DAILY SCIENCE LOG BOOK

CRUISE NUMBER 2018-93

DATE:

From: JUNE 9 2018 **To:**

VESSEL: Sea Crest

PROJECT(S): Johnstone Strait to Queen Charlotte Sound

Juvenile salmon Survey. Charter (Jackie King) BCSI

Water Properties Group
Fisheries and Oceans Canada
Institute of Ocean Sciences
Ocean Sciences Division

Captain: Nathan Dobie 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: Jackie King

Name	Watch	Cabin	Name	Watch	Cabin
Jackie King	7am-7pm	#1	Tyler Zubkowski	7am-7pm	
Erika Nielsen	"	#1	Colin Novak	"	
Jasmine Wietzke	"	#1	Kevin Esseltine	"	

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: 1123 (Silver)

Data acquisition program: Seaterm / Seasave

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

Primary CTD #404

Make: _____ model: _____ serial number: _____

Primary temperature serial number: 2449

Primary conductivity serial number: 1764

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?**

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): 2m (top of bottle)

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

Rosette Setup:
Number of bottles: 1 — No rosette, only 1 bottle. niskin.
Manufacturer: _____
Volume of bottles (litres): 5L

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 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: 250 µm	Flowmeter: 6069
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: LFS 7442

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. _____

This page is for any notes or observations

9 June 2018

- load @ PBS @ 8AM.
- only have 1 chlorophyll funnel screen (should have 2 + backup)
- Chlorophyll volume filtered → 330mL each.
- will sample a ~~couple~~ 3 deep salinities (1 @ start, middle of cruise & 1 @ end) → 25m off bottom.
- mesh size for bongos → 250 (253 written on 1 of the cod ends)
- CTD 404 → 4C (conductivity sensor): serial → 041764
  3plus (temp. sensor): serial → 03P2449
- will take 2 chl. samples, 2 nutrient & bongos (
- I grabbed a backup niskin but noticed it was cracked when loading ship
- 3 ocean chemistry stations per day
- each station: 2 chlorophyll samples
  2 nutrient samples (for Charles Hannah)
  Bongo net → size fractionation
  → formaldehyde (37%) preservation in jars (50mL form. → 500mL jars)
- Salinities: 1@ first station
  1@ middle-ish station
  1@ last station.

- 5 days sampling x 3 stations per day = 15 stations
- headers that were used in SeaTerm were from beginning (BE) of cast (CTD) & total depth of station used, not target depth for CTD

→ Bongo → 1 size fractioned (8mm, 1.7, 1.0, 0.25)
→ 1 preserved in formaldehyde (37%) → 50mL form in 500mL jars

- all CTD data files saved in THIS PC → ACER → CTD DATA → 2018-93
- all other 2018-93 files saved in "2018-93" on the desktop

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Page 1 of _____

Month JUNE (local) **Year** 2018 **Vessel** Sea Crest **Cruise ID** 2018-93

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
1	JS-01	10	8:10	BE	CTD		50°22.914	125°34.553	223		-			☐☑	
			8:16	BO	BOT	MSG	50°22.946	125°34.601		210	1 -	1	JW	☒☒	2 x Deep Sal.
			8:22	EN			50°23.006	125°34.641			-			☒☒	
2	JS-01	10	8:27	BE	BOT	MSG	50°23.116	125°34.668	223	∅	2 -	1	JW	☒☒	2x chl; 2x nut
3	JS-01	10	8:39	BE	NET	—	50°22.943	125°34.720	230		— -	—	JW	☐☐	
			:	BO			° .	° .		120	-			☐☐	by accident just 30m 220m
			8:46	EN			50°23.144	125°34.846			-			☐☐	
4	JS-01	10	:		Trawl		° .	° .			-			☐☐	
5	JS-03	10	:		Trawl		° .	° .			-			☒☒	
6	JS-03	10	14:17	BE	CTD		50°24.326	125°57.312	162		-			☐☑	2 x chl 2 x nut
			14:20	BO			50°24.302	125°57.274		150	-	1	JW	☒☒	10m bricol surface
same			14:24	EN			50°24.285	125°57.233			-			☒☒	- didn't close bottle for deploy bottle @ 10m
6	JS-03	10	:	BE	BOT	MSG	50°24.289	125°57.230	162	10	3 -		JW	☐☐	redeployed bottle for chl/nut
7	JS-03	10	14:27	BE	NET		50°24.304	125°57.215	145		-		JW	☒☒	
			14:33	BO			50°24.320	125°57.204		130	-			☒☒	~5° angle
			14:41	EN			50°24.363	125°57.155			-			☒☒	
8	JS-05?	10	:		trawl		° .	° .			-			☐☐	
9	JS-05?	10	:		Trawl		° .	° .			-			☐☐	
8			:				° .	° .			-			☐☐	

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

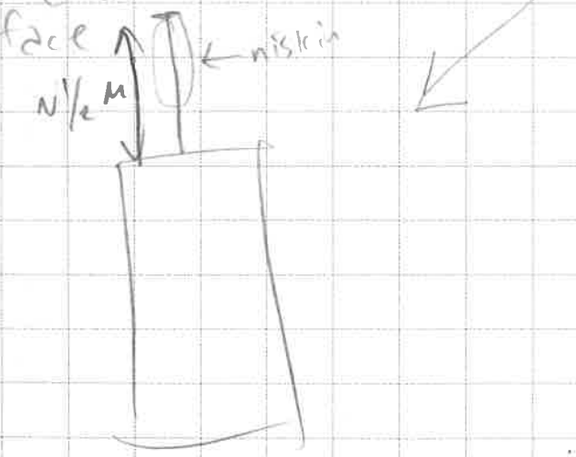
WaterProperties.ca
Version: 6 December 2016

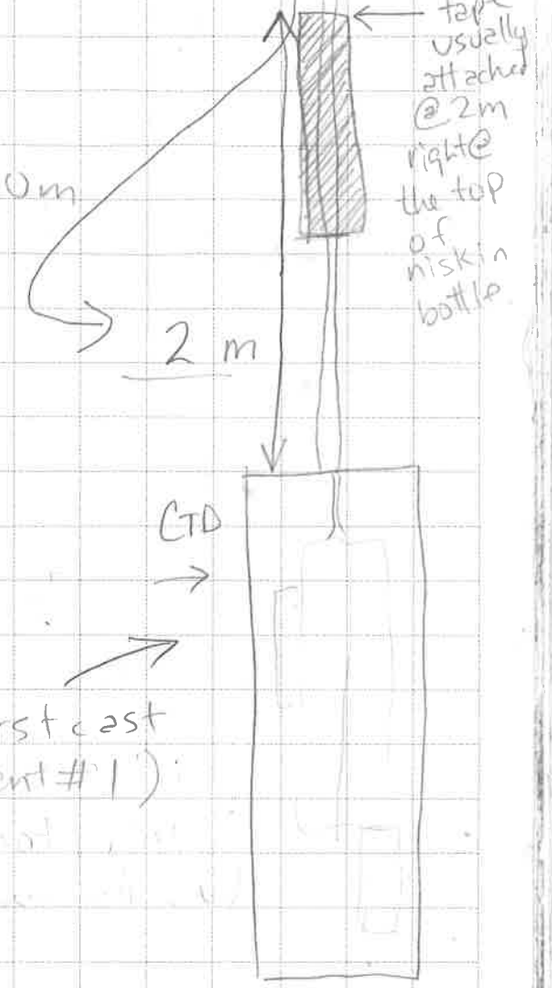
This page is for any notes or observations

Depth above the top of the CTD cage that the bottle is attached to the line

~1 m/s ↑ & ↓ for CTD (no counter) & Bongo

- net event 3, target depth was 220m but only went down to 120m
- when trying to upload first cast, CTD couldn't connect so disconnected everything, restarted computer, programs etc...
- ran out of 1 bottle of super duster (in black briefcase w/ laptop), so grabbed 1 out of the brown backup briefcase.
- 2nd CTD cast (event 6 & on), the niskin bottle was attached @ bout 1/2 m above CTD
  - event 6
  - → took chl/nut @ surface for first cast but changed to 10m below surface (that's what was done by Hugh in previous years)
- all times listed are local, not UTC





DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE Local **Year** 2018 **Vessel** Sea Crest **Cruise ID** 2018-93

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
10	JS-05	10	18:21	BE	CTD		50° 30.561	126° 30.888	393		-			☐☑	put hisk'n@10m above CTD.
			18:26	BO			50° 30.596	126° 30.951		250	-	1	JW	☐☐	
			18:33	EN			50° 30.642	126° 31.027			-			☐☐	
10	JS-05	10	18:32	BE	BOT	MS 6	50° 30.638	126° 31.018	393	10	4 -		JW	☐☐	2xchl 2 x nut
11	JS-05	10	18:43	BE	NET		50° 30.486	126° 31.550	380		-			☐☐	dropped 10m & brought back up then deployed to 250m.
			18:53	BO			50° 30.531	126° 31.672		250	-			☐☐	
			18:58	EN			50° 30.540	126° 31.715			-			☐☐	
12	QCSD-01	11	6:58	BE	CTD		50° 57.970	128° 40.680	68		-			☐☑	
			6:59	BO	CTD		50° 57.977	128° 40.659		50	-			☐☐	
			7:01		BOT	MS6	50° 57.986	128° 40.633		20	5 -			☐☐	2xchl 2 x nut changed bottle
			7:02	EN	CTD		50° 57.993	128° 40.615			-			☐☐	bright 412 m from CTD triggered 20m by accident
13	QCSD-01	11	7:06	BE	NET		50° 58.022	128° 40.515	68		-			☐☐	
			7:08	BO			50° 58.034	128° 40.472		50	-			☐☐	
			7:10	EN			50° 58.046	128° 40.429			-			☐☐	
14		11	:		trawl		° .	° .			-			☐☐	
15		11	:		trawl		° .	° .			-			☐☐	
16	QCSD-03	11	:		trawl		° .	° .			-			☐☐	
17	QCSD-03	11	11:04	BE	CTD		50° 57.531	128° 14.940	57		-			☐☑	
			11:06	BO			50° 57.532	128° 14.914		50	-			☐☐	

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DRF = Drifter
____ = _____

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

Time Code:
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BO = Bottom Time of Cast
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DE = Deployment Time
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: 6 December 2016

- Event 11, dropped NET down to ~10m, brought back to surface (little windy) & then redeployed to 250m.
- CTD 12, moved bottle back to 2m from CTD

Clarification/Summary of location of niskin attachment...

Event 1 – attached 2 m above CTD
Event 6 – attached ~½ m above CTD
Event 10 – attached 10 m above CTD
Event 12 & Subsequent – attached 2 m above CTD

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE (local) **Year** 2018 **Vessel** Sea Crest **Cruise ID** 2018-93

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
	QCSD-02	11	11:07		BOT	MSG	50°57.540	128°14.873		0	6-	1	JW	☐☐	2x CHL 2x NUT. now collecting surface water now on
			11:08	EN	CTD		50°57.542	128°14.847			-			☐☐	
18	QCSD-03	11	11:11	BE	NET		50°57.551	128°14.765	57		-		JW	☐☐	
			11:13	BO			50°57.556	128°14.720		50	-			☐☐	- 2 sample jars used
			11:14	EN			50°57.557	128°14.683			-			☐☐	
19-23	QCSD-04	11	:		TRAWL'S		°.	°.			-			☐☐	
24	QCSD-08	11	17:28	BE	CTD		51°01.436	127°55.915	135		-		JW	☐☐	
			17:32	BO	CTD		51°01.412	127°55.914		120	-			☐☐	
			17:35		BOT		51°01.390	127°55.914		0	7-	1		☐☐	2xCHL 2xNUTS
			17:37	EN	CTD	MSG	51°01.386	127°55.911			-			☐☐	
25	QCSD-05	11	17:39	BE	NET		51°01.371	127°55.908	135		-		JW	☐☐	
			17:44	BO			51°01.346	127°55.907		120	-			☐☐	
			17:48	EN			51°01.322	127°55.908			-			☐☐	
26/27			:		TRAWLS		°.	°.			-			☐☐	
28	QCST-01	12	7:52	BE	CTD		50°47.894	127°33.534	352		-			☐☐	Stopped for about 5 sec @ about 110m on way down &
			7:57	BO	CTD		50°47.915	127°33.553		250	-			☐☐	
			8:04		BOT	MSG	50°47.936	127°33.577	352	0	8-			☐☐	2x chl & nuts
			8:05	EN	CTD		50°47.939	127°33.580			-			☐☐	continued to target depth
			:				°.	°.			-			☐☐	

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Month JUNE (local) **Year** 2018 **Vessel** Sea Crest **Cruise ID** 2018-93

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
29	QCSI-01	12	8:08	BE	NET		50°47.946	127°33.591	356		-	-	JW	☐☐	
			8:15	BO			50°47.961	127°33.602		250	-			☐☐	
			8:22	EN			50°47.982	127°33.624			-			☐☐	
30-33			:		TRAWLS		° .	° .			-			☐☐	
34	QCST-05	13	7:41	BE	CTD		50°59.847	127°35.191	115		-			☑☑	calm conditions
			7:43	BO	CTD		50°59.915	127°35.257		100	-			☐☐	
			7:45		BOT		50°59.995	127°35.324		Ø	9 -	1	JW	☐☐	2x chl 2x nuts
			7:46	EN	CTD	MSG	50°00.003	127°35.340			-			☐☐	
35	QCST-05	13	7:59	BE	NET		50°59.917	127°36.410	180		-		JW	☐☐	
			8:04	BO			50°59.989	127°36.508		170	-			☐☐	
			8:09	EN			51°00.042	127°36.588			-			☐☐	
38	QCSD-10	13	11:19	BE	CTD		51°05.310	127°46.602	102		-			☑☑	
			11:22	BO	CTD		51°05.354	127°46.610		90	-			☐☐	
			11:24		BOT	MSG	51°05.351	127°46.616	102	Ø	10 -			☐☐	2x chl 2x nuts
			11:24	EN	CTD		51°05.354	127°46.618			-			☐☐	
39	QCSD-10	13	11:27	BE	NET		51°05.373	127°46.626	102		-			☐☐	
			11:30	BO			51°05.389	127°46.631		90	-			☐☐	
			11:32	EN			51°05.400	127°46.630			-			☐☐	
			:				° .	° .			-			☐☐	

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

Notes: _____

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- 12 JUNE 2018: had to cancel 2 oceanography/ocean chem stations b/c the net ~~got~~ was damaged & needed to go into Port Hardy to fix the net, which took up the second half of the day.

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE (local) **Year** 2018 **Vessel** SEA CREST **Cruise ID** 2018-93

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
43	QCSD-12	13	17:10	BE	CTD		51°11.617	127°51.400	114		-		JW	☐☑	abit of a swell
			17:13	BO			51°11.648	127°51.410		100	-			☐☐	
			17:15		BOT	MSG	51°11.690	127°51.403	114	∅	11 -	1		☐☐	2xchl 2xnuts
			17:16	EN			51°11.694	127°51.404			-			☐☐	
44	QCSD-12	13	17:19	BE	NET		51°11.752	127°51.409	117		-		JW	☐☐	
			17:22	BO			51°11.827	127°51.408		105	-			☐☐	
			17:25	ED			51°11.868	127°51.397			-			☐☐	
45	QCST-08	14	6:58	BE	CTD		50°51.651	127°20.319	139		-		JW	☐☐	
			7:0[illegible]	BO	CTD		50°51.679	127°20.378		130	-			☐☐	might have gone to 140.. but didn't appear that CTD hit bottom
			7:06		BOT	MSG	50°51.705	127°20.441	139	∅	12 -			☐☐	
			7:06	EN	CTD		50°51.709	127°20.450			-			☐☐	
46	QCST-08	14	7:09	BE	NET		50°51.736	127°20.514	139		-		JW	☐☐	
			7:13	BO			50°51.764	127°20.571		130	-			☐☐	
			7:16	EN			50°51.797	127°20.653			-			☐☐	
47-49			:		TRAWLS		° '	° '			-			☐☐	
50	QCST-10	14	11:57	BE	CTD		50°45.270	126°57.729	161		-		JW	☐☑	
			12:01	BO	CTD		50°45.270	126°57.696		150	-			☐☐	- stopped @ 128 M on way down, w
			12:04		BOT	MSG	50°45.269	126°57.679	161	~~130~~ 131	13 -	1		☐☐	Deep Salinity x 2
			12:06	EN	CTD		50°45.270	126°57.659			-			☐☐	

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: _____

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WaterProperties.ca
Version: 6 December 2016

This page is for any notes or observations

- event 50, on way back up (CTD), stopped @ 128m, dropped/lowered to 130m & triggered bottle (deep salinity)

DAILY SCIENCE LOG

Ocean Sciences Division, Institute of Ocean Sciences

Month JUNE **Year** 2018 **Vessel** SEA CREST **Cruise ID** 2018-93

Event Number	Station Name	Day	Time (UTC)	Time Code	Event Type	Firing Method	Positional Information Latitude	Positional Information Longitude	Bottom Depth	Max Cast Pressure	Sample Serial Numbers	# of Bottles	Watch Keepers	Trns/Fl Cleaned	Comments
~~50~~	~~QCST-10~~	~~14~~	:	~~BE~~	~~BOT~~	~~MSG~~	° .	° .			14 -		~~JW~~	☐☐	~~2xch1 2xnuts~~
51	QCST-10	14	12:09	BE	NET		50° 45.268	126° 57.626	164		-		JW	☐☐	
			12:14	BO			50° 45.268	126° 57.574		150	-			☐☐	
			12:17	EN			50° 45.272	126° 57.521			-			☐☐	
52	QCST-10	14	12:23	BE	BOT	MSG	50° 45.274	126° 57.431	164	Ø	14 -		JW	☐☐	2xch1 2xnuts
56	JS-06	14	17:43	BE	CTD		50° 31.018	126° 39.386	424		-		JW	☐☑	
			17:57	BO	CTD		50° 31.066	126° 39.390		250	-			☐☐	
			18:03		BOT	MSG	50° 31.101	126° 39.399	424	Ø	15 -			☐☐	2xch1 2xnuts,
			18:53	EN			50° 31.106	126° 39.400			-			☐☐	
57	JS-06	14	18:06	BE	NET		50° 31.142	126° 39.424	454		-			☐☐	
			18:	BO			50° 31.200	126° 39.519		250	-			☐☐	
			18:17	EN			50° 31.252	126° 39.622			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	
			:				° .	° .			-			☐☐	

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Notes: _____

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. 2016

Event 56/57 → the Chl, nutrients & Zooplankton samples were left out overnight - keeping them just in case (too - will label