

DAILY SCIENCE LOG BOOK

MISSION
NUMBER

IOS 2018-59
SOG 2018-03

DATE:

From: June 21, 2018 To: July , 2018

VESSEL:

Sea Crest

PROJECT(S):

2018-59

SOG 2018-03 Strait of Georgia Juvenile Salmon

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

WaterProperties.ca

Captain: Nathan Dobie First Officer: Terry Mosher

Second Officer: Doug Third Officer: Gerry Surka

Fishing Master: _____ Chief Engineer: Cray Krueger

Mission Participants / Agencies:

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

1st Leg Scientific Personnel: Chief Scientist: Chris Neville

Name	Watch	Cabin	Name	Watch	Cabin
------	-------	-------	------	-------	-------

Bryan Recalma

Yeongha Jung

Colleen Haddad

Iarna Folkes

Olivia McMillan

Dylan Conover

100

2nd Leg Scientific Personnel: Chris Neville

Name	Watch	Cabin	Name	Watch	Cabin
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Yeonaha Jung

Colleen Haddad

1000

1. The first part of the document is a title page. It contains the title of the report, the author's name, and the date of the report. The title is "The Impact of Climate Change on the Environment". The author is "John Doe". The date is "January 1, 2023".

1. The first part of the document is a title page. It contains the title "The History of the County of York" and the author's name "John Smith".

1. The first part of the document is a title page. It contains the title "The History of the County of York" and the author's name "John Smith".

**** 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: _____

Data acquisition program: _____

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

Primary CTD

Make: Seabird model: SBE25 serial number: 0404

Primary temperature serial number: 5T-54853

Primary conductivity serial number: 4C-041764

Secondary temperature serial number: _____

Secondary conductivity serial number: _____

Transmissometer: _____ Model: _____ s/n: _____

Transmissometer: _____ Model: _____ s/n: _____

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

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

Oxygen sensor: _____ Model: 43 s/n: 1176 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: pH sensor 18-I s/n: 180852 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)

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: 60 cm Mesh: 250 μm Flowmeter: 6089

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:

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.

DAILY SCIENCE LOG

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Month <u>JUNE</u>				Year <u>2018</u>			Vessel <u>Sea Crest</u>			Cruise ID <u>2018-59</u> <u>SOG 2018-03</u>					
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
001	1	21	13:40	BE	SET		49°31.33	124°05.72	216		-			☐ ☐	
002	1	21	14:41	1	C		49°34.195	124°06.097	285	250	-		OM	☐ ☐	Vmain=11.9
003	↓	21	15:00		N		49°34.781	124°06.294	275	250	-		OM	☐ ☐	DAS
004	2	21	15:45		S-		49°36.91	124°07.55	292		-			☐ ☐	STRONG WIND SAILBOAT IN WAY
005	3	21	16:56		SET		49°38.355	124°11.82	245		-			☐ ☐	STRONG WIND
006	4	21	18:55		SET		49°45.82	124°13.6	370		-			☐ ☐	
007	5	21	20:34		SET		49°46.63	124°46.63	365		-			☐ ☐	
008	1	21	21:55		CTD		49°48.008	124°01.457	680	250	-		OM	☐ ☐	
009	↓	21	22:13		NET		49°47.837	124°01.458	658	250	-		OM	☐ ☐	
010	6	21	23:10		SET		49°48.76	123°55.78	674		-			☐ ☐	STRONG CURRENT DOWN TO 4KTS
011	1	22	00:43		CTD		49°47.173	124°05.008	625	250	-		OM	☐ ☐	20 MIN AWAY EVENT 010
012	↓	22	01:07		NET		49°47.257	124°04.780	645	250	-		OM	☐ ☐	
013	7	22	13:10		SET		49°42.068	124°18.079	300		-			☐ ☐	
014	↓	22	14:15		CTD		49°43.938	124°21.385	319	250	-		OM	☐ ☐	VAT CHANGE V=13.4
015	↓	22	14:38		NET		49°44.166	124°22.298	344	250	-		OM	☐ ☐	
016	8	22	15:18		SET		49°45.35	124°23.43	89		-			☐ ☐	
017	9	22	16:18		SET		49°45.45	124°27.95	320		-			☐ ☐	
018	10	22	17:36		SET		49°46.92	124°33.36	316		-			☐ ☐	
019	11	22	18:57	↓	SET		49°49.36	124°41.78	88		-			☐ ☐	

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:

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BE = Beginning Time of Cast
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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							
020	11	22	20:00	BE	CTD		49°50.262	124°45.754	173	160	-		OM	☐	
021	11	22	20:15		NET		49°50.552	124°45.198	173	160	-		OM	☐	
022	12	22	20:45		SET		49°50.35	124°46.78	196		-			☐	
023	13	22	22:00		SET		49°51.83	124°51.21	265		-			☐	
024	14	23	23:35		SET		49°53.65	124°54.34	233		-			☐	STRONG CROSS CURRENT
025	14	23	00:28		CTD		49°56.329	124°57.269	191	180	-		OM	☐	CTD LEFT ON TILL EVENT 028
026	14	23	00:43		NET		49°56.586	124°57.597	185	170	-		OM	☐	
027	15	23	13:35		SET		49°51.61	124°53.139	263		-			☐	NO RBR STRONG CURRENT
028	15	23	14:35		CTD		49°50.526	124°56.615	216	200	-		OM	☐	DATA SMALL CTD ON/OFF ON BOARD
029	15	23	14:55		NET		49°50.654	124°56.722	221	210	-		OM	☐	
030	16	23	15:40		SET		49°49.79	124°55.76	194		-			☐	STRONG CURRENT DROPPED TO 48m @ BE
031	17	23	16:55		SET		49°49.52	124°59.16	107		-			☐	STRONG CURRENT
032	18	23	18:12		SET		49°52.53	125°02.28	155		-			☐	TWO CURRENT CONVERGING
033	19	23	19:12		SET		49°54.44	125°04.52	134		-			☐	
034	19	23	20:10		CTD		49°56.757	125°03.720	290	250	-		OM	☐	
035	19	23	20:51		NET		49°57.071	125°04.043	287	250	-		OM	☐	* re-done - both coders flipped up and over on 1st try
036	20	23	21:30		SET		49°55.844	125°00.071	212		-			☐	
037	21	23	22:34		SET		49°47.30	124°56.61	160		-			☐	
038	22	24	13:16	✓	SET		50°18.42	125°17.78	124		-			☐	

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Month				Year		Vessel					Cruise ID				
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
039	22	24	13:50	BE	CTD		50°18.280	125°19.378	90	80	-		OM	☐ ☐	
040	22	24	14:06		NET		50°18.185	125°19.559	88	70	-		OM	☐ ☐	see over →
041	24	24	16:58		CTD		50°22.264	125°21.755	206	190	-		OM	☐ ☐	
042	24	24	17:15		NET		50°22.328	125°21.681	206	190	-		OM	☐ ☐	
043	25	24	17:59		SET		50°21.79	125°21.73	254		-			☐ ☐	
044	26	24	18:55		SET		50°22.34	125°21.2	205		-			☐ ☐	
045	26A	24	23:32		CTD		50°00.222	125°06.045	254	240	-		OM	☐ ☐	no set after 26, CTD and boros A and B are not close to where set 26 was done
046	26A	24	23:53		NET		50°00.304	125°06.206	250	240	-		OM	☐ ☐	
047	26B	25	00:40		CTD		50°03.870	125°07.960	254	240	-		OM	☐ ☐	
048	26B	25	01:01		NET		50°03.975	125°07.896	254	240	-		OM	☐ ☐	↓
049	27	25	13:20		SET		50°01.818	125°05.932	277		-			☐ ☐	BUCKING TIDE
050	28	25	14:27		SET		50°06.52	125°07.27	229		-			☐ ☐	BUCKING TIDE
051	29	25	15:40		SET		50°09.66	125°01.468	317		-			☐ ☐	BUCKING TIDE
052	30	25	17:13		SET		50°12.95	125°01.03	510		-			☐ ☐	LOGS & SAIL BOAT IN WAY
053	30	25	18:16		CTD		50°11.678	125°00.070	480	250	-		OM	☐ ☐	
054	30	25	18:06		NET		50°11.705	125°00.073	475	250	-		OM	☐ ☐	label in fixed sample ms incorrect event #5
055	31	25	19:42		SET		50°16.98	125°02.56	427		-			☐ ☐	
056	32	25	20:58		SET		50°19.334	125°01.748	295		-			☐ ☐	
057	33	25	21:56	↓	SET		50°19.71	124°57.84	391		-			☐ ☐	

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*
 040A
 040B
 (see over page)
 *

- set 23 missed receiving an event number but did occur. (assigned event 040A)

- same with set 24 (assigned event 040B)

040A Stn 23 Time(UTC): 15:00 SET Lat. $50^{\circ}18.27$ Long. $125^{\circ}18.94$

040B Stn 24 Time(UTC): 16:26 SET Lat. $50^{\circ}21.34$ Long. $125^{\circ}23.68$

} Lat./Long. are start values

DEPTH

115.

278

045 26A DATA SMALL

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Month <u>JUNE</u>				Year <u>2018</u>		Vessel <u>Sea Crest</u>				Cruise ID <u>2018-59 SOG 2018-03</u>					
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058	34	25	23:34	BE	SET		50°17.80	124°49.32	508		-			☐ ☐	
059	34	26	00:10		CTD		50°17.817	125°49.922	508	250	-		OM	☐ ☐	
060	34	26	00:32		NET		50°17.792	125°50.419	506	250	-		OM	☐ ☐	
061	35	26	13:18		SET		50°12.89	124°47.48	264		-			☐ ☐	
062	35	26	14:11		CTD		50°11.918	124°45.602	428	250	-		OM	☐ ☐	
063	35	26	14:32		NET		50°11.926	124°45.678	427	250	-		OM	☐ ☐	
064	36	26	14:58		SET		50°11.86	124°44.78	430		-			☐ ☐	BUCKING TIDE 20% RUDDER
065	37	26	16:30		SET		50°10.81	124°38.9	713		-			☐ ☐	
066	37	26	17:22		CTD		50°09.577	124°41.505	691		-		OM	☐ ☐	
067	37	26	17:45		NET		50°09.560	124°41.617	695		-		OM	☐ ☐	
068	38	26	18:41		SET		50°06.13	124°48.27	460		-			☐ ☐	
069	39	26	19:46		SET		50°03.29	124°52.45	443		-			☐ ☐	
070	40	26	21:17		SET		50°02.81	124°52.70	200		-			☐ ☐	NEW NET
071	40	26	22:05		CTD		50°02.245	124°54.080	320	250	-		OM	☐ ☐	
072	40	26	22:26		NET		50°02.216	124°54.094	327	250	-		OM	☐ ☐	
073	41	26	23:20		SET		49°58.87	124°49.18	200		-			☐ ☐	NEW NET
074	42	27	00:27		SET		49°58.66	124°49.07	174		-			☐ ☐	
075	43	27	13:19		SET		49°47.44	124°40.90	173		-			☐ ☐	
076	43	27	14:15	✓	CTD		49°45.468	124°42.531	302	250	-		OM	☐ ☐	Vmain=13.2

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077	43	27	14:37	BE	NET		49°45.118	124°42.126	333	250	-		OM	☐	FLOWMETER SIDS PICKLED
078	44	27	15:42		SET		49°45.98	124°48.522	290		-			☐	STRONG CURRENT
079	45	27	16:31		SET		49°43.70	124°49.206	119		-			☐	STRONG CROSS CURRENT & WIND
080	46	27	17:55		SET		49°36.76	124°45.72	123		-			☐	
081	47	27	18:46		SET		49°35.46	124°44.56	78		-			☐	SAIL BOAT IN WAY
082	48	27	21:06		CTD		49°37.557	124°40.132	128	110	-		OM	☐	thought was station 47 labels in fixed sample have purbit set and out in water
083	48	27	21:18		NET		49°37.385	124°40.105	133	120	-		OM	☐	DOWNLOAD Vmax = 11.2
084	48	27	19:58		SET		49°35.86	124°42.30	120		-			☐	BUCKING TIDE
085	49	27	22:11		SET		49°41.20	124°39.76	197		-			☐	CURRENT → NORTH WIND → SOUTH
086	50	27	23:24		SET		49°41.71	124°34.22	165		-			☐	
087	51	28	00:19		SET		49°40.03	124°31.29	164		-			☐	BUCKING TIDE
088	52	28	13:18		SET		49°36.24	124°25.39	173		-			☐	
089	52	28	14:05		CTD		49°34.820	124°24.669	350	250	-		OM	☐	
090	52	28	14:26		NET		49°34.678	124°24.526	350	250	-		OM	☐	
091	53	28	14:56		SET		49°34.90	124°22.18	156		-			☐	
092	54	28	15:45		SET		49°32.91	124°23.69	103		-			☐	CROSS CURRENT
093	55	28	16:35		SET		49°32.25	124°27.65	175		-			☐	
094	56	28	17:54		SET		49°29.24	124°35.30	83		-			☐	BUCKING TIDE
095	56	28	18:43		CTD		49°28.305	124°35.022	137	120	-		OM	☐	

see over

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-set 48 → set occurred before CTD and NET, but initially written in backwards order, so kept this way to maintain event numbers in order

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Month <u>June</u>				Year <u>2018</u>		Vessel <u>Sea Crest</u>				Cruise ID <u>2018-59</u> <u>SOG 2018-03</u>					
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
096	56	28	18:57	BE	NET		49°28.334	124°35.012	139	130	-	-	OM	☐	
097	57	28	19:33		SET		49°26.8	124°36.91	119		-	-		☐	TIDE CHANGE ABORT TOWING
098	58	28	20:50		SET		49°23.95	124°30.22	125		-	-		☐	
099	59	28	22:07		SET		49°23.213	124°26.86	134		-	-		☐	
100	60	28	23:21		SET		49°25.93	124°22.67	341		-	-		☐	
101	60	29	00:08		CTD		49°26.449	124°20.651	335	250	-	-	OM	☐	VMAIN=11.8
103	60	29	00:29		NET		49°26.536	124°20.397	333	250	-	-	OM	☐	PAS
104	61	29	15:38		SET		49°26.48	124°26.47	332		-	-		☐	
105	62	29	16:43		SET		49°22.180	124°15.850	290		-	-		☐	
106	63	29	18:10		SET		49°22.340	124°15.920	294		-	-		☐	NEW NET
107	63	29	18:57		CTD		49°20.311	124°14.500	180	170	-	-	OM	☐	
108	63	29	~19:18		NET		~ same as above.		180	170	-	-	OM	☐	
109	64	29	19:54		SET		49°22.540	124°11.940	331		-			☐	NEW NET
110	65	29	21:30		SET		49°22.890	124°11.136	349		-			☐	
111	66	29	22:45		SET		49°25.380	124°08.119	226		-			☐	
112	67	29	23:41		SET		49°28.260	124°06.540	370		-			☐	
113	68	30	00:39		SET		49°29.680	124°03.912	154		-			☐	BUCKING TIDE
114	69	30	20:23		SET		49°14.330	123°51.890	173		-			☐	
115	70	30	21:34	✓	SET		49°11.340	123°45.940	136		-			☐	TIDE CHANGE DROPPED TO 24m

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Notes: _____

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- GPS battery died, no coordinates available but checked with captain and boat in
~ same location as CTD
↳ time inferred based on normal time between CTD/Bongo casts

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Month <u>JUNE-JULY</u>				Year <u>2018</u>		Vessel <u>Sea Crest</u>				Cruise ID <u>208-59</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							
116	70	30	22:28	BE	CTD		49°10.688	123°44.073	120	110	-			☐ ☐	
117	70	30	22:41		NET		49°10.776	123°44.350	120	110	-		OM	☐ ☐	
118	71	30	23:10		SET		49°10.647	123°42.710	153		-			☐ ☐	BUSY TRAFFIC
119	72	01	00:03		SET		49°11.370	123°39.880	309		-			☐ ☐	
120	73	01	13:13		SET		49°14.330	123°34.340	363		-			☐ ☐	
121	73	01	13:57		CTD		49°16.322	123°33.030	337	250	-		OM	☐ ☐	
122	73	01	14:35		NET		49°16.581	123°32.846	331	250	-		OM	☐ ☐	re-done - both cod ends flipped up and down first
123	74	01	15:02		SET		49°16.960	123°30.780	238		-			☐ ☐	
124	75	01	16:09		SET		49°17.750	123°25.900	169		-			☐ ☐	
125	76	01	17:21		CTD		49°21.868	123°19.377	227	210	-		OM	☐ ☐	CTD h 0 before
126	76	01	17:38		NET		49°21.774	123°19.445	227	210	-		OM	☐ ☐	
127	76	01	18:03		SET		49°20.860	123°19.700	206		-			☐ ☐	
128	77	01	19:28		SET		49°15.000	123°17.940	91		-			☐ ☐	STRONG WIND CURRENT
129	78	01	20:30		SET		49°12.090	123°19.500	156		-			☐ ☐	
130	79	01	21:48		SET		49°09.410	123°24.466	217		-			☐ ☐	
131	80	01	23:18		SET		49°03.020	123°17.710	927		-			☐ ☐	BUSY TRAFFIC
132	80	02	00:01		CTD		49°02.738	123°16.424	53	40	-		OM	☐ ☐	
133	80	02	00:13		NET		49°02.781	123°16.735	65	50	-			☐ ☐	
134	81	02	15:01	✓	SET		48°49.350	123°06.370	178		-			☐ ☐	STRONG CURRENT

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-event number 122: GPS coordinates and time (UTC) are from re-done bongo cast.

↳ flowmeter not read after failed tow → estimated based on other 250m tows and the re-done tow: ~5200 total, divided by 2 and added to 12122 roughly.

↳ flowmeter side bucket spilled some sample, partial written on size-fractioned sample bag (frozen)

↳ wire dragged along boat for last part of re-done cast → there were red-brown paint chips in sample (noticed in size fractioned sample but likely in fixed sample too).

↳ wind change halfway through (quick → captain noticed)

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Month <u>JULY</u>				Year <u>2018</u>		Vessel <u>Sea Crest</u>				Cruise ID <u>2018-59</u>					
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
135	81	02	15:45	BE	CTD		48°49.071	123°07.271	149	130	-		OM	☐ ☐	
136	81	02	16:05		NET		48°49.111	123°07.522	143	130	-		OM	☐ ☐	DAS
137	82	02	17:13		SET		48°50.110	123°10.760	130		-			☐ ☐	VERY STRONG CURRENT
138	83	02	19:43		SET		48°44.450	123°16.500	123		-			☐ ☐	
139	84	02	21:17		SET		48°42.707	123°28.130	76		-			☐ ☐	
140	85	02	23:26		SET		48°45.405	123°34.050	79		-			☐ ☐	BUCKING EBB TIDE
141	86	03	00:28		SET		48°43.650	123°32.412	88		-			☐ ☐	
142	87	03	01:29		SET		48°44.940	123°36.190	55		-			☐ ☐	
143	87	03	02:11		CTD		48°44.953	123°36.174	55	40	-		OM	☐ ☐	
144	87	03	02:17		NET		48°44.964	123°36.158	55	40	-		OM	☐ ☐	
145	88	03	13:12		SET		48°43.320	123°26.030	88		-			☐ ☐	
146	88	03	14:03		CTD		48°44.338	123°23.907	90	80	-			☐ ☐	vmain = 11.7
147	88	03	14:14		NET		48°44.268	123°23.934	98	80	-		OM	☐ ☐	
148	89	03	16:22		SET		48°55.211	123°21.430	150		-			☐ ☐	BUCKING EBB TIDE
149	90	03	17:27		SET		48°57.900	123°26.330	152		-			☐ ☐	BUCKING TIDE
150	91	03	18:51		SET		48°59.730	123°31.000	125		-			☐ ☐	
151	91	03	19:44		CTD		48°57.873	123°28.635	66	50	-		OM	☐ ☐	
152	91	03	19:52		NET		48°57.871	123°28.602	66	50	-		OM	☐ ☐	
153	92	03	21:15	✓	SET		48°02.900	123°34.980	149		-			☐ ☐	

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Month <u>JULY</u>				Year <u>2018</u>		Vessel <u>Sea Crest</u>				Cruise ID <u>2018-59</u>					
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							Latitude	Longitude							
154	93	03	22:21	BE	SET		49°04.890	123°34.940	216		-			☐ ☐	BOAT IN WAY
155	94	03	23:38		SET		49°05.453	123°32.910	282		-			☐ ☐	
156	95	04	00:48		SET		49°05.519	123°27.510	322		-			☐ ☐	VERY STRONG CROSS CURRENT
157	96	04	13:15		SET		49°15.560	123°49.440	410		-			☐ ☐	
158	96	04	14:02		GTD		49°16.149	123°46.035	407	250	-		OM	☐ ☐	
159	96	04	14:23		NET		49°16.042	123°45.303	406	250	-		OM	☐ ☐	
160	97	04	15:04		SET		49°18.240	123°44.200	316		-			☐ ☐	
161	98	04	16:31		SET		49°21.030	123°34.560	163		-			☐ ☐	
162	99	04	17:31		SET		49°22.150	123°34.120	158		-			☐ ☐	
163	99	04	18:18		CTD		49°22.530	123°36.987	175	160	-		OM	☐ ☐	
164	99	04	18:34		NET		49°22.465	123°37.045	175	160	-		OM	☐ ☐	
165	100	04	19:05		SET		49°23.710	123°38.260			-			☐ ☐	
166	101	04	20:19		SET		49°25.250	123°45.250	166		-			☐ ☐	
167	102	04	21:11		SET		49°24.720	123°48.720	99		-			☐ ☐	
168	103	04	22:13		SET		49°23.290	123°51.704	250		-			☐ ☐	STRONG CROSS CURRENT
169	104	04	23:30		SET		49°27.300	123°55.330	222		-			☐ ☐	
170	104	05	00:20		CTD		49°26.806	123°58.393	212	200	-		OM	☐ ☐	
171	104	05	00:41	↓	NET		49°26.688	123°58.422	217	200	-		O	☐ ☐	
==	END OF	SURVEY	==				°	°			-			☐ ☐	

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