____ serial number: _____

Primary CTD

Make: SBE model: 25 serial number: 0334 *This instrument may be in PST?

Primary temperature serial number: 4484

Primary conductivity serial number: 2128

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: _____ Model: _____ s/n: _____

Transmissometer: _____ Model: _____ s/n: _____

Fluorometer: Model ECO Cable gain: 24 s/n: 2215 P, S or NO pump?

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

Oxygen sensor: SBE Model: 43 s/n: 1483 (P) S or NO pump?

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

Other sensors: Turbidity 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?

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: _____
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: Seasave V7 Version: V7 S/N: 3411
Sampling interval (seconds): 30
Fluorometer sensor serial number: N/A

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:
_____
_____
_____
_____

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month MARCH **Year** 2019 **Vessel** VECTOR **Cruise ID** 2019-009

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	SWIFTSURE	3	17:40		TL		48° 31.010	124° 56.185			-			☐☐	TL start at Swiftsure
2	SWIFTSURE	3	19:00		MOR		48° 30.955	124° 56.271	67		-			☐☐	17:50 - 0 - 50 surface
3	SWIFTSURE	3	21:52		MOR		48° 30.911	124° 56.160	75		-			☐☐	DEPLOYED SWIFTSURE
4	004	3	22:03	BE	CTD		48° 30.953	124° 56.150	72	70	-		CONN	☐☐	CTD at moorings
		-	22:07	EN	CTD		48° 30.974	? ° ? .			-			☐☐	
5	005	4	04:07	BE	CTD		48° 30.059	124° 30.074	163		-			☐☐	
			04:17	EN	CTD		48° 30.027	124° 30.103	163	158	-		CW	☐☐	50l bottle.
6	006	4	06:03	BE	CTD		48° 30.594	124° 32.571	171		01-01	1		☐☐	
			06:13	EN			48° 30.468	124° 32.406		166	02-02	1		☐☐	2XTSS
7	007	04	08:04	BE	CTD		48° 31.542	124° 34.981	139		-	∅		☐☐	
			08:15	EN			48° 31.587	124° 34.937		135	-			☐☐	
8	008	04	10:04	BE	CTD		48° 30.933	124° 33.020	156		-	∅		☐☐	Tendency to
			10:15	EN			48° 30.970	124° 32.928		148	-			☐☐	shallow
9	009	04	11:57	BE	CTD		48° 30.011	124° 30.694	174		-	∅		☐☐	shallowing
			12:07	EN			48° 30.082	124° 30.657		167	-			☐☐	
10	010	04	13:57	BE	CTD		48° 31.503	124° 35.385	146		-	∅		☐☐	
			14:06	EN			48° 31.506	124° 35.395		140	-			☐☐	
11	PORT RENFREW	04	15:30	EN			48° 30.319	124° 31.177			-			☐☐	PORT RENF MOORING RECOVERED
			:				° .	° .			-			☐☐	

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
TL = Transmissometer Loss

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

Time Code:
BE = Beginning Time of Cast
BO = Bottom Time of Cast
EN = End Time of Cast
DE = Deployment Time
MR = Messenger Release Time
RE = Recover Mooring Time

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

Notes:

This page is for any notes or observations

Sample #	Variable
001	Sal = 158 m
002	A/B TSS = surf (~ 1.5m)

down to 10m – 3min soak → to surface and then back down
leaky niskin @ 158m on 001
niskin on 002 = good seal; position immediately above CTD

0400 local – v. windy – seas ~ 1m

Cast 10 – the wire jumped the shiv – stopped the CTD then restarted
will rename after download.

Note the SBE25 itself is in PST

Casts 0-7 on SBE25
4=0 10=7 – remove
5=1 cast do
6=2
7=3
8=4
9=5

Capture file taken after cast 07 = 12.2 V left

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month MARCH **Year** 2019 **Vessel** VECTOR **Cruise ID** 2019-09

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
12	PORT RENFREW	4	17:10	BE	MOR		48 ° 30.269	124 ° 31.006	167		-			☐☐	PORT RENFREW MOORING DEPLOYED
13	013	4	17:17	BE	CTD		48 ° 30.257	124 ° 30.907	166		-		CW SV	☐☐	
13	013	4	17:19	BO	CTD		° .258	° .906		160	-			☐☐	
13	013	4	17:23	EN	CTD		° .261	° .902			-			☐☐	
14	JORDAN RIVER	4	20:17	EN	MOR		48 ° 23.826	124 ° 8.101	119		-			☐☐	RECOVERED JORDAN RIVER MOOR.
15	JORDAN RIVER	4	22:00	BE	MOR		48 ° 22.798	124 ° 08.068	120		-			☐☐	JORDAN RIVER MOORING DEPLOYED
16	014	4	22:11	BE	CTD		48 ° 23.850	124 ° 07.872	118		-		CW SV	☐☐	
			22:13	BO			° .869	° .860		113	-			☐☐	
			22:15	EN			° .892	° .860			-			☐☐	
17	017	5	02:16	BE	CTD		48 ° 25.359	124 ° 11.689	100		-		CW SV	☐☐	
			02:17	BO			° .376	° .754		97	-			☐☐	
			02:20	EN			° .406	° .873			-			☐☐	
18	018	5	04:05	BE	CTD		48 ° 24.107	124 ° 08.346	111		-		CW	☐☑	
			04:09	BO			48 ° 24.138	124 ° 08.565		106	-			☐☐	
			04:11	EN			48 ° 24.143	124 ° 08.562			-			☐☐	
19	019	5	06:03	BE			48 ° 23.488	124 ° 07.126	122		003-003	1		☐☑	003 TSS
			06:07	BO			48 ° 23.484	124 ° 07.103		117	-			☐☐	
			06:10	EN			48 ° 23.481	124 ° 07.102			-			☐☐	
			:				° .	° .			-			☐☐	

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____ = _____

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

Event #

Casts 8=13 13=20 18=27 23=32 24=35 29=43
#25 9=16 14=21 19=28 25=38 30=44
10=17 15=22 20=29 26 40
11=18 16=23 21=30 27 41
12=19 17=24 22=31 28 42

Last set to download

This page is for any notes or observations

March 4

NOTE @1058 local (March 5 @ 0658) - I noted the flow on the seawater pump from slow to fast on discussion with Scott Meade quite a bit of mois. - sounds like air in the system - momentary jump in conductivity but T° ↑ and stayed high

@ 1149 the pipe blew off - shut down water flow. Hose was plugged with mussels - engineers re attached, cleaned out and fixed - high flow it seems to be too much pressure - the whole system was shut down 1 Bf for the duration of the cruise. !!

Cast 19 surface riskin for TCS (A + B)

L 3,811

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month March **Year** 2019 **Vessel** Vector **Cruise ID** 2019-09

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
20	20	5	08:05	BE	CTD		48°23.309	124°06.498	122		-	0	CW	☐☑	
115			08:10	BO			48°23.297	124°06.463		117	/			☐☐	
			08:12	EN			48°23.278	124°06.440			-			☐☐	
21	21	05	10:02	BE	CTD		48°22.512	124°03.965	128		/	∅		☐☑	
112			10:07	BO			48°22.508	124°03.950		123	-			☐☐	
			10:09	EN			48°22.510	124°03.929			-			☐☐	
22	22	05	12:02	BE	CTD		48°23.423	124°06.888	122		004-004			☐☑	
115			12:08	BO			48°23.423	124°06.893		117	-	1		☐☐	
			12:09	EN			48°23.412	124°06.889			-			☐☐	
23	23	05	13:50	BE	CTD		48°23.688	124°07.230	115		/	∅		☐☑	
108			13:55	BO			48°23.731	124°07.301		110	-			☐☐	
			13:57	EN			48°23.730	124°07.304			-			☐☐	
24	24	05	19:28	BE	CTD		48°22.170	123°55.784	105		-		CONV SV	☐☐	
100			19:30	BO			°22.164	°55.755		100	-			☐☐	
			19:32	EN			°22.161	°55.739			-			☐☐	
25	SOOKE	05	21:25	EN	MOR		48°17.340	123°38.845			-			☐☐	RECOVERED SOOKE MOORING
26	SOOKE	05	23:06	BE	MOR		48°17.393	123°39.294	168		-			☐☐	SOOKE MOORING DEPLOYED
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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___ = _____

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
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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: 20 April 2016

Event 22 = TSS niskin @surface

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	Positional Information Longitude	Bottom Pressure	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
27	27	5	23:14	BE	CTD		48 ° 17 .415	123 ° 39 .243	168		-		CW SV	☐☐	
			23:17	BO			° 17 .412	° 39 .185		163	-			☐☐	
			23:20	EN			° 17 .417	° 39 .128			-			☐☐	
28	28	6	02:36	BE	CTD		48 ° 17 .812	123 ° 41 .025	168		-		CW SV	☐☐	
			02:39	BO			° 17 .818	° 41 .093		163	-			☐☐	
			02:41	EN			° 17 .824	° 41 .156			-			☐☐	
29	29	6	04:00	BE	CTD		48° 17 .144	123° 35 .909	181		-	4	CW	☐☑	lots of current
			04:06	BO			° 17 .038	° 35 .241		176	-			☐☐	
			04:09	EN			° 17 .051	° 35 .298			-			☐☐	
30	30	6	06:10	BE	CTD		48 ° 17 .282	123 ° 37 .269	185		-			☐☑	surf noskin
			06:15	EN			° 17 .373	° 37 .454		180	005-005	1		☐☐	+ TSS
			06:17	BO			° 17 .416	° 37 528			-			☐☐	
31	31	6	08:06	BE	CTD		48 ° 17 .282	123 ° 40 .131	175		-	0		☐☑	
			08:11	BO			° 17 .310	° 40 .080		170	-			☐☐	
			08:14	EN			° 17 .322	° 40 .045			-			☐☐	
32	32	6	10:00	BE	CTD		48° 17 .390	123° 43 .459	175		006-006	1		☐☑	Sal + TSS
			10:06	BO			° 17 .363	° 43 .299		170	-			☐☐	
			10:10	EN			° 17 .320	° 43 .319			-			☐☐	
			:				° .	° .			-			☐☐	

Event Type:
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LOOP = Sea Water Loop
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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

Cast Event

20 = 29 +

21 = 30 -

22 = 31 +

→ Sal ; TSS @ bot depth.

@ 1128 The bridge discontinued the transect work and headed for Haro

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month March **Year** 2019 **Vessel** Vector **Cruise ID** 2019-097

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
~~32~~	~~33~~	~~06~~	:	~~BE~~	~~CTD~~		° .	° .			-			☐☐	
			:	BO			° .	° .			-			☐☐	
			:	EN			° .	° .			-			☐☐	
33	HARO STRAIT	06	15:20	EN	MOR		48° 29.704	123° 11.760			-			☐☐	HARO STRAIT MOORING RECOVERED
34	HARO STRAIT	06	17:27	BE	MOR		48° 29.749	123° 11.603	230		-			☐☐	HARO STRAIT MOORING DEPLOYED
35	35	06	17:34	BE	CTD		48° 29.765	123° 11.651	229		-		CAM SV	☐☐	
			17:39	BO			° 29.741	° 11.687		225	-			☐☐	
			17:49	EN			° 29.701	° 11.740			-			☐☐	
36	BOUNDARY PASS	06	20:30	EN			48° 44.107	123° 09.106			-			☐☐	RECOVERED BP MOORING
37	BOUNDARY PASS	06	21:49	BE	MOR		48° 43.988	123° 09.124	185		-			☐☐	BP MOORING DEPLOYED
38	38	06	21:56	BE	CTD		48° 43.925	123° 09.136	188		-		CAM SV	☐☐	
			21:59	BO			48° 43.927	123° 09.119		183	-			☐☐	
			22:02	EN			48° 43.927	123° 09.077			-			☐☐	
39	HARO STRAIT MOORING		23:52	BE			48° 29.755	123° 11.597	230		-			☐☐	HARO STRAIT MOORING DEPLOYED
40	40	07	04:03	BE	CTD		48° 29.454	123° 10.931	225 (*)		-		CW	☐☑	shallowing up
			04:10	EN			° 29.325	° 10.903		203	-			☐☑	
			04:12	BO			° 29.280	° 10.872			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

Event Type:
BOT = Bottle cast (no CTD)
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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

Here Strait mooring had to be retrieved and redeployed See Event 39.

→ need to adjust cast depth as the depth shallowed up. quite a bit of from BE depth
(*) 210m on the way back up

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Month March **Year** 2019 **Vessel** Vector **Cruise ID** 2019-09

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	41	07	06:00	BE	CTD		48° 31.427	123° 12.654	196		007 - 007	1	CW	☐☑	→
			06:05	BO			°31.181	°12.499		195	-			☐☐	
			06:09	EN			°31.019	°12.410			-			☐☐	
42	42	07	08:22	BE	CTD		48° 33.683	123° 13.240	299		008 - 008	1		☐☑	surf TSS
			08:30	BO			°33.721	°13.193		294	-			☐☐	
			08:35	EN			°33.754	°13.195			-			☐☐	
43	43	07	10:04	BE	CTD		48° 28.926	123° 11.360	194		-	0		☐☑	
			10:10	BO			°28.936	°11.403		189	-			☐☐	
			10:13	EN			°28.938	°11.429			-			☐☐	
44	44	07	11:33	BE	CTD		48° 32.465	123° 12.548	248		-	0		☐☑	
			11:39	BO			°32.530	°12.447		243	-			☐☐	
			11:42	EN			°32.585	°12.402			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

DONE

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

bottom sal + TSS @ bottom.
- cast is deepening 199m @ Bo
(196m @ start).

cast 44 had a bad fast ! - died @ 6606