

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 821

UTC Date (ddmmmyy) 22 JUL 2019

Water Depth(Sounder) 47 m (includes 5m ship draft)

Station: Bar-C-1/0805.1

UTC Time 7:55

Weather/Sea State calms, Skt wind

CTD File: 2019-78-0321

Lat (N) 21°14.818

Lon (W) 159°9.940

Watchkeeper(s) SMD

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Temp #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 8.675 Bottom Salinity: 31.325	Comments
1		V	Bot-5	42.9	818		X	2	X	1	X	X	X	X	X	X	X	X	X	X					X		
2		V	Bot-5	42.9	819		X	2	X	2	X	X	X	X	X	X	X	X	X	X					X		
3		V	35	35.2	820			2	X	3	X	X	X	X	X	X	X	X	X	X					X		
4		V	35	35.2	821			2	X	4	X	X	X	X	X	X	X	X	X	X					X		
5		N	25	25.3	822			2	X	5	X	X	X	X	X	X	X	X	X	X					X		
6		V	25/15	23.5	823			2	X	6	X	X	X	X	X	X	X	X	X	X					X		
7		V	15	15.4	824			2	X	7	X	X	X	X	X	X	X	X	X	X					X		
8		V	15	15.4	825			2	X	8	X	X	X	X	X	X	X	X	X	X					X		
9		V	5		826		X	2	X	9	X	X	X	X	X	X	X	X	X	X					X		
10		V	5		827					10	X	X	X	X	X	X	X	X	X	X					X		
11			ch/wh		828					11	X	X	X	X	X	X	X	X	X	X					X		
12			ch/wh		829					12	X	X	X	X	X	X	X	X	X	X					X		
13			ch/wh		829					13																	
14										14																	
15										15																	
16										16																	
17										17																	
18										18																	
19										19																	
20										20																	
21										21																	
22										22																	
23										23																	
24										24																	

Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments: Strong current, drifting considerably.

no chl-max. no phytoplankton surface to bottom for 200 meters

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # *317* UTC Date (ddmmYYYY) *21 JUL 2019*

Water Depth(Sounder) *57* m (includes 5m ship draft)

Station: *Barc-2/0805.2* UTC Time *5:56*

Weather/Sea State *calm*

CTD File: *2019-78-0817* Lat (N) *31.12.192*

Lon (W) *157.15.696*

Watchkeeper(s) *SS AB*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb. water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 8.505 Bottom Salinity: 31.384 Comments
1		<input checked="" type="checkbox"/>	Bot-5	52.6	803	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
2		<input checked="" type="checkbox"/>	Bot-5	52.6	804	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
3		<input checked="" type="checkbox"/>	50	52.6	805			<input checked="" type="checkbox"/>		3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
4		<input checked="" type="checkbox"/>	50	52.6	806			<input checked="" type="checkbox"/>		4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
5		<input checked="" type="checkbox"/>	35	35.5	807			<input checked="" type="checkbox"/>		5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
6		<input checked="" type="checkbox"/>	35	35.5	808			<input checked="" type="checkbox"/>		6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
7		<input checked="" type="checkbox"/>	25	25.4	809			<input checked="" type="checkbox"/>		7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
8		<input checked="" type="checkbox"/>	25	25.4	810			<input checked="" type="checkbox"/>		8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
9		<input checked="" type="checkbox"/>	15	15.0	811			<input checked="" type="checkbox"/>		9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
10		<input checked="" type="checkbox"/>	15	15.0	812			<input checked="" type="checkbox"/>		10	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
11		<input checked="" type="checkbox"/>	5	4.9	813			<input checked="" type="checkbox"/>		11	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
12		<input checked="" type="checkbox"/>	5	4.9	814			<input checked="" type="checkbox"/>		12	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
13		<input checked="" type="checkbox"/>	chlow	815	815			<input checked="" type="checkbox"/>		13	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
14		<input checked="" type="checkbox"/>	chlow	816	816			<input checked="" type="checkbox"/>		14	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
15		<input checked="" type="checkbox"/>	chlow	817	817			<input checked="" type="checkbox"/>		15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
16		<input checked="" type="checkbox"/>	chlow	818	818			<input checked="" type="checkbox"/>		16	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
17		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		17	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
18		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		18	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
19		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		19	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
20		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		20	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
21		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		21	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
22		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		22	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
23		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		23	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
24		<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>		24	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

no CTD-max from surface
to bottom - thermocline
and TOC and conductivity
and oxygen

IOS nutrients at
ADDIS collected here
on Acque do Phao

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

ADT: 6.0

Event # 312

UTC Date (ddmmYYYY) 22 JUL 2019

Water Depth(Sounder) 93 m (includes 5m ship draft)

Station: Bar-C-3/0805.3

UTC Time 3:33

Weather/Sea State Calm/overcast

CTD File: 2019-78-0812

Lat (N) 41° 19.949

Lon (W) 153° 19.980

Watchkeeper(s) SMO-SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 4.04 Bottom Salinity: 31.756	Comments	
1	1	N	Bot-5	81.5	788		X	2	X	1	X	X	X	X	X	X	X	X	X									
2	2	N	Bot-5	81.5	789					2	X	X	X	X	X	X	X	X	X									
3	3	N	75	76.0	790			2	X	3	X	X	X	X	X	X	X	X										
4	4	N	75	76.0	791					4	X	X	X	X	X	X	X	X										
5	5	N	50	50.5	792			2	X	5	X	X	X	X	X	X	X	X										
6	6	N	50	50.5	793					6	X	X	X	X	X	X	X	X										
7	7	N	35	35.1	794		X	2	X	7	X	X	X	X	X	X	X	X										
8	8	N	35	35.1	795					8	X	X	X	X	X	X	X	X										
9	9	N	25	25.4	796			2	X	9	X	X	X	X	X	X	X	X										
10	10	N	25	25.4	797					10	X	X	X	X	X	X	X	X										
11	11	N	15	15.4	798			2	X	11	X	X	X	X	X	X	X	X										
12	12	N	15	15.4	799					12	X	X	X	X	X	X	X	X										
13	13	N	5	4.5	800		X	2	X	13	X	X	X	X	X	X	X	X										
14	14	N	5	4.5	801				X	14	X	X	X	X	X	X	X	X										
15	15	N	5	4.5	802				X	15	X	X	X	X	X	X	X	X										
16	16		Bot-5		803		X			16	X	X	X	X	X	X	X	X										
17	17		Bot-5		804		X			17	X	X	X	X	X	X	X	X										
18	18									18																		
19	19									19																		
20	20									20																		
21	21									21																		
22	22									22																		
23	23									23																		
24	24									24																		

Bottle integrity: First test lower portcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.
 Comments: Strong current. A need over ground N1.3-1.6 knots while on station

} not fired due to no CTDmax

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 306

UTC Date (ddmmYYYY) 22 JUL 2019

Water Depth(Sounder) 115 m (includes 5m ship draft)

Station: Bar-C-4/D806.4

UTC Time 0043

Weather/Sea State calm

CTD File: 2019-78- Lat (N) 71 22.333

Lon (W) 157 24.510

Watchkeeper(s) SZ/SAQ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Temp Samp #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: Bottom Salinity:	Comments
1		✓	But-5	109	231		X	2	X	1	✓	X	X	X	X	X	X	X								6.420	
2		✓	But-5	109	232					2																32.044	3 chl max @ 100 (?)
3		✓	100	100	233			2	X	3	X	X	X	X	X	X	X										
4		✓	100	100	234				X	4																	
5		✓	75	75	235			2	X	5	X	X	X	X	X	X	X	X									
6		✓	75	75	236					6																	
7		✓	50	51	237			2	X	7	X	X	X	X	X	X	X	X									
8		✓	50	51	238					8											X						
9		✓	35	35	239		X	2	X	9	X	X	X	X	X	X	X	X									
10		✓	35	35	280					10											X						
11		✓	25	25	281			2	X	11	X	X	X	X	X	X	X	X									
12		✓	25	25	282					12											X						
13		✓	15	15	283			2	X	13	X	X	X	X	X	X	X	X									
14		✓	15	15	284					14											X						
15		✓	15	15	285					15																	
16		✓	5	5.5	286		X	2	X	16	X	X	X	X	X	X	X	X									
17		✓	5	5.5	287				X	17											X						
18			chl max		288					18	X	X	X	X	X	X	X	X									
19			chl max		289					19	X	X	X	X	X	X	X	X									
20			chl max		290					20																	
21										21																	
22										22																	
23										23																	
24										24																	

Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

IFCB only for Frey

Small amount of jelly fish on frame

not on EK60 #

NOT FIRED

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event #: 301 UTC Date (ddmmYYYY) 21 JUL 2019

Water Depth (Sunder) 128.5 m (includes 5m ship draft)

Station: BACC-5/D8055 UTC Time 22:33

Weather/Sea State calm/overcast / no 7kt winds

CTD File: 2019-78-0201 Lat (N) 71°24.614

Lon (W) 157°29.238

Watchkeeper(s) SAO/SE

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Temp Samp #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: -0.529	Bottom Salinity: 32.120	Comments
1	1	✓	Rot-5	120.8	342		X	2	X	1	X	X	X	X	X	X	X	X	X						X		
2	2	✓	Rot-5	120.8	348					2	X	X	X	X	X	X	X	X	X								
3	3	✓	100	99.6	349			2	X	3	X	X	X	X	X	X	X	X									
4	4	✓	100	99.6	356				X	4	X	X	X	X	X	X	X	X									
5	5	✓	50	50.4	351			2	X	5	X	X	X	X	X	X	X	X									
6	6	✓	50	50.1	352		X	2	X	6	X	X	X	X	X	X	X	X									
7	7	✓	50	50.3	353			2	X	7	X	X	X	X	X	X	X	X									
8	8	✓	50	50.3	354				X	8	X	X	X	X	X	X	X	X									
9	9	✓	15	15.4	355			2	X	9	X	X	X	X	X	X	X	X									
10	10	✓	5	5.3	356				X	10	X	X	X	X	X	X	X	X									
11	11	✓	5	5.3	357				X	11	X	X	X	X	X	X	X	X									
12	12	✓	5	5.3	358			2	X	12	X	X	X	X	X	X	X	X									
13	13	✓	5	5.3	359				X	13	X	X	X	X	X	X	X	X									
14	14	✓	5	5.3	360				X	14	X	X	X	X	X	X	X	X									
15	15	✓	0.1%	53.4	361				X	15	X	X	X	X	X	X	X	X									
16	16	✓	1.1%	80.4	362				X	16	X	X	X	X	X	X	X	X									
17	17	✓	1.1%	80.4	363				X	17	X	X	X	X	X	X	X	X									
18	18	✓	15%	10.9	364				X	18	X	X	X	X	X	X	X	X									
19	19	✓	30%	11.6	365				X	19	X	X	X	X	X	X	X	X									
20	20	✓	50%	7.5	366				X	20	X	X	X	X	X	X	X	X									
21	21	✓	50%	7.5	367				X	21	X	X	X	X	X	X	X	X									
22	22	✓	100%	7.0	368				X	22	X	X	X	X	X	X	X	X									
23	23	✓	100%	2.0	369				X	23	X	X	X	X	X	X	X	X									
24	24	✓	100%	2.0	370				X	24	X	X	X	X	X	X	X	X									

Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:
 @ 123.0dbCTD pressure offset = 2.3 → 125.3
 @ 120.0db " " offset = 4.3 → 124.3

Handwritten signature

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 296

UTC Date (ddmmYYYY) 21 JUL 2019

Water Depth(Sounder) 113 m (includes 5m ship draft)

Station: Bar-C-6/0805.6

UTC Time 20:45

Weather/Sea State cloudy/sea

CTD File: 2019-78-0296

Lat (N) 71°27.338

Lon (W) 157°34.938

Watchkeeper(s) SAO/SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: -1.30 Bottom Salinity: 32.315	Comments
1	1	✓	Bot-5	107.2	280		X	2	X	1	X	X	X	X	X	X	X	X	X								
2	2	✓	Bot-5	107.2	281		X	2	X	2	X	X	X	X	X	X	X	X	X								
3	3	✓	75	25.4	282			2	X	3	X	X	X	X	X	X	X	X	X								
4	4	✓	75	25.4	283			2	X	4	X	X	X	X	X	X	X	X	X								
5	5	✓	50	50.1	284			2	X	5	X	X	X	X	X	X	X	X	X								
6	6	✓	50	50.2	285			2	X	6	X	X	X	X	X	X	X	X	X								
7	7	✓	35	35.0	286		X	2	X	7	X	X	X	X	X	X	X	X	X								
8	8	✓	35	35.0	287			2	X	8	X	X	X	X	X	X	X	X	X								
9	9	✓	25	25.5	288			2	X	9	X	X	X	X	X	X	X	X	X								
10	10	✓	25	25.5	289			2	X	10	X	X	X	X	X	X	X	X	X								
11	11	✓	15	15.8	290			2	X	11	X	X	X	X	X	X	X	X	X								
12	12	✓	15	15.8	291			2	X	12	X	X	X	X	X	X	X	X	X								
13	13	✓	5	4.8	292		X	2	X	13	X	X	X	X	X	X	X	X	X								
14	14	✓	5	4.8	293					14	X	X	X	X	X	X	X	X	X								
15	15	✓	5	4.8	294					15	X	X	X	X	X	X	X	X	X								
16	16	✓	Chl-a	38.3	295					16	X	X	X	X	X	X	X	X	X								
17	17	✓	Chl-a	38.3	296					17	X	X	X	X	X	X	X	X	X								
18	18									18																	
19	19									19																	
20	20									20																	
21	21									21																	
22	22									22																	
23	23									23																	
24	24									24																	

Bottle Integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments:

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # 290 UTC Date (ddmmYYYY) 21_JUL_2019

Station: BarC-7/D805.7 UTC Time 1855

CTD File: 2019-78-0290 Lat (N) 71 30.029

Lon (W) 157 40.235

Weather/Sea State calm

Water Depth(Sounder) 85 m (includes 5m ship draft)

Watchkeeper(s) SB/SAQ

73

alt = 4.7

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments	
1	✓		Bot-5	18	215		X	2	X	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Bottom Temperature: -1.60 Bottom Salinity: 32.385	
2	✓		Bot-5	18	216					2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
3	✓		50	49	217			2	X	3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
4	✓		50	49	218					4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
5	✓		35	35	219		X	2	X	5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
6	✓		35	35	220					6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
7	✓		25	25	221			2	X	7	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8	✓		25	25	222					8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
9	✓		15	15	223			2	X	9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
10	✓		15	15	224					10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
11	✓		5	6	225		X	2	X	11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
12	✓		5	6	226					12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
13	✓		chlow	6	227					13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
14	✓		chlow	6	228					14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
15	✓		chlow	6	229					15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
16										16																	
17										17																	
18										18																	
19										19																	
20										20																	
21										21																	
22										22																	
23										23																	
24										24																	

Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

{ no clear chl max

{ weak, weak chl max

Comments

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 285

UTC Date (ddmmYYYY) 21 JUL 2019

Water Depth(Sounder) 73 m (includes 5m ship draft)

Station: Bar-C-8/D805.6

UTC Time 17:23

Weather/Sea State Sunny, calm, ~5 knot winds

CTD File: 2019-78-0285

Lat (N) 71°32.155

Lon (W) 157°45.155

Watchkeeper(s) SAQ/SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: -1.554	Bottom Salinity: 32.299	Comments	
1	1	✓	Bot-5	102.4	200		X	2	X	1	X	X	X	X	X	X	X	X	X	X					X				
2	2	✓	Bot-5	102.4	201					2	X	X	X	X	X	X	X	X	X	X									
3	3	✓	50	50.4	202			2	X	3	X	X	X	X	X	X	X	X	X	X									
4	4	✓	50	50.4	203					4	X	X	X	X	X	X	X	X	X	X									
5	5	✓	35	35.2	204		X	2	X	5	X	X	X	X	X	X	X	X	X	X					X				
6	6	✓	35	35.2	205					6	X	X	X	X	X	X	X	X	X	X						X			
7	7	✓	25	25.3	206			2	X	7	X	X	X	X	X	X	X	X	X	X					X				
8	8	✓	25	25.3	207					8	X	X	X	X	X	X	X	X	X	X						X			
9	9	✓	15	15.3	208			2	X	9	X	X	X	X	X	X	X	X	X	X					X				
10	10	✓	15	15.3	209					10	X	X	X	X	X	X	X	X	X	X					X				
11	11	✓	5	4.4	210		X	2	X	11	X	X	X	X	X	X	X	X	X	X					X				
12	12	✓	5	4.4	211					12	X	X	X	X	X	X	X	X	X	X									
13	13	✓	chlwor	25.9	212					13	X	X	X	X	X	X	X	X	X	X									
14	14	✓	chlwor	35.2	213					14																			
15	15	✓	chlwor	35.2	214					15																			
16	16									16																			
17	17									17																			
18	18									18																			
19	19									19																			
20	20									20																			
21	21									21																			
22	22									22																			
23	23									23																			
24	24									24																			

Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments: Karen not sampling, except for IFCB.

ADCP P1:20 71.32.168 / 157.45.123

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 280 UTC Date (ddmmYYYY) 21 JUL 2019

Station: Bar-C-9/DB05.9 UTC Time 1547

CTD File: 2019-78-0280 Lat (N) 41°34.610

Lon (W) 157°50.665

Weather/Sea State cal w/ lower cast.

Water Depth(Sounder) 657 m (Includes 5m ship draft)

Watchkeeper(s) SAQ/LSZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chi (Varela)	Phyto-Genetics (Nelson)	Comments	
1	✓	1	Bot-5	60.4	685		X	2	X	1	X	X	X	X	X	X	X	X	X						X		
2	✓	2	Bot-5	60.4	686					2	X	X	X	X	X	X	X	X	X							X	Bottom Temperature: -1.526 Bottom Salinity: 32.213
3	✓	3	50	50.3	687			2	XX	3	X	X	X	X	X	X	X	X									
4	✓	4	50	50.3	688					4	X	X	X	X	X	X	X	X								X	
5	✓	5	35	34.1	689		X	2	X	5	X	X	X	X	X	X	X	X							X		
6	✓	6	35	34.1	690					6	X	X	X	X	X	X	X	X								X	Chlorax but much smaller on upcast as it disappeared
7	✓		25	24.6	691			2	X	7	X	X	X	X	X	X	X	X							X		
8	✓		25	24.6	692					8	X	X	X	X	X	X	X	X								X	
9	✓		15	15.5	693			2	X	9	X	X	X	X	X	X	X	X							X		
10	✓		15	15.5	694					10	X	X	X	X	X	X	X	X								X	
11	✓		5	4.7	695		X	2	X	11	X	X	X	X	X	X	X	X							X		
12	✓		5	4.7	696				X	12	X	X	X	X	X	X	X	X							X		
13			3	3.2	697					13	X	X	X	X	X	X	X	X								X	
14			3	3.2	698					14	X	X	X	X	X	X	X	X								X	
15			3	3.2	699					15	X	X	X	X	X	X	X	X								X	
16										16																	
17										17																	
18										18																	
19										19																	
20										20																	
21										21																	
22										22																	
23										23																	
24										24																	

Comments: Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # **27A** UTC Date (ddmmYYYY) **21 JUL 2019**

Water Depth(Sounder) **64** m (includes 5m ship draft)

Station: **Bar-C-10/0805.10** UTC Time **13:59**

Weather/Sea State **CDW/overcast / ~2kt winds**

CTD File: **2019-78-027A** Lat (N) **21°37.916**

Lon (W) **159°55.256**

Watchkeeper(s) **SAD/SZ**

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments	
1	1	V	Bot-5	58.4	672		X	2	X	1	X	X	X	X	X	X	X	X	X	X					X		
2	2	V	Bot-5	58.4	673		X	2	X	2	X	X	X	X	X	X	X	X	X	X					X	Bottom Temperature: -1.535 Bottom Salinity: 32.155	
3	3	V	50	50.2	674			2	X	3	X	X	X	X	X	X	X	X	X	X					X		
4	4	V	50	50.2	675			2	X	4	X	X	X	X	X	X	X	X	X	X					X		
5	5	V	35	35	676		X	2	X	5	X	X	X	X	X	X	X	X	X	X					X	Chl-a @ ~10-12 mg/m ³	
6	6	V	35	35	677			2	X	6	X	X	X	X	X	X	X	X	X	X					X		
7	7	V	25	25	678			2	X	7	X	X	X	X	X	X	X	X	X	X					X		
8	8	V	25	25	679			2	X	8	X	X	X	X	X	X	X	X	X	X					X		
9	9	V	15	15.4	680			2	X	9	X	X	X	X	X	X	X	X	X	X					X		
10	10	V	15	15.4	681			2	X	10	X	X	X	X	X	X	X	X	X	X					X		
11	11	V	5	5	682		X	2	X	11	X	X	X	X	X	X	X	X	X	X					X		
12	12	V	5	5	683			2	X	12	X	X	X	X	X	X	X	X	X	X					X		
13	13	V	chl/wax	29.4	684			2	X	13	X	X	X	X	X	X	X	X	X	X					X	~18-22 mg/m ³	
14	14									14																	
15	15									15																	
16	16									16																	
17	17									17																	
18	18									18																	
19	19									19																	
20	20									20																	
21	21									21																	
22	22									22																	
23	23									23																	
24	24									24																	

Bottle integrity: First test lower petcock then test top valve. Check means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

64

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # *267* UTC Date (ddmmYYYY) *2019 JUL 20*

Water Depth(Sounder) *55* m (includes 5m ship draft)

Station: *D30 4.1N* UTC Time *3:13*

Weather/Sea State *Calm/calm / VpTent w/beds*

CTD File: *2019-78-0267* Lat (N) *21°11'44"*

Lon (W) *160°10.226*

Watchkeeper(s) *SAD*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fnac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments	
1		✓	bot-5	52.4	659		X	4	X	1	X	X	X	X	X	X	X	X									
2		✓	bot-5	52.4	660					2	X	X	X	X	X	X	X	X									
3		✓	35	95	661			4	X	3	X	X	X	X	X	X	X	X									
4		✓	35	85	662					4	X	X	X	X	X	X	X	X									
5		✓	25	24.7	663			4	X	5	X	X	X	X	X	X	X	X									
6		✓	25	24.7	664					6	X	X	X	X	X	X	X	X									
7		✓	15	15.3	665			4	X	7	X	X	X	X	X	X	X	X									
8		✓	15	15.3	666					8	X	X	X	X	X	X	X	X									
9		✓	5	4.7	667		X	4	X	9	X	X	X	X	X	X	X	X									
10		✓	5	4.7	668					10	X	X	X	X	X	X	X	X									
11		✓	chlwok	24.2	669					11	X	X	X	X	X	X	X	X									
12		✓	chlwok	24.2	670					12	X	X	X	X	X	X	X	X									
13		✓	bot-5	52.4	671					13									X								
14										14																	
15										15																	
16										16																	
17										17																	
18										18																	
19										19																	
20										20																	
21										21																	
22										22																	
23										23																	
24										24																	

Bottom Temperature: *-1.290*
 Bottom Salinity: *32.236*

Bottle integrity: First test lower petcock, then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments:

Rosette log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # *259* UTC Date (ddmmYYYY) *2019 JUL 12 2019*

Water Depth(Sounder) *49* m (includes 5m ship draft)

Station: *DB04.2m* UTC Time *23:53*

Weather/Sea State *calm/15 knot winds/overcast.*

CTD File: *2019-78-0259* Lat (N) *21° 19.364*

Lon (W) *160° 39.350*

Watchkeepers) *SAD*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/AIK (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb. bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: <i>-1.405</i> Bottom Salinity: <i>32.328</i>	Comments	
1	V		<i>Bot 5</i>	<i>45.3</i>	<i>646</i>					1	X	X	X	X	X	X	X	X		X					X			
2	V		<i>Bot 5</i>	<i>45.3</i>	<i>647</i>		X			2	X	X	X	X	X	X	X	X		X					X		<i>2 Dist in top vent not closed So sampled from 2</i>	
3	V		<i>35</i>	<i>25.3</i>	<i>648</i>			4		3	X	X	X	X	X	X	X	X										
4	V		<i>35</i>	<i>25.3</i>	<i>649</i>			4		4	X	X	X	X	X	X	X	X										
5	V		<i>25</i>	<i>25.2</i>	<i>650</i>			4		5	X	X	X	X	X	X	X	X										
6	V		<i>25</i>	<i>25.2</i>	<i>651</i>			4		6	X	X	X	X	X	X	X	X										
7	V		<i>15</i>	<i>15.4</i>	<i>652</i>			4		7	X	X	X	X	X	X	X	X										
8	V		<i>15</i>	<i>15.4</i>	<i>653</i>			4		8	X	X	X	X	X	X	X	X										
9	V		<i>5</i>	<i>5.1</i>	<i>654</i>		X	A		9	X	X	X	X	X	X	X	X										
10	V		<i>5</i>	<i>5.1</i>	<i>655</i>					10	X	X	X	X	X	X	X	X										
11	V		<i>CDOM</i>	<i>29.2</i>	<i>656</i>					11	X	X	X	X	X	X	X	X										
12	V		<i>CDOM</i>	<i>29.2</i>	<i>657</i>					12	X	X	X	X	X	X	X	X										
13	V		<i>Bot 5</i>	<i>45.3</i>	<i>658</i>					13										X								
14										14																		
15										15																		
16										16																		
17										17																		
18										18																		
19										19																		
20										20																		
21										21																		
22										22																		
23										23																		
24										24																		

Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments:

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # 251 UTC Date (ddmmYY) 20 JUL 2019

Water Depth(Sounder) 47.5 m (includes 5m ship draft)

Station: DBD 43n UTC Time 20:39

Weather/Sea State overcast calm, 15-20kt winds

CTD File: 2019-78-0251 Lat (N) 71° 27.268

Lon (W) 161° 2.245

Watchkeeper(s) SAD

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Temp Samp #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nutrients (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: -1.506 Bottom Salinity: 32.165	
1		✓	Bot-5	43.1	633		X	4	X	1	X	X	X	X	X	X	X	X		X					X	Filtering comments	
2		✓	Bot-5	43.1	634					2	X	X	X	X	X	X	X	X		X					X		
3		✓	35	35.4	635			4	X	3	X	X	X	X	X	X	X	X		X					X	4 IOS @ 3 Varela	
4		✓	35	35.4	636				X	4	X	X	X	X	X	X	X	X		X					X		
5		✓	25	25	637			4	X	5	X	X	X	X	X	X	X	X		X					X	4 IOS	
6		✓	25	25	638				X	6	X	X	X	X	X	X	X	X		X					X	4 IOS	
7		✓	15	15.4	639			4	X	7	X	X	X	X	X	X	X	X		X					X	4 IOS @ 3 Varela	
8		✓	15	15.4	640				X	8	X	X	X	X	X	X	X	X		X					X		
9		✓	5	5.0	641		X	4	X	9	X	X	X	X	X	X	X	X		X					X	4 IOS	
10		✓	5	5.0	642					10	X	X	X	X	X	X	X	X		X					X		
11		✓	28.5	28.5	643					11	X	X	X	X	X	X	X	X		X					X		
12		✓	28.5	28.5	644					12	X	X	X	X	X	X	X	X		X					X		
13		✓	Bot-5	45.1	645					13									X								
14										14																	
15										15																	
16										16																	
17										17																	
18										18																	
19										19																	
20										20																	
21										21																	
22										22																	
23										23																	
24										24																	

Comments: Bottle integrity: First test lower portcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

418

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 2A3

UTC Date (ddmmYYYY) 20 JUL 2019

Water Depth(Sounder) 47 m (includes 5m ship draft)

Station: DBO A.4 m

UTC Time 17:13

Weather/Sea State less than 1 m swell

CTD File: 2019-78-0243

Lat (N) 71 35.278

Lon (W) 161 24.386

Watchkeeper(s) S2

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Stamp #	Bottle Integrity	DIC/AIK (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: Bottom Salinity:	Comments
1		V	Bot 5	43	609		X	4	X	1	X	X	X	X	X	X	X	X	X		X				X		
2		V	Bot 3	48	610					2	X	X	X	X	X	X	X	X	X								
3		V	25	35	611			4	X	3	X	X	X	X	X	X	X	X	X						X		
4		V	25	35	612			4	X	4	X	X	X	X	X	X	X	X	X						X		
5		V	25	25	613			4	X	5	X	X	X	X	X	X	X	X	X						X		
6		V	25	25	614					6	X	X	X	X	X	X	X	X	X							X	
7		V	15	15	615			4	X	7	X	X	X	X	X	X	X	X	X						X		
8		V	15	15	616					8	X	X	X	X	X	X	X	X	X							X	
9		V	5	5.5	617		X	4	X	9	X	X	X	X	X	X	X	X	X						X		
10		V	5	5.8	618					10	X	X	X	X	X	X	X	X	X								
11		V	Chl a	30	619					11	X	X	X	X	X	X	X	X	X								
12		V	Bot 5	43	620					12	X	X	X	X	X	X	X	X	X								
13		V	0.1%	43	621					13										X							
14		V	1%	30	622					14											X						
15		V	1%	30	623					15											X						
16		V	15%	14	624					16											X						
17		V	15%	14	625					17											X						
18		V	30%	10	626					18											X						
19		V	30%	10	627					19											X						
20		V	50%	7	628					20											X						
21		V	50%	7	629					21											X						
22		V	100%	2	630					22											X						
23		V	100%	2	631					23											X						
24		V	100%	2	632					24											X						

Bottom Integrity: First test lower petcock, then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments: SW00's prod. cast.

Handwritten signature: Vincent...

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 235 UTC Date (ddmmYYYY) 20_JUL_2019

Water Depth(Sounder) 45 m (includes 5m ship draft)

Station: DR045N UTC Time 1356

Weather/Sea State ~1m swell

CTD File: 2019-78- Lat (N) 71 43.183

Lon (W) 161 46.351

Watchkeeper(s) SE

45
40, salt = 3

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature:	Bottom Salinity:	Comments			
1		✓	Bof-5	40	590		X		X	1	X	X	X	X	X	X	X	X		X											
2		✓	Bof-5	40	591					2	X	X	X	X	X	X	X	X		X											
3		✓	35	35	598			4	X	3	X	X	X	X	X	X	X	X		X											
4		✓	35	35	599				X	4	X	X	X	X	X	X	X	X		X											
5		✓	25	25	600			4	X	5	X	X	X	X	X	X	X	X		X											
6		✓	25	25	601				X	6	X	X	X	X	X	X	X	X		X											
7		✓	15	15	602			4	X	7	X	X	X	X	X	X	X	X		X											
8		✓	15	15	603				X	8	X	X	X	X	X	X	X	X		X											
9		✓	5	5	604		XX	4	X	9	X	X	X	X	X	X	X	X		X											
10		✓	5	5	605					10																					
11		✓	CHLmax	28	606					11	X	X	X	X	X																
12		✓	CHLmax	28	609					12	X	X	X	X	X																
13		✓	Bof-5	40	608					13									X												
14										14																					
15										15																					
16										16																					
17										17																					
18										18																					
19										19																					
20										20																					
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23										23																					
24										24																					

Comments: Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

2 narrow chL max
3 not a thick layer

Bottom Temperature: -1.672
Bottom Salinity: 32.393

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Max 39 m alt = 2.6 m

Event # 128

UTC Date (ddmmmyy) 20 JUL 2019

Water Depth(Sounder) 42 m (includes 5m ship draft)

Station: DRB ALON

UTC Time 1033

Weather/Sea State ~/mor less swell

CTD File: 2019-78-0228

Lat (N) 71 50.915

Lon (W) 162 9.518

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: Bottom Salinity:	Comments
1	V		Bot-5	39	583		X	4	X	1	X	X	X	X	X	X	X	X	X	X	X					-1.670	
2	V		Bot-5	39	584		X	4	X	2	X	X	X	X	X	X	X	X	X	X	X					32.327	
3	V		25	25	585			4	X	3	X	X	X	X	X	X	X	X	X	X	X						
4	V		25	25	586			4	X	4	X	X	X	X	X	X	X	X	X	X	X						
5	V		25	25	587			4	X	5	X	X	X	X	X	X	X	X	X	X	X						
6	V		25	25	588			4	X	6	X	X	X	X	X	X	X	X	X	X	X						
7	V		15	15	589			4	X	7	X	X	X	X	X	X	X	X	X	X	X						
8	V		15	15	590			4	X	8	X	X	X	X	X	X	X	X	X	X	X						
9	V		5	4.6	591		X	4	X	9	X	X	X	X	X	X	X	X	X	X	X						
10	V		5	4.3	592		X	4	X	10	X	X	X	X	X	X	X	X	X	X	X						
11	V		CHLMAX	3.3	593					11	X	X	X	X	X	X	X	X	X	X	X						
12	V		CHLMAX	3.3	594					12	X	X	X	X	X	X	X	X	X	X	X						
13	V		Bot-5	3.9	595					13										X							
14										14																	
15										15																	
16										16																	
17										17																	
18										18																	
19										19																	
20										20																	
21										21																	
22										22																	
23										23																	
24										24																	

Comments: Bottle integrity: First test lower petcock then test top valve. Check means pass, 'x' means fail. If niskin fails, explain this in the comments column.

started

Niskin 1 was dripping when spigot pushed in so sampled from Niskin 2 instead of 1.

← large peak of 20 to 30 mg/lw3

Rosette Log for IOS Cruise ID 2019-78 Ship: CCGS Sir Wilfrid Laurier

Event # 220 UTC Date (ddmmYYYY) 19 JUL 2019 Water Depth(Sounder) 58.5 m (includes 5m ship draft)

Station: UT10-7 UTC Time 4:16 Weather/Sea State overcast / 1/2 kt winds

CTD File: 2019-78-0220 Lat (N) 68° 0.099 Lon (W) 168° 55.643 Watchkeeper(s) SAD

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments	
1		V	Bots	536	536		X			1	X	X	X	X	X	X	X	X		X						X	Bottom Temperature: 2.936 Bottom Salinity: 32.903
2		V	Bots	536	536					2	X	X	X	X	X	X	X	X		X							
3		V	SD	506	506					3	X	X	X	X	X	X	X	X		X							
4		V	SD	506	506					4	X	X	X	X	X	X	X	X		X							
5		V	35	94.0	534					5	X	X	X	X	X	X	X	X		X							
6		V	35	94.0	534					6	X	X	X	X	X	X	X	X		X							
7		V	25	95.5	536					7	X	X	X	X	X	X	X	X		X							
8		V	25	95.5	536					8	X	X	X	X	X	X	X	X		X							
9		V	15	153	531					9	X	X	X	X	X	X	X	X		X							
10		V	15	153	531					10	X	X	X	X	X	X	X	X		X							
11		V	5	45	530		X			11	X	X	X	X	X	X	X	X		X							
12		V	5	45	531		X			12	X	X	X	X	X	X	X	X		X							
13		V	Bots	536	536					13									X								
14		V	Bots	536	536					14																	
15		V	Bots	536	536					15																	
16										16																	
17										17																	
18										18																	
19										19																	
20										20																	
21										21																	
22										22																	
23										23																	
24										24																	

Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

lots of preaching whalers !!
beautif. sed.

Niskin 14+15 not closed -

not needed since chl max on 25th bottle

51m

Rosette Log for IOS Cruise ID 2019-78 Ship: CCGS Sir Wilfrid Laurier

Event # 2137/2138 UTC Date (ddmmYYYY) 18 Jul 2019 Water Depth(Sounder) 515 m (includes 5m ship draft)

Station: SEC-1/D303.1 UTC Time 23:22/00:20 Weather/Sea State 0 S/w surge/D5/calm/overcast/11e tent winds

CTD File: 2019-78-0213 Lat (N) 63°40.3871 Lon (W) 168°55.3591 Watchkeepers) SNO

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 2.968 2.966 Bottom Salinity: 32.885 32.891	Comments	
1	V	V	Bot 5	46.2	557	46.16	X		X	1	X	X	X	X	X	X	X	X							X			
2	V	V	Bot 5	46.2	558	46.16			X	2	X	X	X	X	X	X	X	X										
3	V	V	Bot 5	35.3	559	35.16		X	X	3	X	X	X	X	X	X	X	X								X		
4	V	V	Bot 5	35.3	560	35.16		X	X	4	X	X	X	X	X	X	X	X								X		
5	V	V	Bot 5	25.5	561	25.5		X	X	5	X	X	X	X	X	X	X	X								X		
6	V	V	Bot 5	25.5	562	25.5		X	X	6	X	X	X	X	X	X	X	X								X		
7	V	V	Bot 5	15.8	563	15.6		X	X	7	X	X	X	X	X	X	X	X								X		
8	V	V	Bot 5	15.8	564	15.6			X	8	X	X	X	X	X	X	X	X								X		
9	V	V	Bot 5	4.8	565	4.3	X	X	X	9	X	X	X	X	X	X	X	X								X		
10	V	V	Bot 5	4.8	566	4.3			X	10	X	X	X	X	X	X	X	X								X		
11	V	V	Chlorophyll 23.4	23.4	567	22.5			X	11	X	X	X	X	X	X	X	X										
12	V	V	Chlorophyll 23.4	23.4	568	22.3			X	12	X	X	X	X	X	X	X	X										
13	V	V	Bot 5	46.1	569	46.1			X	13	X	X	X	X	X	X	X	X	X									
14										14																		
15										15																		
16										16																		
17										17																		
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24										24																		

Comments: Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 200 UTC Date (ddmmYYYY) 18 JUL 2019

Water Depth(Sounder) 51 m (Includes 5m ship draft)

Station: SEC.2 / 0803.7 UTC Time 20:40

Weather/Sea State 2/1m swell, overcast 13kt.

CTD File: 2019-78-0200 Lat (N) 67° 46.943

Lon (W) 108° 35.971

Watchkeeper(s) SAA

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb. bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 3.182	Bottom Salinity: 32.805	Comments	
1		✓	Bot-5	40.5	544		X	4	X	1	X	X	X	X	X	X	X	X		X					X				
2		✓	Bot-5	40.5	545					2	X	X	X	X	X	X	X	X		X									
3		✓	35	25.4	546			4	X	3	X	X	X	X	X	X	X	X		X									
4		✓	35	25.4	547					4																			
5		✓	25	25.4	548			4	X	5	X	X	X	X	X	X	X	X		X									
6		✓	25	25.4	549					6	X	X	X	X	X	X	X	X		X									
7		✓	15	15.7	550			4	X	7	X	X	X	X	X	X	X	X		X									
8		✓	15	15.7	551					8																			
9		✓	5	5.0	552		X	4	X	9	X	X	X	X	X	X	X	X		X									
10		✓	5	5.0	553					10																			
11		✓	chiller	12.4	554					11	X	X	X	X	X	X	X	X		X									
12		✓	chiller	12.4	555					12																			
13		✓	Bot-5	40.5	556					13										X									
14										14																			
15										15																			
16										16																			
17										17																			
18										18																			
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Comments: Bottle integrity: First test lower packback then test top valve. Check means pass, 'x' means fail. If niskin fails, explain this in the comments column.

51m

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 199 UTC Date (ddmmYYYY) 18 JUL 2019

Water Depth(Sounder) 59 m (includes 5m ship draft)

Station: Sec-3/0803-6 UTC Time 1714

Weather/Sea State 0.5 m swell

CTD File: 2019-78-0199 Lat (N) 67 53.771

Lon (W) 168 13.990

Watchkeeper(s) SZ

60m 54.5, 4.0 a 11m

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 3.193	Bottom Salinity: 32.723	Comments	
1		✓	Bot-5	54.5	528		XX	A	X	1	X	X	X	X	X	X	X	X		X					X				
2		✓	Bot-5	54.5	528					2	X	X	X	X	X	X	X	X		X									
3		✓	50	50	530			A	X	3	X	X	X	X	X	X	X	X		X									
4		✓	50	50	531					4	X	X	X	X	X	X	X	X		X									
5		✓	35	34	532			A	X	5	X	X	X	X	X	X	X	X		X									
6		✓	35	34	533			A	X	6	X	X	X	X	X	X	X	X		X									
7		✓	25	25	534			A	XX	7	X	X	X	X	X	X	X	X		X									
8		✓	25	25	535					8	X	X	X	X	X	X	X	X		X									
9		✓	15	15	536			A	X	9	X	X	X	X	X	X	X	X		X									
10		✓	15	15	537					10	X	X	X	X	X	X	X	X		X									
11		✓	5	5	538		X	A	X	11	X	X	X	X	X	X	X	X		X									
12		✓	5	5	539					12	X	X	X	X	X	X	X	X		X									
13		✓	Chlwa	31	540					13	X	X	X	X	X	X	X	X		X									
14		✓	Chlwa	31	541					14	X	X	X	X	X	X	X	X		X									
15		✓	Chlwa	31	542					15	X	X	X	X	X	X	X	X		X									
16		✓	Bot-5	54.5	543					16	X	X	X	X	X	X	X	X		X									
17										17																			
18										18																			
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Comments: Bottle integrity: First test lower pedcock then test top valve. Check means pass, 'x' means fail. If niskin fails, explain this in the comments column.

3 chl at 2.0

close enough

Bottom Temperature: 3.193
Bottom Salinity: 32.723

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

54m 49.6 Max p, 3.4 alt

Event # 193 UTC Date (ddmmYYYY) 18 JUL 2019

Water Depth(Sounder) 53 m (includes 5m ship draft)

Station: SEC-4 / 080 UTC Time 18 14 52

Weather/Sea State Rain / 0.5m slow swell

CTD File: 2019-78-3.5 Lat (N) 68 00.725

Lon (W) 167 51.572

Watchkeeper(s) SE

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 3.635	Bottom Salinity: 32.490	Comments	
1		V	Bot-5	49.6	510		X	A	X	1	X	X	X	X	X	X	X	X	X	X					X				
2		V	Bot-5	49.3	517					2	X	X	X	X	X	X	X	X											
3		V	35	35	518			A	X	3	X	X	X	X	X	X	X	X								X			Little chl max
4		V	35	35	519				X	4	X	X	X	X	X	X	X	X								X			Little chl max
5		V	25	25	520			A	X	5	X	X	X	X	X	X	X	X								X			Little chl max
6		V	25	25	521				X	6	X	X	X	X	X	X	X	X								X			big chl max
7		V	15	15.3	522			A	X	7	X	X	X	X	X	X	X	X								X			
8		V	15	15.3	523				X	8	X	X	X	X	X	X	X	X											
9		V	5	4.7	524		X	A	X	9	X	X	X	X	X	X	X	X								X			
10		V	5	4.7	525					10	X	X	X	X	X	X	X	X											
11		V	Chlorophyll	17	526					11	X	X	X	X	X	X	X	X											
12		V	Chlorophyll	17	527					12	X	X	X	X	X	X	X	X											
13										13																			
14										14																			
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Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments: First SEC cast w/ no jellyfish on the Rosette

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # *187* UTC Date (ddmmYYYY) *18 JUL 2019*

Station: *SEC.5/D80 3.4* UTC Time *1152*

CTD File: *2019-78-* Lat (N) *68 7.788*

Lon (W) *167 29.869*

Weather/Sea State *1m slow swell*

Water Depth(Sounder) *50* m (includes 5m ship draft)

Watchkeeper(s) *S2*

51m
46.5 add a 11m skt = 3.5

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments
1		✓	<i>Bot 1.5</i>	<i>46.6</i>	<i>492</i>					1	X	X	X	X	X	X	X	X		X					X	
2		✓	<i>Bot 1.5</i>	<i>46.6</i>	<i>493</i>		X		X	2	X	X	X	X	X	X	X	X		X					X	
3		✓	<i>Bot 1.5</i>	<i>35.4</i>	<i>494</i>			X	X	3	X	X	X	X	X	X	X	X		X					X	
4		✓	<i>Bot 1.5</i>	<i>35.4</i>	<i>495</i>				X	4	X	X	X	X	X	X	X	X		X					X	
5		✓	<i>2.5</i>	<i>25.3</i>	<i>496</i>			X	X	5	X	X	X	X	X	X	X	X		X					X	
6		✓	<i>2.5</i>	<i>25.3</i>	<i>497</i>				X	6	X	X	X	X	X	X	X	X		X					X	
7		✓	<i>1.5</i>	<i>15.2</i>	<i>498</i>			X	X	7	X	X	X	X	X	X	X	X		X					X	
8		✓	<i>1.5</i>	<i>15.2</i>	<i>499</i>				X	8	X	X	X	X	X	X	X	X		X					X	
9		✓	<i>1.5</i>		<i>500</i>		X		X	9	X	X	X	X	X	X	X	X		X					X	
10		✓	<i>1.5</i>		<i>501</i>				X	10	X	X	X	X	X	X	X	X		X					X	
11		✓	<i>Chl max</i>		<i>502</i>				X	11	X	X	X	X	X	X	X	X		X					X	
12		✓	<i>0.1%</i>	<i>31</i>	<i>503</i>				X	12	X	X	X	X	X	X	X	X		X					X	
13		✓	<i>0.1%</i>	<i>31</i>	<i>504</i>			X	X	13	X	X	X	X	X	X	X	X		X					X	
14		✓	<i>1%</i>	<i>21</i>	<i>505</i>				X	14	X	X	X	X	X	X	X	X		X					X	
15		✓	<i>1%</i>	<i>21</i>	<i>506</i>				X	15	X	X	X	X	X	X	X	X		X					X	
16		✓	<i>1.5%</i>	<i>10</i>	<i>507</i>				X	16	X	X	X	X	X	X	X	X		X					X	
17		✓	<i>1.5%</i>	<i>10</i>	<i>508</i>				X	17	X	X	X	X	X	X	X	X		X					X	
18		✓	<i>30%</i>	<i>7</i>	<i>509</i>				X	18	X	X	X	X	X	X	X	X		X					X	
19		✓	<i>30%</i>	<i>7</i>	<i>510</i>				X	19	X	X	X	X	X	X	X	X		X					X	
20		✓	<i>50%</i>	<i>5</i>	<i>511</i>				X	20	X	X	X	X	X	X	X	X		X					X	
21		✓	<i>50%</i>	<i>5</i>	<i>512</i>				X	21	X	X	X	X	X	X	X	X		X					X	
22		✓	<i>100%</i>	<i>2</i>	<i>513</i>				X	22	X	X	X	X	X	X	X	X		X					X	
23		✓	<i>100%</i>	<i>2</i>	<i>514</i>				X	23	X	X	X	X	X	X	X	X		X					X	
24		✓	<i>100%</i>	<i>2</i>	<i>515</i>				X	24	X	X	X	X	X	X	X	X		X					X	

Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments: *productivity cost.*

13.5
0.17

Bottom Temperature: *4.615*
Bottom Salinity: *32.203*

← chl max - 15h

No chl max or ifso @ 25m bottle...

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

49 m

45.5 db + 3 alt

Event # 181 UTC Date (ddmmYYYY) 18 JUL 2019

Water Depth(Sounder) _____ m (includes 5m ship draft)

Station: SEC-6/DBO 3.3 UTC Time 0953

Weather/Sea State lw or poss!

CTD File: 2019-78-_____ Lat (N) 68 11.069

Lon (W) 167 18.496

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/AIK (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: <u>5.520</u> Bottom Salinity: <u>32.131</u>	Comments
1		✓	Bot 5	45.5	480		X	A	X	1	X	X	X	X	X	X	X	X	X	X	X				X		
2		✓	Bot 5	45.5	481					2	X	X	X	X	X	X	X	X	X								
3		✓	35	35	482			A	X	3	X	X	X	X	X	X	X	X	X							X	
4		✓	35	35	483				X	4	X	X	X	X	X	X	X	X	X							X	
5		✓	25	25	484			A	X	5	X	X	X	X	X	X	X	X	X							X	
6		✓	25	25	485				X	6	X	X	X	X	X	X	X	X	X							X	
7		✓	15	15	486			A	X	7	X	X	X	X	X	X	X	X	X							X	
8		✓	15	15	487				X	8	X	X	X	X	X	X	X	X	X							X	
9		✓	5	6	488		X	A	X	9	X	X	X	X	X	X	X	X	X							X	
10		✓	5	6	489				X	10	X	X	X	X	X	X	X	X	X							X	
11		✓	5	5	490				X	11	X	X	X	X	X	X	X	X	X							X	
12		✓	5	5	491				X	12	X	X	X	X	X	X	X	X	X							X	
13										13																	
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Comments: Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

43m

39.5 + 4.1 mwek
max p

Event # FB UTC Date (ddmmyyy) 18 JUL 2019

Water Depth(Sounder) 43 m (includes 5m ship draft)

Station: SEC-7/01303.2 UTC Time 0751

Weather/Sea State 1m cal

CTD File: 2019-78-0135 Lat (N) 68 14.596

Lon (W) 167 7.188

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments	
1		✓	Bot 5	39.5	408		X	A	X	1	X	X	X	X	X	X	X	X	X	X	X						Bottom Temperature: 8.045 Bottom Salinity: 31.226
2		✓	Bot 5	39.5	409					2	X	X	X	X	X	X	X	X	X								
3		✓	Bot 5	39.5	430			A	X	3	X	X	X	X	X	X	X	X	X	/							
4		✓	Bot 5	35	431				X	4	X	X	X	X	X	X	X	X	X								
5		✓	Bot 5	25	432			A	X	5	X	X	X	X	X	X	X	X	X								
6		✓	Bot 5	25	433				X	6	X	X	X	X	X	X	X	X	X								
7		✓	Bot 5	15	434			A	X	7	X	X	X	X	X	X	X	X	X								
8		✓	Bot 5	15	435				X	8	X	X	X	X	X	X	X	X	X								
9		✓	Bot 5	4	436		X	A	X	9	X	X	X	X	X	X	X	X	X								
10		✓	Bot 5	4	437					10	X	X	X	X	X	X	X	X	X								
11		✓	Bot 5	4	438					11	X	X	X	X	X	X	X	X	X								
12		✓	Bot 5	4	439					12	X	X	X	X	X	X	X	X	X								
13										13																	
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Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

Small amount of jelly fish strands on the rosette frame.

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

35 m

Act 3.6

Event # 169 UTC Date (ddmmYYYY) 181_JUL_12019

Water Depth(Sounder) 345 m (includes 5m ship draft)

Station: SEC-8/D30 UTC Time 5:56

Weather/Sea State W3-Start winds sunny, calm

CTD File: 2019-78-0108 Lat (N) 68°17.954

Lon (W) 166°56.418

Watchkeeper(s) SAC

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 9.910	Bottom Salinity: 30.963	Comments	
1	1	✓	BOT-5	31.2	459		X		X	1	X	X	X	X	X	X	X	X	X	X					X				
2	2	✓	BOT-5	31.2	460					2	X	X	X	X	X	X	X	X	X										
3	3	✓	25	25.2	461			4		3	X	X	X	X	X	X	X	X											
4	4	✓	25	25.2	462					4	X	X	X	X	X	X	X	X											
5	5	✓	15	15.9	463			4		5	X	X	X	X	X	X	X	X											
6	6	✓	15	15.9	464					6	X	X	X	X	X	X	X	X											
7	7	✓	5	4.9	465		XX	4		7	X	X	X	X	X	X	X	X											
8	8	✓	5	4.9	466					8	X	X	X	X	X	X	X	X											
9	9	✓	CDMA12.4	12.4	467					9	X	X	X	X	X														
10	10	✓	CDMA12.4	12.4	468					10	X	X	X	X	X														
11										11																			
12										12																			
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Comments: Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Niskin closed but not sampled. Sample # 468 assigned to Niskin 1 of next cast.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 102 UTC Date (ddmmYYYY) 17 JUL 2019

Water Depth(Sounder) 50 m (includes 5m ship draft)

Station: UTD-10 UTC Time 1757

Weather/Sea State 1m swell

CTD File: 2019-78-0102 Lat (N) 67 44.3477

Lon (W) 168 26.454

Watchkeeper(s) SZ

46 m^{max} 3,4 m 50

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments		
1		✓	Bot-5	46	446		X	A	X	1	X	X	X	X	X	X	X	X		X					X	Bottom Temperature: 3.584 Bottom Salinity: 32.606		
2		✓	Bot-5	46	447					2	X	X	X	X	X	X	X	X		X								
3		✓	35	35	448			A	X	3	X	X	X	X	X	X	X	X		X					X			
4		✓	35	35	449					4	X	X	X	X	X	X	X	X		X					X			
5		✓	25	25	450			A	X	5	X	X	X	X	X	X	X	X		X					X			
6		✓	25	25	451					6	X	X	X	X	X	X	X	X		X					X			
7		✓	15	15	452			A	X	7	X	X	X	X	X	X	X	X		X					X		3 min's chl max	
8		✓	15	15	453					8	X	X	X	X	X	X	X	X		X					X			
9		✓	5	4.6	454		X	A	X	9	X	X	X	X	X	X	X	X		X					X			
10		✓	5	4.6	455					10	X	X	X	X	X	X	X	X		X					X			
11		✓	CDOM max	19	456					11	X	X	X	X	X	X	X	X		X					X			
12		✓	CDOM max	19	457					12	X	X	X	X	X	X	X	X		X					X		3 salmax @ 15 not here	
13		✓	Bot-5	46	458					13										X								
14										14																		
15										15																		
16										16																		
17										17																		
18										18																		
19										19																		
20										20																		
21										21																		
22										22																		
23										23																		
24										24																		

Comments: Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Mar Z = 46, alt = 4

51

Event # 155

UTC Date (ddmmYYYY) 17 JUL 2019

Water Depth(Sounder) 50 m (includes 5m ship draft)

Station: UTN-4

UTC Time 1358

Weather/Sea State 1mswell

CTD File: 2019-78-055

Lat (N) 67 29.993

Lon (W) 168 54.511

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grab, bottom)	Phyto-ID (Var-Grab-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments	
V1			Bot-5	46	422		X	A	X	1	X	X	X	X	X	X	X	X	X	X							Bottom Temperature: 3.125 Bottom Salinity: 32.851
V2			Bot-5	46	423		X	A	X	2	X	X	X	X	X	X	X	X	X	X							← Christines bottom wts
V3			35	36	424			A	X	3	X	X	X	X	X	X	X	X	X	X							
V4			35	36	425			A	X	4	X	X	X	X	X	X	X	X	X	X							
V5			25	25	426			A	X	5	X	X	X	X	X	X	X	X	X	X							
V6			25	25	427			A	X	6	X	X	X	X	X	X	X	X	X	X							
V7			15	16	428			A	X	7	X	X	X	X	X	X	X	X	X	X							
V8			15	16	429			A	X	8	X	X	X	X	X	X	X	X	X	X							
V9			5	5	430		X	A	XX	9	X	X	X	X	X	X	X	X	X	X							
V10			5	5	431					10	X	X	X	X	X	X	X	X	X	X							
V11			ONDINA	24	432					11	X	X	X	X	X	X	X	X	X	X							
V12			Bot-5	46	433					12	X	X	X	X	X	X	X	X	X	X							
V13			Bot-5	46	434					13	X	X	X	X	X	X	X	X	X	X							
V14			0.1%	0.1%	435					14	X	X	X	X	X	X	X	X	X	X							
V15			0.1%	0.1%	436					15	X	X	X	X	X	X	X	X	X	X							
V16			1%	1%	437					16	X	X	X	X	X	X	X	X	X	X							
V17			1%	1%	438					17	X	X	X	X	X	X	X	X	X	X							
V18			15%	8	439					18	X	X	X	X	X	X	X	X	X	X							
V19			50%	6	440					19	X	X	X	X	X	X	X	X	X	X							
V20			50%	4	441					20	X	X	X	X	X	X	X	X	X	X							
V21			50%	4	442					21	X	X	X	X	X	X	X	X	X	X							
V22			100%	2	443					22	X	X	X	X	X	X	X	X	X	X							
V23			100%	2	444					23	X	X	X	X	X	X	X	X	X	X							
V24			100%	2	445					24	X	X	X	X	X	X	X	X	X	X							

Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments:

SNOA's prod. cont.

Questions: V3 at 100%? Give one of chlmax to O-1%?

Christina - would like 3 bottom wntus (Resp exp + 2 more)

Christina - would like 3 bottom wntus (Resp exp + 2 more)

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

13m @ 7.8 Fhr 45.4 44.4 51

Event # 149

UTC Date (ddmmYYYY) 17 JUL 2019

Water Depth(Sounder) 50 m (includes 5m ship draft)

Station: UTK03

UTC Time 1108

Weather/Sea State calm ~ 1m swell

CTD File: 2019-78-0149

Lat (N) 67 19.842

Lon (W) 168 54.350

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments	
1		✓	Bot-5	45	409	✓	X	4	X	1	X	X	X	X	X	X	X	X	X	X	X							Bottom Temperature: 2.668 Bottom Salinity: 32.945
2		✓	Bot-5	45	410					2	X	X	X	X	X	X	X	X	X	X								
3		✓	35	35	411			4	XX	3	X	X	X	X	X	X	X	X	X	X								
4		✓	35	35	412					4	X	X	X	X	X	X	X	X	X	X								
5		✓	25	25	413			4	X	5	X	X	X	X	X	X	X	X	X	X								
6		✓	25	25	414					6	X	X	X	X	X	X	X	X	X	X								
7		✓	15	16	415			4	X	7	X	X	X	X	X	X	X	X	X	X								
8		✓	15	16	416					8	X	X	X	X	X	X	X	X	X	X								
9		✓	5	5	417		X	4	X	9	X	X	X	X	X	X	X	X	X	X								
10		✓	5	5	418					10	X	X	X	X	X	X	X	X	X	X								
11		✓	Midmax	16	419					11	X	X	X	X	X	X	X	X	X	X								
12		✓	Midmax	16	420					12	X	X	X	X	X	X	X	X	X	X								
13		✓	Bot-5	45	421					13	X	X	X	X	X	X	X	X	X	X	X							
14										14																		
15										15																		
16										16																		
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Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.
 Comments:

2 Chlmax at 3.15m standard Niskin

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 142 UTC Date (ddmmmyy) 17 JUL 2019

Station: UT0-2 UTC Time 0717

CTD File: 2019-78-01A Lat (N) 67 2.976

Lon (W) 168 43.637

Weather/Sea State ~1M

Water Depth(Sounder) 47 m (includes 5m ship draft)

Watchkeeper(s) SAZSZ

WVP 42.6
alt 3.5
46

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb. bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: <u>3.202</u> Bottom Salinity: <u>32.831</u> Comments
1		✓	Bot-5	42.5	396	D	X	4	X	1	X	X	X	X	X	X	X	X	X	X						X	
2		✓	Bot-5	42.5	399					2	X	X	X	X	X	X	X	X	X	X							
3		✓	35	35	298	(1)		4	X	3	X	X	X	X	X	X	X	X	X	X							
4		✓	25	35	299					4	X	X	X	X	X	X	X	X	X	X							
5		✓	25	25	400	(5)		4	X	5	X	X	X	X	X	X	X	X	X	X							
6		✓	25	25	401					6	X	X	X	X	X	X	X	X	X	X							
7		✓	15	15	402	(4)		4	X	7	X	X	X	X	X	X	X	X	X	X							
8		✓	15	15	403					8	X	X	X	X	X	X	X	X	X	X							
9		✓	5	6	404	(5)	X	4	X	9	X	X	X	X	X	X	X	X	X	X							
10		✓	5	6	405					10	X	X	X	X	X	X	X	X	X	X							
11		✓	QD-max	15	406					11	X	X	X	X	X	X	X	X	X	X							
12		✓	QD-max	15	407					12	X	X	X	X	X	X	X	X	X	X							
13		✓	Bot-5	42.5	408					13	X	X	X	X	X	X	X	X	X	X	X						
14										14																	
15										15																	
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24										24																	

Comments: Bottle Integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Chlorophyll a & b
samples for DNA/RNA

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # *B10* UTC Date (ddmmYYYY) *171_JUL_12019*

Water Depth(Sounder) *34.7* m (includes 5m ship draft)

Station: *UT10-1* UTC Time *03:10*

Weather/Sea State *overcast, B. S. E. FT.*

CTD File: *2019-78-0131e* Lat (N) *61° 42.485*

Lon (W) *168° 24.016*

Watchkeeper(s) *SAO*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb. bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Comments		
1	1	V	30.5	30.7	380		X	4	X	1	X	X	X	X	X	X	X	X	X	X								Bottom Temperature: 3.921 Bottom Salinity: 32.375	
2	2	V	30.5	30.2	389		X	4	X	2	X	X	X	X	X	X	X	X	X	X									
3	3	V	25	25.1	388			4	X	3	X	X	X	X	X	X	X	X	X	X									
4	4	V	25	25.1	389			4	X	4	X	X	X	X	X	X	X	X	X	X									
5	5	V	15	15.8	290			4	X	5	X	X	X	X	X	X	X	X	X	X									
6	6	V	15	15.8	291			4	X	6	X	X	X	X	X	X	X	X	X	X									
7	7	V	5	5.1	392		X	4	X	7	X	X	X	X	X	X	X	X	X	X									
8	8	V	5	5.1	393		X	4	X	8	X	X	X	X	X	X	X	X	X	X									
9	9	V	Chl-max	20.6	394					9	X	X	X	X	X	X	X	X	X	X									
10	10	V	Chl-max	20.6	395					10	X	X	X	X	X	X	X	X	X	X									
11										11																			
12										12																			
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Comments: Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 133 UTC Date (ddmmYYYY) 10.1.JUL.2019

Water Depth(Sounder) 52 m (Includes 5m ship draft)

Station: BRS-4 UTC Time 2010

Weather/Sea State Foggy/CalDW/Ext winds

CTD File: 2019-78-0133 Lat (N) 65°41.9472

Lon (W) 168°42.616

Watchkeeper(s) SAO

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature Bottom Salinity	Comments		
1	1	V	Bot-5	42.0	374		X	4	X	1	X	X	X	X	X	X	X	X	X	X								31.3		
2	2	V	Bot-5	42.0	375					2	X	X	X	X	X	X	X	X	X	X								32.698		
3	3	V	35	35.6	376			4		3	X	X	X	X	X	X	X	X	X	X										
4	4	V	35	35.6	377					4	X	X	X	X	X	X	X	X	X	X										
5	5	V	25	25.1	378			4		5	X	X	X	X	X	X	X	X	X	X										
6	6	V	25	25.1	379					6	X	X	X	X	X	X	X	X	X	X										
7	7	V	15	15.3	380			4		7	X	X	X	X	X	X	X	X	X	X										
8	8	V	15	15.3	381					8	X	X	X	X	X	X	X	X	X	X										
9	9	V	5	4.9	382		X	4		9	X	X	X	X	X	X	X	X	X	X										
10	10	V	5	4.9	383					10	X	X	X	X	X	X	X	X	X	X										
11	11	V	chl max	10.8	384					11	X	X	X	X	X	X	X	X	X	X										
12	12	V	chl max	10.8	385					12	X	X	X	X	X	X	X	X	X	X										
13	13									13																				
14	14									14																				
15	15									15																				
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Bottle Integrity: First test lower petcock than test top valve. 'Check' means pass, 'X' means fail. If Niskin fails, explain this in the comments column.

Comments:

Niskins 7, 8 tripped twice due to communication issues w/ Deck Unit & PC

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 131 UTC Date (ddmmYYYY) 16_JUL_2019

Water Depth(Sounder) 52 m (includes 5m ship draft)

Station: BRS-3

UTC Time 19.11

Weather/Sea State Foggy/Calm/20knt winds

CTD File: 2019-78-0131

Lat (N) 65° 41.014

Lon (W) 168° 33.949

Watchkeeper(s) SHD

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 3.867 Bottom Salinity: 32.514	Comments	
1		✓	Bot-5	480	364		X	4	Y	1	X	X	X	X	X	X	X	X	X	X									
2		✓	Bot-5	48	365					2	X	X	X	X	X	X	X	X	X	X									
3		✓	35	34.6	366			4	X	3	X	X	X	X	X	X	X	X	X	X									
4		✓	35	34.6	367					4	X	X	X	X	X	X	X	X	X	X									
5		✓	25	25.1	368			4	X	5	X	X	X	X	X	X	X	X	X	X									
6		✓	25	25.1	369					6	X	X	X	X	X	X	X	X	X	X									
7		✓	15	15.9	370			4	X	7	X	X	X	X	X	X	X	X	X	X									
8		✓	15	15.9	371					8	X	X	X	X	X	X	X	X	X	X									
9		✓	5	4.5	372		X	4	X	9	X	X	X	X	X	X	X	X	X	X									
10		✓	5	4.5	373					10	X	X	X	X	X	X	X	X	X	X									
11										11	X	X	X	X	X	X	X	X	X	X									
12										12	X	X	X	X	X	X	X	X	X	X									
13										13																			
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Comments: Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Frey not sampling this cast

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

47 alt 5.2 52

Event # 129 UTC Date (ddmmmyy) 16 JUL 2019

Water Depth(Sounder) 53 m (includes 5m ship draft)

Station: BRS-2

UTC Time 1809

Weather/Sea State 2/m swell

CTD File: 2019-78-

Lat (N) 65 40.044

Lon (W) 168 24.043

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	size-fac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 3.960	Bottom Salinity: 32.271	Comments
V1			Bd-5	47	354		X	4	X	1	*	X	X	X	X	X	X	X	X	X									
V2			Bot-5	47	355					2	*	X	X	X	X	X	X	X	X	X									
V3			35	35	356			4	X	3	*	X	X	X	X	X	X	X	X	X									
V4			35	25	357					4	*	X	X	X	X	X	X	X	X	X									
V5			25	26	358			4	X	6	*	X	X	X	X	X	X	X	X	X									
V6			25	26	359					6	*	X	X	X	X	X	X	X	X	X									
V7			15	15	360			4	X	7	*	X	X	X	X	X	X	X	X	X									
V8			15	15	361					8	*	X	X	X	X	X	X	X	X	X									
V9			5	5	362		X	4	X	9	*	X	X	X	X	X	X	X	X	X									
V10			5	5	363					10	*	X	X	X	X	X	X	X	X	X									
V11			Setback							11	*	X	X	X	X	X	X	X	X	X									
V12			Setback							12	*	X	X	X	X	X	X	X	X	X									
V13			Setback							13	*	X	X	X	X	X	X	X	X	X									
V14										14	*	X	X	X	X	X	X	X	X	X									
V15										15	*	X	X	X	X	X	X	X	X	X									
V16										16	*	X	X	X	X	X	X	X	X	X									
V17										17	*	X	X	X	X	X	X	X	X	X									
V18										18	*	X	X	X	X	X	X	X	X	X									
V19										19	*	X	X	X	X	X	X	X	X	X									
V20										20	*	X	X	X	X	X	X	X	X	X									
V21										21	*	X	X	X	X	X	X	X	X	X									
V22										22	*	X	X	X	X	X	X	X	X	X									
V23										23	*	X	X	X	X	X	X	X	X	X									
V24										24	*	X	X	X	X	X	X	X	X	X									

Comments: Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Frey Not sampling 14.1 B54

Bottom Temperature: 3.960
Bottom Salinity: 32.271

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

44 + alt 4.8

Event # 125 UTC Date (ddmmYYYY) 16 Jul 2019

Water Depth(Sounder) 49 m (Includes 5m ship draft)

Station: UTRS-4/0802.4 UTC Time 1121

Weather/Sea State 1mswell

CTD File: 2019-78-075 Lat (N) 64 57.638

Lon (W) 169 53.170

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: Bottom Salinity:	Comments		
V1			Bot 5	44	344		X	4	X	1	X	X	X	X	X	X	X	X		X						X	2.678 33.011			
V2			Bot 5	44	345					2																				
V3			35	35	346			4	X	3	X	X	X	X	X	X	X	X		X										
V4			35	35	347					4																				
V5			25	25	348			4	X	5	X	X	X	X	X	X	X	X		X										
V6			25	25	349					6																				
V7			15	15	350			4	X	7	X	X	X	X	X	X	X	X		X										
V8			15	15	351					8																				
V9			5	4.5	352		X	4	X	9	X	X	X	X	X	X	X	X		X						X	2.678 33.011	Chl mark		
V10			5	4.5	353					10																				
V11			Chl max	4.5	354					11	X	X	X	X	X	X	X	X		X										
V12			Chl max	4.5	355					12	X	X	X	X	X	X	X	X		X										
V13										13																				
V14										14																				
V15										15																				
V16										16																				
V17										17																				
V18										18																				
V19										19																				
V20										20																				
V21										21																				
V22										22																				
V23										23																				
V24										24																				

Bottle Integrity: First test lower petcock than last top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Warp 44 alt 4.5

Event # 118 UTC Date (ddmmYYYY) 16 JUL 2019

Station: VTGS-1/0302.5 UTC Time 0704

Water Depth(Sounder) 49 m (includes 5m ship draft)

CTD File: 2019-78-0118 Lat (N) 64 59.384

Lon (W) 169 8.118

Weather/Sea State calm swell, sunny Watchkeeper(s) SKQ/52

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb. bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 2.881	Bottom Salinity: 32.998	Comments	
1	1		Bd 5	44	321		X	4	XX	1	X	X	X	X	X	X	X	X		X										
2	2		Bd 5	44	322					2	X	X	X	X	X	X	X	X		X										
3	3		Bd 5	35	323			4	X	3	X	X	X	X	X	X	X	X		X										
4	4		35	35	324					4	X	X	X	X	X	X	X	X		X										
5	5		25	25	325			4	X	5	X	X	X	X	X	X	X	X		X										
6	6		25	25	326					6	X	X	X	X	X	X	X	X		X										
7	7		15	14	327			4	X	7	X	X	X	X	X	X	X	X		X										
8	8		15	14	328					8	X	X	X	X	X	X	X	X		X										
9	9		5	4.3	329		XX	4	X	9	X	X	X	X	X	X	X	X		X										
10	10		5	4.5	330					10	X	X	X	X	X	X	X	X		X										
11	11		Chl/Phaeo 8.5	8.5	331					11	X	X	X	X	X	X	X	X		X										
12	12		Chl/Phaeo 8.5	8.5	332					12	X	X	X	X	X	X	X	X		X										
13	13		0.1% 1.7	1.7	333					13																				
14	14		1% 8.5	8.5	334					14																				
15	15		1% 8.5	8.5	335					15																				
16	16		15% 6	6	336					16																				
17	17		20% 4.2	4.2	337					17																				
18	18		50% 3	3	338					18																				
19	19		50% 3	3	339					19																				
20	20		100% 2.3	2.3	340					20																				
21	21		100% 2.2	2.2	341					21																				
22	22		100% 2.2	2.2	342					22																				
23	23		1% 8.5	8.5	343					23																				
24	24									24																				

Bottle Integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Shear's productivity east

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 111

UTC Date (ddmmyyy) 16 JUL 2019

Water Depth(Sounder) 38.3 m (Includes 5m ship draft)

Station: UTBS-2/0302.3

UTC Time 0139

Weather/Sea State Sunny / Bkts wind / no. 5 m swell

CTD File: 2019-78-0111

Lat (N) 64° 40.141

Lon (W) 168° 14.016

Watchkeeper(s) SAO

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 4.514 Bottom Salinity: 32.461	Comments
1	1	V	Bot 5	33.1	311					1	X	X	X	X	X	X	X	X		X								
2	2	V	Bot 5	33.1	312					2	X	X	X	X	X	X	X	X										
3	3	V	25	25.7	313					3	X	X	X	X	X	X	X	X										
4	4	V	25	25.7	314					4	X	X	X	X	X	X	X	X										
5	5	V	15	15.9	315					5	X	X	X	X	X	X	X	X										
6	6	V	15	15.9	316					6	X	X	X	X	X	X	X	X										
7	7	V	5	6	317					7	X	X	X	X	X	X	X	X										
8	8	V	5	6	318					8	X	X	X	X	X	X	X	X										
9	9	V	chlmax	10.3	319					9	X	X	X	X	X	X	X	X										
10	10	V	chlmax	10.3	320					10	X	X	X	X	X	X	X	X										
11										11																		
12										12																		
13										13																		
14										14																		
15										15																		
16										16																		
17										17																		
18										18																		
19										19																		
20										20																		
21										21																		
22										22																		
23										23																		
24										24																		

Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments:

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 104

UTC Date (ddmmYYYY) 15 JUL 2019

Water Depth(Sounder) 45.7 m (includes 5m ship draft)

Station: UTBS-2/DB022 UTC Time 21:40

Weather/Sea State calm/sunny/12kt winds.

CTD File: 2019-78-0104 Lat (N) 64° 40.836

Lon (W) 169° 5.791

Watchkeeper(s) SAO

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: 3.146 Bottom Salinity: 32.977	Comments
1		V	Bot-5	40	299		X	4	X	1	X	X	X	X	X	X	X	X		X								
2		V	Bot-5	40	306					2	X	X	X	X	X	X	X	X										
3		V	35	35.2	301			4	YX	3	X	X	X	X	X	X	X	X		X								
4		V	35	35.2	302					4	X	X	X	X	X	X	X	X		X								
5		V	25	25.3	303			4	X	5	X	X	X	X	X	X	X	X		X								
6		V	25	25.3	304					6	X	X	X	X	X	X	X	X		X								
7		V	15	14.4	305			4	X	7	X	X	X	X	X	X	X	X		X								
8		V	15	14.4	306					8	X	X	X	X	X	X	X	X		X								
9		V	5	5.5	307		X	4	X	9	X	X	X	X	X	X	X	X		X								
10		V	5	5.5	308					10	X	X	X	X	X	X	X	X		X								
11		V	Chlorophyll	5.5	309					11	X	X	X	X	X	X	X	X		X								
12		V	Chlorophyll	5.5	310					12	X	X	X	X	X	X	X	X		X								
13										13																		
14										14																		
15										15																		
16										16																		
17										17																		
18										18																		
19										19																		
20										20																		
21										21																		
22										22																		
23										23																		
24										24																		

Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

altimeter 4.3

Event # 97 UTC Date (ddmmYYYY) 15 JUL 2019

Water Depth (Sounding) 48 m (includes 5m ship draft)

Station: UTBS-5/08021 UTC Time 17:42

Weather/Sea State calm

CTD File: 2019-78- Lat (N) 64 40.258

Lon (W) 169 55.429

Watchkeeper(s) 52

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	size-frac. Chl (Varela)	Phyto-Genetics (Nelson)	Bottom Temperature: Bottom Salinity:	Comments	
✓1	1		Bot-5	43	287		X	4	X	1	X	X	X	X	X	X	X	X		X								2.628	
✓2	2		Bot-6	43	288					2																			
✓3	3		35	35	289			4	X	3	X	X	X	X	X	X	X	X		X									
✓4	4		35	35	290				X	4										X									
✓5	5		25	25	291			4	X	5	X	X	X	X	X	X	X	X		X									
✓6	6		25	25	292					6	X	X	X	X	X	X	X	X		X									
✓7	7		15	15	293			4	X	7	X	X	X	X	X	X	X	X		X									
✓8	8		15	15	294				X	8										X									
✓9	9		5	5	295		X	4	X	9	X	X	X	X	X	X	X	X		X									
✓10	10		5	5	296					10																			
✓11	11		ChlMax	10	297					11	X	X	X	X	X	X	X	X											
✓12	12		ChlMax	10	298					12	X	X	X	X	X	X	X	X											
13										13																			
14										14																			
15										15																			
16										16																			
17										17																			
18										18																			
19										19																			
20										20																			
21										21																			
22										22																			
23										23																			
24										24																			

Bottle Integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments:

Bottom Temperature: 2.628
Bottom Salinity: 32.972

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # *90* UTC Date (ddmmYYYY) *15_JUL_2019*

Water Depth(Sounder) *48* m (includes 5m ship draft)

Station: *SL-60/DB02.0* UTC Time *1401*

Weather/Sea State *calm/1m swell*

CTD File: *2019-78-0090* Lat(N) *64 40.325*

Lon(W) *170 38.574*

Watchkeeper(s) *SE*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: <i>2.727</i>	Bottom Salinity: <i>33.012</i>	Comments	
V1			Boys	43	236	W	X	4	X	1	X	X	X	X	X	X	X	X	X	X								
V2			Boys	43	237	W				2											X							
V3			35	35.5	238	W		4	X	3	X	X	X	X	X	X	X	X	X		X							
V4			35	35.5	239					4																		
V5			25	26	280			4	X	5	X	X	X	X	X	X	X	X	X		X							
V6			25	26	281					6																		
V7			15	16	282			4	XX	7	X	X	X	X	X	X	X	X	X		X							
V8			15	16	282					8																		
V9			5	6	284		X	4	X	9	X	X	X	X	X	X	X	X	X		X							
V10			5	6	285					10												X						
V11			CD MAX	6	286	V				11	X	X	X	X	X	X	X	X	X		X							
V12										12																		
V13										13																		
V14										14																		
V15										15																		
V16										16																		
V17										17																		
V18										18																		
V19										19																		
V20										20																		
V21										21																		
V22										22																		
V23										23																		
V24										24																		

Comments: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Labelled file includes samples ^{taken} on cruise in 11, which we are not (IOS gr). Next cust, take salt duplicates.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

(49)

Event # 87 UTC Date (ddmmYYYY) 15 JUL 2019

Water Depth (Sounder) 53.5 m (Includes 5m ship draft)

Station: RCL-6a UTC Time 06:11

Weather/Sea State overcast/10-15knot winds (w 54w)

CTD File: 2019-78-0087 Lat (N) 63°55.07

Lon (W) 122°5.803

Watchkeeper(s) SNO

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments		
1	1	V	R6-5	49.5	265		X	A	X	1	X	X	X	X	X	X	X	X	X	X							
2	2	V	R6-5	49.5	266					2	X	X	X	X	X	X	X	X	X	X							
3	3	V	R6-5	34.5	267			A	X	3	X	X	X	X	X	X	X	X	X	X							
4	4	V	R6-5	24.5	268					4	X	X	X	X	X	X	X	X	X	X							
5	5	V	R6-5	24.5	269			A	X	5	X	X	X	X	X	X	X	X	X	X							
6	6	V	R6-5	24.5	270					6	X	X	X	X	X	X	X	X	X	X							
7	7	V	R6-5	15	271			A	X	7	X	X	X	X	X	X	X	X	X	X							
8	8	V	R6-5	15	272					8	X	X	X	X	X	X	X	X	X	X							
9	9	V	R6-5	5.5	273		XX	A	X	9	X	X	X	X	X	X	X	X	X	X							
10	10	V	R6-5	5.5	274					10	X	X	X	X	X	X	X	X	X	X							
11	11	V	R6-5	5.5	275					11	X	X	X	X	X	X	X	X	X	X							
12	12									12																	
13	13									13																	
14	14									14																	
15	15									15																	
16	16									16																	
17	17									17																	
18	18									18																	
19	19									19																	
20	20									20																	
21	21									21																	
22	22									22																	
23	23									23																	
24	24									24																	

Bottom Temperature: 1.936
 Bottom Salinity: 32.985
 Comments: Stran out of water, had to take Feaw6 tow for NUTS
 7 ran out of water had to take from 8
 Bottle Integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If Niskin fails, explain this in the comments column.
 Comments: Barbed file in Dudes. Samples taken on bottle 11, which we are not (IOS g1)

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

(63)

Event # 79 UTC Date (ddmmYYYY) 11 JUL 2019

Water Depth(Sounder) 72 m (includes 5m ship draft)

Station: SLP-41801.8 UTC Time 2015

Weather/Sea State calm/overcast/1kn winds.

CTD File: 2019-78-0099 Lat (N) 63° 13' 36"

Lon (W) 130° 23.58'

Watchkeeper(s) SAD

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Phy & Genetics	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Comments
1	1	✓	Bot-5	66.8	241		X	A	X		1	X	X	X	X	X	X	X	X		X					Bottom Temperature: -0.473 Bottom Salinity: 32.392
2	2	✓	Bot-5	100.8	242						2	X	X	X	X	X	X	X	X							
3	3	✓	SO	50.5	243			A	XX		3	X	X	X	X	X	X	X	X		X					
4	4	✓	SO	50.5	244						4	X	X	X	X	X	X	X	X		X					
5	5	✓	RS	95.5	245			A	X		5	X	X	X	X	X	X	X	X		X					
6	6	✓	RS	95.5	246				X		6	X	X	X	X	X	X	X	X		X					
7	7	✓	RS	96.1	247			A	X		7	X	X	X	X	X	X	X	X		X					
8	8	✓	RS	96.1	248				X		8	X	X	X	X	X	X	X	X		X					
9	9	✓	RS	110	249			A	X		9	X	X	X	X	X	X	X	X		X					
10	10	✓	RS	110	250				X		10	X	X	X	X	X	X	X	X		X					
11	11	✓	RS	5.9	251		X	A	X		11	X	X	X	X	X	X	X	X		X					
12	12	✓	RS	5.9	252				X		12	X	X	X	X	X	X	X	X		X					
13	13	✓	Bot-5		253						13										X					
14	14	✓	Bot-5	92.7	254						14															
15	15	✓	Bot-5	92.7	255						15	X	X	X	X	X	X	X	X							
16	16	✓	Bot-5	92.7	256						16	X	X	X	X	X	X	X	X							
17	17	✓	0.1%	32.7	257						17															
18	18	✓	1%	25.1	258						18															
19	19	✓	15%	10.8	259						19															
20	20	✓	20%	7.7	260						20															
21	21	✓	50%	4	261						21															
22	22	✓	50%	4	262						22															
23	23	✓	100%	2	263						23															
24	24	✓	100%	2	264						24															

Comments: - Oxygen up cast not watching downcast. water coming out side of ship while sitting @ surface for surface bottles.
 - Navy jellyfishes during cast. 2 giant ones on top of rosette while sitting @ surface before firing surface bottles.
 Bottle Integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If Niskin fails, explain this in the comments column.
 Don't use bottle 2
 Forget to stop twin on way out
 Jettin bottles after
 Triplicates from top 2 bottles

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

A14 3.13, 62 above
= 65 m

Event # 71 UTC Date (ddmm/yyyy) 14_JUL_2019

Water Depth(Sounder) 67 m (includes 5m ship draft)

Station: SLP-S/DBO16 UTC Time 1513

Weather/Sea State 1m swell

CTD File: 2019-78-0071 Lat (N) 62 33.542

Lon (W) 173 33.134

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments	
V1	1		BdS	226	62	✓	X	A	X	1	X	X	X	X	X	X	X	X	X	X						Bottom Temperature: -0.2414 Bottom Salinity: 32.095
V2	2		BdS	227	62	✓				2	X	X	X	X	X	X	X	X	X	X						
V3	4		SO	228	50	✓		A	X	3	X	X	X	X	X	X	X	X	X	X						
V4	5		SO	229	50	✓				4	X	X	X	X	X	X	X	X	X	X						
V5	6		RS	230	36	✓		A	X	5	X	X	X	X	X	X	X	X	X	X						
V6	7		RS	231	36	✓				6	X	X	X	X	X	X	X	X	X	X						
V7	8		RS	232	26	✓		A	X	7	X	X	X	X	X	X	X	X	X	X						
V8	9		RS	233	26	✓				8	X	X	X	X	X	X	X	X	X	X						
V9	12		IS	234	16	✓		A	X	9	X	X	X	X	X	X	X	X	X	X						
V10	13		IS	235	16	✓				10	X	X	X	X	X	X	X	X	X	X						
V11	14		IS	236	5	✓	X	A	X	11	X	X	X	X	X	X	X	X	X	X						
V12	15		IS	237	5	✓				12	X	X	X	X	X	X	X	X	X	X						
V13	3		BotS	238	12	✓				13																
V14	16		Chl-max	239	21					14																
V15	11		Chl-max	240	21					15	X	X	X	X	X	X	X	X	X	X						
V16										16																
V17										17																
V18										18																
V19										19																
V20										20																
V21										21																
V22										22																
V23										23																
V24										24																

Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments: Jelly! The whole jelly compact in the pylon w/ tentacles over the rosette.

Fail @ 5 mg/lw3 Chl Next Niskin @ 15m 21 dbot

Chl @ 1.4 mg/lw5

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # *605* UTC Date (ddmmYYYY) *14 JUL 2019*

Water Depth(Sounder) *73* m (includes 5m ship draft)

Station: *STP-3/DB01.4* UTC Time *0936*

Weather/Sea State *calm, ~1m swell, no/light wind*

CTD File: *2019-78-0065* Lat (N) *62 23.317*

Lon (W) *174 34.083*

Watchkeeper(s) *52*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Bottom Temperature	Bottom Salinity	Comments	
V1	1		<i>Bot-5</i>	<i>67</i>	<i>211</i>	✓				1	X	X	X	X	X	X	X	X		X								
V2	2		<i>Bot-5</i>	<i>67</i>	<i>212</i>	✓				2	X	X	X	X	X	X	X	X		X								
V3	3		<i>50</i>	<i>51</i>	<i>213</i>					3	X	X	X	X	X	X	X	X		X								
V4	4		<i>50</i>	<i>51</i>	<i>214</i>					4	X	X	X	X	X	X	X	X		X								
V5	5		<i>35</i>	<i>35</i>	<i>215</i>					5	X	X	X	X	X	X	X	X		X								
V6	6		<i>35</i>	<i>35</i>	<i>216</i>					6	X	X	X	X	X	X	X	X		X								
V7	7		<i>25</i>	<i>26</i>	<i>217</i>					7	X	X	X	X	X	X	X	X		X								
V8	8		<i>25</i>	<i>26</i>	<i>218</i>					8	X	X	X	X	X	X	X	X		X								
V9	9		<i>15</i>	<i>16</i>	<i>219</i>					9	X	X	X	X	X	X	X	X		X								
V10	10		<i>15</i>	<i>16</i>	<i>220</i>					10	X	X	X	X	X	X	X	X		X								
V11	11		<i>5</i>	<i>5</i>	<i>221</i>		X			11	X	X	X	X	X	X	X	X		X								
V12	12		<i>5</i>	<i>5</i>	<i>222</i>		X			12	X	X	X	X	X	X	X	X		X								
V13	13		<i>Bot-5</i>	<i>67</i>	<i>223</i>					13	X	X	X	X	X	X	X	X	X	X								
V14	14		<i>CDOM</i>	<i>22</i>	<i>224</i>					14	X	X	X	X	X	X	X	X		X								
V15	15		<i>CDOM</i>	<i>22</i>	<i>225</i>					15	X	X	X	X	X	X	X	X		X								
V16	16		<i>CDOM</i>	<i>22</i>	<i>225</i>					16	X	X	X	X	X	X	X	X		X								
V17	17									17																		
V18	18									18																		
V19	19									19																		
V20	20									20																		
V21	21									21																		
V22	22									22																		
V23	23									23																		
V24	24									24																		

Comments: Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Bottom Temperature: *-0.601*
 Bottom Salinity: *32.169*

Rosette Log for IOS Cruise ID 2019-78

Ship: *CCGS Sir Wilfrid Laurier*

Event # *57* UTC Date (ddmmYYYY) *1 JUL 2019*

Water Depth (Sounding) *825* m (includes 5m ship draft)

Station: *SIF-2/BPO1.2* UTC Time *4:04*

Weather/Sea State *Cloudy / 0.5m swell / 15kn*

CTD File: *2019-78-0057* Lat (N) *62° 3.023*

Lon (W) *175° 12.584* Watchkeeper(s) *SAC*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb, bottom water)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature	Bottom Salinity	Comments	
1	1	V		36.2	192		X	4	X	1	X	X	X	X	X	X	X	X		X								
2	2	V	BOT-5	36.2	193					2	X	X	X	X	X	X	X	X										
3	3	V	FS	35	194			4	X	3	X	X	X	X	X	X	X	X		X								
4	4	V	FS	35	195					4	X	X	X	X	X	X	X	X										
5	5	V	SO	30.5	196			4	X	5	X	X	X	X	X	X	X	X										
6	6	V	SO	30.5	197					6	X	X	X	X	X	X	X	X										
7	7	V	SO	30.5	198			4	X	7	X	X	X	X	X	X	X	X		X								
8	8	V	SO	30.5	199					8	X	X	X	X	X	X	X	X										
9	9	V	SO	25.4	200			4	X	9	X	X	X	X	X	X	X	X										
10	10	V	SO	25.4	201					10	X	X	X	X	X	X	X	X										
11	11	V	SO	15.6	202			4	X	11	X	X	X	X	X	X	X	X		X								
12	12	V	SO	15.6	203					12	X	X	X	X	X	X	X	X										
13	13	V	SO		204		X	4	X	13	X	X	X	X	X	X	X	X		X								
14	14	V	SO		205					14																		
15	15	V	SO		206					15																		
16	16	V	SO	36.2	207					16																		
17	17	V	SO	36.2	208					17																		
18	18	V	SO	36.2	209					18																		
19	19	V	SO	36.2	210					19	X	X	X	X	X	X	X	X		X								
20	20									20																		
21	21									21																		
22	22									22																		
23	23									23																		
24	24									24																		

Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments: *Maybe add 6 bottles for water @ surface no need TSG back ON*

Bottom Temperature: *0.109*
 Bottom Salinity: *32.324*
 Comments: *Nothing from bottom so pressure sampled from niskin 8. I think if you sn't satiate proper layer, it was a big bump (old sun).*

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 50

UTC Date (ddmmYYYY) 14 JUL 2019

Station: SIF-1/DB01.1

UTC Time 0105

Water Depth(Sounder) 81 m (includes 5m ship draft)

CTD File: 2019-78-0050

Lat (N) 62 0.634

Lon (W) 175 3.577

Weather/Sea State 1m swell, overcast, 14kt wind

Watchkeeper(s)

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	IFCB (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grab, bottom water)	Phyto-ID (Var-Grab-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments	
1	1	V	Bot. S	36.6	173	V	X	4	X	1	X	X	X	X	X	X	X	X		X						Bottom Temperature: -0.104 Bottom Salinity: 32.130
2	2	V	Bot. S	36.6	178	V	X	4	X	2	X	X	X	X	X	X	X	X		X						
3	3	V	50	50.8	179	V		4	X	3	X	X	X	X	X	X	X	X		X						
4	4	V	50	50.8	180	V		4	X	4	X	X	X	X	X	X	X	X		X						
5	5	V	35	35.6	181	V		4	X	5	X	X	X	X	X	X	X	X		X						
6	6	V	35	35.6	182	V		4	X	6	X	X	X	X	X	X	X	X		X						
7	7	V	25	25.8	183	V		4	X	7	X	X	X	X	X	X	X	X		X						
8	8	V	25	25.8	184	V		4	X	8	X	X	X	X	X	X	X	X		X						
9	9	V	15	15.6	185	V		4	X	9	X	X	X	X	X	X	X	X		X						
10	10	V	15	15.6	186	V		4	X	10	X	X	X	X	X	X	X	X		X						
11	11	V	5	6.1	187	V	X	4	X	11	X	X	X	X	X	X	X	X		X						
12	12	V	5	6.1	188	V	X	4	X	12	X	X	X	X	X	X	X	X		X						
13	13	V	Bot. S	36.6	189	V		4	X	13	X	X	X	X	X	X	X	X		X						
14	14	V	50	50.8	190	V		4	X	14	X	X	X	X	X	X	X	X		X						
15	15	V	Chl. max	30.8	191	V		4	X	15	X	X	X	X	X	X	X	X		X						
16	16									16																
17	17									17																
18	18									18																
19	19									19																
20	20									20																
21	21									21																
22	22									22																
23	23									23																
24	24									24																

Comments:

Bottle Integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Jelly sucked into primary TIC, Oxy plumbing at bottom of cast.
 Data on these channels bad for upcast.
 Ran out of water on Niskin 11 so Frey samples span Niskin 11 & 12.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

30 sec bottle stops

1 min @ bottom, 1 min @ 5m

Event # 45

UTC Date (ddmmYYYY) 10 JUL 2019

Water Depth(Sounder) 628 m (includes 5m ship dr)

Station: NP12

UTC Time 00:48

Weather/Sea State 200m / Soggy

CTD File: 2019-78-0045

Lat (N) 54° 6.831'

Lon (W) 100° 53.1030'

Watchkeeper(s) SP/SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Elast/T	Oxy Elast/ T	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grebmeik)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments		
1		✓	1000	1060	162						4	X	1																		
2		✓	750	752	163							X	2																		
3		✓	500	502	164							X	3																		
4		✓	350	353	165							X	4																		
5		✓	250	253	166							X	5																		
6		✓	200	203	167							X	6																		
7		✓	150	154	168							X	7																		
8		✓	100	101	169							X	8																		
9		✓	75	76	170							X	9																		
10		✓	50	50	171							X	10																		
11		✓	35	35	172							X	11																		
12		✓	25	25	173							X	12																		
13		✓	15	15	174						4	X	13																		
14		✓	5	5	175							X	14																		
15		✓		4.5	176							X	15																		
16													16																		
17													17																		
18													18																		
19													19																		
20													20																		
21													21																		
22													22																		
23													23																		
24													24																		

Bottle Integrity: First test lower petcock, then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

No more oxygen sampling. From now on will use a long surface surface sock and bottom 1min UCTD attached to Rosette for T, S, comparison.

UCTD attached to Rosette for T, S, comparison.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Oxy comparison cast
1 min / stop

Event # 4742 UTC Date (ddmmYY) 9 JUL 2019

Station: NPI1 UTC Time 15:01

CTD File: 2019-78-0041 Lat (N) 54° 5.286

Lon (W) 158° 15.697

Weather/Sea State calm/cloudy

Water Depth(Sounder) 4825 m (includes 5m ship dr
Watchkeeper(s) SMO/STZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Temp Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Phyto-Genetics	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grebmeier)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fraction Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments				
1	V	V	1000	1000	147	W	X	1489		X	4	X		1																				
2	V	V	750	750	148	W	X	1494		X		X		2																				
3	V	V	500	501	149	W	X	1449		X		X		3																				
4	V	V	350	352	150	W	X	1480		X		X		4																				
5	V	V	250	253	151	W	X	1467		X		X		5																				
6	V	V	200	203	152	W	X	1486		X		X		6																				
7	V	V	150	153	153	W	X	1425		X		X		7																				
8	V	V	100	101	154	W	X	1491		X		X		8																				
9	V	V	75	75	155	W	X	1425		X		X		9																				
10	V	V	50	51	156	W	X	1482		X		X		10																				
11	V	V	35	35	157	W	X	1489		X		X		11																				
12	V	V	25	25.5	158	W	X	900		X		X		12																				
13	V	V	15	16	159	W	X	901		X		X		13																				
14	V	V	5	6	160	W	X	902		X		X		14																				
15	V	V					X	903		X		X		15																				
16	V	V					X	903		X		X		16																				
17	V	V					X	903		X		X		17																				
18	V	V					X	903		X		X		18																				
19	V	V					X	903		X		X		19																				
20	V	V					X	903		X		X		20																				
21	V	V					X	903		X		X		21																				
22	V	V					X	903		X		X		22																				
23	V	V					X	903		X		X		23																				
24	V	V					X	903		X		X		24																				

Bottle Integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If Niskin fails, explain this in the comments column.

Comments: big diff b/w Cond 1, Cond 2 and Cond 1.
b/w 0.25, 1
470.25

5, chlmax, below

Oxy #9, 10: Flask order in box kept but 10 in before 9
9: Flask 1493 and 6.9°C; 10: 1424 and 7.6°C

0

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

30 sec / stop 6 pm CAST

Event # 38 UTC Date (ddmmYYYY) 91 JUL 2019

Water Depth(Sounder) 4509 m (includes 5m ship dr

Station: NP10 UTC Time 06:44

Weather/Sea State calm / some sun

CTD File: 2019-78-0010 Lat (N) 53° 53' 47.5"

Lon (W) 154° 7.433

Watchkeeper(s) SAO/SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Temp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	Q-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greb)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: Bottom Salinity: Comments
1		V	1000	1007	133	X	X	1448			X	X	1	0.205	0.305	0.318 / 0.355											8.5
2		V	750	252	134	X	X	1482			X	X	2	0.308													3.8
3		V	500	502	135	NX	X	1406	1495			X	3	0.318													4.2 / 19.2
4		V	350	353	136	X	X	1485				X	4	0.414													4.5
5		V	250	257	137	X	X	1499				X	5	0.607													4.2
6		V	200	203	138	X	X	1485				X	6	0.942													4.1
7		V	150	153	139	X	X	1445				X	7	1.720													4.0
8		V	100	101	140	X	X	1414				X	8	5.204													4.2
9		V	75	75	141	X	X	1473				X	9	6.960													6.1
10		V	50	50.5	142	X	X	1458				X	10	7.144													6.8
11		V	35	35	143	X	X	1476				X	11	7.097													8.5
12		V	25	26	144	X	X	1483	1468			X	12	6.881													9.6 / 9.6
13		V	15	16	145	X	X	1484				X	13	6.377													10.2
14		V	5	6	146	X	X	1421				X	14	6.510													11.1
15													15														
16													16														
17													17														
18													18														
19													19														
20													20														
21													21														
22													22														
23													23														
24													24														

Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.
 Comments:

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Oxy companion cast
w/ twin stops
1850m
8am cast

Event # 32

UTC Date (ddmmyyyy) 8 Jul 2019

Water Depth(Sounder) 9290 m (includes 5m ship dr

Station: NP09

UTC Time 15:02

Weather/Sea State w/ mvs/s/clady

CTD File: 2019-78-0082

Lat (N) 53°47.924

Lon (W) 151°33.269

Watchkeeper(s) SAQSZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Temp Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	phyto-genetics NELSON	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grebmeik)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fraction Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments		
1		V	1000	999	119	V	X	1438			4	X		1	0.320														319		slow	
2		V	750	751	120	V	X	1454				X		2	0.307														412		slow	
3		V	500	501	121	V	X	1441				X		3	0.458														417		Quite open Vent from end of	
4		V	350	352	122	V	X	1451	1439			X		4	0.769/0.761														5.1/5.2		slow drip on 5	
5		V	250	252	123	V	X	1496				X		5	1.530														5.5		slow drip on 5	
6		V	200	203	124	V	X	1439				X		6	1.862														5.8		leak after open top	
7		V	150	151	125	V	X	1494				X		7	7.429														6.3		leak after open top	
8		V	100	101	126	V	X	1412				X		8	5.895														6.6			
9		V	75	76	127	V	X	1443				X		9	6.200															6.8		
10		V	50	51	128	V	X	1403				X		10	6.381															7.0		
11		V	35	35	129	V	X	1393				X		11	6.382															7.16		
12		V	25	26	130	V	X	1499				X		12	6.954															choose 8.8		
13		V	15	15.5	131	V	X	1452	1481		4	X		13	6.733/6.757															CHL Max 10.8/10.9		
14			5KIP											14																		
15		V	5	6	132	V	X	1433			4	X		15	6.677															11.3		
16														16																		
17														17																		
18														18																		
19														19																		
20														20																		
21														21																		
22														22																		
23														23																		
24														24																		

Bottle Integrity: First test lower portcock then test top valve. 'Check' means pass, 'x' means fail. If Niskin fails, explain this in the comments column.

Comments: @ approaching station slowly, depth was 1290m. Then @ start of coast, sounder was showing readings

b/w 1700-1850m. Near net end, it was back to 485m.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

30sec stops / bottle
1min @ bottom + 5m

545pm cast

Event # NP 08 UTC Date (ddmmYYYY) 8 JUL 2019
 Station: 29 UTC Time 0044
 CTD File: 2019-78-0029 Lat (N) 53 25.470 Lon (W) 147 28.962
 Weather/Sea State calm / glassy
 Water Depth (Sounder) 4069 m (includes 5m ship draft)
 Matchkeeper(s) SZ/SAC

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Temp Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DOC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grebmeik)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments				
1		✓	1000	1000	105	✓	X	1455			4	X	1	0.419													3.6						
2		✓	750	750	106	✓	X	1392				X	2	0.379													3.8						
3		✓	500	502	107	✓	X	1492				X	3	0.416												4.3							
4		✓	350	353	108	✓	X	1398				X	4	0.507												4.5/4.4							
5		✓	250	250	109	✓	X	1464	1374			X	5	0.848	10.843											4.4/15.0							
6		✓	200	200	110	✓	X	1410				X	6	1.4916												4.2							
7		✓	150	151	111	✓	X	1395				X	7	2.388												4.4							
8		✓	100	101	112	✓	X	1393				X	8	5.584												5.6							
9		✓	75	75	113	✓	X	1471				X	9	6.342												6.1							
10		✓	50	51	114	✓	X	1456				X	10	7.0816												6.1							
11		✓	35	35	115	✓	X	1488	1498			X	11	7.034	7.1085											8.6							
12		✓	25	26	116	✓	X	1386				X	12	6.836												9.9							
13		✓	15	15	117	✓	X	1394			4	X	13	10.687												10.8							
14								SKIP					14																				
15		✓	5	6	118	✓	X	1453			4	XX	15	6.615																			
16													16																				
17													17																				
18													18																				
19													19																				
20													20																				
21													21																				
22													22																				
23													23																				
24													24																				

Bottle Integrity: First last lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:
 Display froze @ 6016 db, but final bottle @ 50 db and display came back to life.
 closed #14 + 15 bottles.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 25

UTC Date (ddmmyy) 31 JUL 2019

Station: NP07

UTC Time 15:00

CTD File: 2019-78-0025

Lat (N) 53° 03.319

Lon (W) 144° 51.029

Weather/Sea State Calm / Foggy / cloudy

Water Depth(Sounder) 3920 m (includes 5m ship dr

Watchkeepers) SMO/SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Temp Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grebmer)	Rhyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-free Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments	
1		✓	2006	2004	88	VV	XX	921	922	X	4	X	1	1.151/1.144													2.9	3.0		
2		✓	1500	1502	89	VV	XX	923	924	X		X	2	0.546/0.538													3.2	3.5		
3		✓	1000	999	90	VV	X	925		X		X	3	0.403												3.9				
4		✓	750	751	91	VV	X	926		X		XX	4	0.409												4.2				
5		✓	500	501	92	VV	X	927		X		X	5	0.320												4.9				
6		✓	350	352	93	VV	X	928		X		X	6	0.597												4.9				
7		✓	250	252	94	VV	X	928		X		X	7	1.979												5.1				
8		✓	200	203	95	VV	X	1481		X		X	8	2.237												5.0				
9		✓	150	153	96	VV	X	1493		X		X	9	3.113												5.5				
10		✓	100	100	97	VV	X	1440		X		X	10	6.605												6.4				
11		✓	75	75.5	98	VV	XX	1482	1466	X		X	11	6.820/6.821												6.8	6.9			
12		✓	50	50.3	99	VV	X	1495		X		X	12	6.952												6.9	7.5			
13		✓	35	35.5	100	W	X	1485		X		X	13	6.944												6.9	7.5			
14		✓	X	X	X	X	X	X	X	X	X	X	14													6.9	7.5			
15		✓	25	25.5	102	VV	X	1493		X		X	15	6.711												6.9	7.5			
16		✓	15	15.5	103	VV	X	1414		X		X	16	6.533													6.9	7.5		
17		✓	5	5.3	104	VV	XX	1435	1445	X	4	X	17	6.525/6.553													6.9	7.5		
18													18														6.9	7.5		
19													19														6.9	7.5		
20													20														6.9	7.5		
21													21														6.9	7.5		
22													22														6.9	7.5		
23													23														6.9	7.5		
24													24														6.9	7.5		

Bottle Integrity: First test lower portcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

Phyto-Genetics (Wilson)

DDowndrags

SEHL MK X 8.4%

slow drip

slow drip on 4

slow drip on 5

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 22

UTC Date (ddmmmyy) 31_JUL_2019

Station: NPB6

UTC Time 0105

Weather/Sea State 1m swell cloudy

Water Depth(Sounder) 3628 m (includes 5m ship dr

CTD File: 2019-78-0022

Lat (N) 52 28.140

Lon (W) 140 40.721

Watchkeeper(s) SZ/SAQ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grebmei)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments
1		✓	1000		34		XX	904	905		✓	X	1	0.404/0.413 (OT)													4.0/4.0		
2		✓	350		35		X	900			✓	X	2	0.520													4.2		
3		✓	500		36		X	902	905		✓	X	3	0.765													4.7		
4		✓	350		37		X	908			✓	X	4	1.4102													4.7		
5		✓	250		38		X	909			✓	X	5	2.592													5.1		
6		✓	200		39		X	910			✓	X	6	3.231													5.4		
7		✓	150		40		X	911			✓	X	7	4.57													5.9		
8		✓	100		41		XX	912	913		✓	X	8	6.243/6.341													6.2/6.8		
9		✓	75		42		X	914			✓	XX	9	6.827													6.9/7.3		
10		✓	50		43		X	915			✓	X	10	6.974													7.3/7.6		
11		✓	35		44		X	916			✓	X	11	6.938													7.9/8.5		
12		✓	25		45		X	917			✓	X	12	6.900													7.9/8.5		
13		✓	15		46		X	918			✓	X	13	6.511													10.9		
14		✓	5		47		XX	919	920		✓	X	14														10.9		
15		✓			48						✓	X	15														12.2/1		
16					49								16																
17					50								17																
18					51								18																
19					52								19																
20					53								20																
21					54								21																
22					55								22																
23					56								23																
24					57								24																

Bottle Integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If Niskin fails, explain this in the comments column.

Comments: Oxygen comparison cast w/ twin stops

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 18

UTC Date (ddmmrrrr) 1 JUL 2019

Water Depth(Sounder) 3572 m (includes 5m ship dr

Station: NP05

UTC Time 15:00

Weather/Sea State calm/buddy

CTD File: 2019-78-0018

Lat (N) 51° 59.57'

Lon (W) 138° 4.160'

Watchkeeper(s) SA0/SSZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Chl-a (Korby)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp (Grebmeij)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fnac. Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments		
1		V	1000	999	59	VV	XX	1438	1454		A	X		1	0.305	10.301												4.6 / 4.9	4.9	oxy T		
2		V	350	356	60	XV	X	1441			A	X		2	0.342													4.9		slow drip on 2		
3		V	500	500	61	VV	X	1451			A	XX		3	0.694												5.6					
4		V	350	351	62	VV	X	1439			A	X		4	1.308												5.8				slow drip on 4	
5		V	250	251	63	VV	X	1490			A	X		5	2.203												6.1					
6		V	200	201	64	VV	X	1439			A	X		6	2.862												6.3					
7		V	150	152	65	VV	X	1494			A	X		7	3.485												7.0					
8		V	100	101	66	VV	X	1412			A	X		8	6.440												7.7					
9		V	75	75	67	VV	X	1449			A	X		9	6.852												8.0					
10		V	50	50	68	XV	X	1403			A	X		10	6.851												8.5					slow drip
11		V	35	35	69	VV	X	1359			A	X		11	9.008												10.1					slow drip
12		V	25	25	70	XV	X	1499			A	X		12	6.915												11.8					slow drip
13		V	15	15	71	VV	XX	1452	900		A	X		13	6.591	6.583											12.6	12.6				
14		V	5	5	72	XV	X	901			A	X		14	6.538												12.8					steady drip from b. How cap
15		V	?	?	73	VV	XX	962	903			X		15	6.540	6.539										12.8	12.8					
16														16																		
17														17																		
18														18																		
19														19																		
20														20																		
21														21																		
22														22																		
23														23																		
24														24																		

Bottle Integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

Comments:

swap out Oxy's MnCl2 pump dispenser - how many bubbles... Niskin 11 - bottom valve seems to have

the rest of the bottles. Niskin 15 was tripped w/out being fired. At surface we loose visually closed. 16 to 24 tripped as expected.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 13 UTC Date (ddmmYYYY) 6 Jul 2019

Water Depth(Sounder) ~2850m (includes 5m ship dr

Station: NP04 UTC Time 0104

Weather/Sea State 2/m swell

CTD File: 2019-78-0013 Lat(N) 51 7.729

Lon (W) 134 7.682

Watchkeeper(s) SZ/SAD

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DIC/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	CHL (Varela)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grebmei)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nutr (Varela)	Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments		
1		✓	1000	998	45		✓	1455		✓	4	✓		1	0.262													4.1				
2		✓	750	749	46		✓	1392						2	0.301													4.7				
3		✓	500	500	47		✓	1492						3	0.771													5.5				
4		✓	350	351	48		✓	1398						4	1.507													6.0				
5		✓	250	251	49		✓	1464						5	2.192													6.4				
6		✓	200	201	50		✓	1374	1410					6	2.521	12.522												6.9	7.1			
7		✓	150	152	51		✓	1440	1395					7	3.090													7.6				
8		✓	100	101	52		✓	1395	1393	✓				8	5.1062													7.9				
9		✓	75	77	53		✓	1298	1471					9	6.0816													7.9				
10		✓	50	50	54		✓	1456	1488					10	6.032	16.033												8.4	8.4			
11		✓	35	35	55		✓	1498						11	6.689													8.8				
12		✓	25	25	56		✓	1386						12	7.081													10.0			slow tip	
13		✓	15	15	57		✓	1394						13	6.939													11.0				
14		✓	5	5	58		✓	1453						14	6.238													13.4				
15														15																		
16														16																		
17														17																		
18														18																		
19														19																		
20														20																		
21														21																		
22														22																		
23														23																		
24														24																		

Bottle integrity: First test lower petcock then test top valve. Check means pass, X means fail. If niskin fails, explain this in the comments column.

Comments:

oxy analysis
niskin 15 was not closed, but had not been fired.

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

1600 - 2400

Event # 10 UTC Date (ddmmYY) 51 JUL 2019

Water Depth(Sounder) 0 m (includes 5m ship dr

Station: NP03 UTC Time 1502

Weather/Sea State 1 m swell

CTD File: 2019-78-0010 Lat (N) 50 29.341

Lon (W) 131 36.850

Watchkeeper(s) SZSAO

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grebe)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments		
1		✓	1000	1000	31	✓/✓	XX	1425	1491		4	X	1	0.238	0.240	0.240											5.2° / 5.3°				
2		✓	750	350	32	✓/✓	X	1490			4	X	2	0.260													5.7°				
3		✓	500	500	33	✓/✓	X	1424			4	X	3	0.852													6.1°				
4		✓	350	350	34	✓/✓	X	1493			4	XX	4	2.021													6.5°				
5		✓	250	250	35	✓/✓	X	1487			4	X	5	2.932													7.2°				
6		✓	200	200	36	✓/✓	XX	900	901		4	X	6	3.598	13.578												7.4° / 7.6°				
7		✓	150	150	37	✓/✓	X	902			4	X	7	3.813													8.0°				
8		✓	100	100	38	✓/✓	X	903			4	X	8	4.109													8.3°				
9		✓	75	75	39	✓/✓	X	904			4	X	9	OT													8.5°				
10		✓	50	50	40	✓/✓	X	905			4	X	10	6.143	16.116												9.2°				
11		✓	35	35	41	✓/✓	XX	906	907		4	X	11	6.143	16.116												10.3° / 10.9°				
12		✓	15	15	42	✓/✓	X	908			4	X	12	6.280													13.7°				
13		✓	5	5	43	✓/✓	X	909			4	X	13	6.201																	
14		✓	5	5	44	✓/✓	X	909			4	X	14																		
15													15																		
16													16																		
17													17																		
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23													23																		
24													24																		

Comments: Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

5, 15, 35, 50, 75, 100, 150, 200, 250, 350, 500, 1000

TLM

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

2357

Event # 7

UTC Date (ddmmYYYY) 51 JUL 2019

Water Depth(Sounder) 2205 m (includes 5m ship dr)

Station: NSPO2

UTC Time 0104

Weather/Sea State clarity

CTD File: 2019-78-0007

Lat (N) 49 28.842

Lon (W) 128 8.041

Watchkeeper(s) SZ/SAQ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DiG/Alk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	6-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Grebmei)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Bottom Temperature: Bottom Salinity: Comments	
1		V	1000		8	VV	XX	1485	1445		4	X	1			0.230	0.230	0.235									5.5/5.5/1st out bucs with 21mg	
2		V	750		9	VV	X	1445			X	X	2			0.230											5.9	
3		V	500		10	VV	X	1458			X	X	3			0.031											6.4	
4		V	950	951	11	VV	X	1436			X	X	4			1.322											6.8	
5		V	750	751	12	VV	X	1483			X	X	5			2.144											7.4	
6		V	200	201.5	13	VV	X	1403			X	X	6			2.164											9.9	
7		V	150	152.5	14	VV	X	1484			X	X	7			3.085											8.3	
8		V	100	100	15	VV	X	1421			X	X	8			4.543											8.3	
9		V	418	45	16	VV	X				X	X	9														8.3	
10		V	111		17	VV	X				X	X	10														8.3	
11		V	111		18	VV	X				X	X	11															8.3
12		V	111		19	VV	X				X	X	12															8.3
13		V	111		20	VV	X				X	X	13															8.3
14		V	111		21	VV	X				X	X	14															8.3
15		V	111		22	VV	X				X	X	15															8.3
16		V	111		23	VV	X				X	X	16															8.3
17		V	111		24	VV	X				X	X	17															8.3
18		V	111		25	VV	X				X	X	18															8.3
19		V	111		26	VV	X				X	X	19															8.3
20		V	28	23.5	27	VV	XX	1434	1449		4	X	20			7.051											10.1	
21		V	17	13	28	VV	X	1480			X	X	21			6.546												10.1
22		V	10	10	29	VV	X	1467			X	X	22			2.072												10.1
23		V	2	2.5	30	VV	X	1480			X	X	23			6.013												10.1
24													24															10.1

Comments: Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.

100-48-11
28-15%
17-30%
10-50%
14 available

depth (110± depth 1/2 (no. a)): 100%, 50%, 30%, 15%, 1%, 0.1%
1/6 bottles

Possible: 5, 15, 35, 50, 75, 100, 150, 175, 200, 225, 250, 350, 500, 750, 1000 (121)

possible dip @ spigot
bottom forward webhooks during deploy

CMWOT 0.5 m/s

1st pet 9.9

6.8

5.9

Rosette Log for IOS Cruise ID 2019-78

Ship: CCGS Sir Wilfrid Laurier

Event # 4

UTC Date (ddmmYY) 41 JUN 2019

Water Depth(Sounder) 109 m (includes 5m ship dr

Station: NP-01

UTC Time 15:11

Weather/Sea State calm/chucky

CTD File: 2019-78-000A

Lat (N) 48° 50.285

Lon (W) 120° 8.3'

Watchkeeper(s) SAO/SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	DIC/Aik (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	P-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Resp exp. (Greblner)	Phyto-ID (Var-Grab-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments	
1	1	✓	bottom	101	1	✓	XX	1401	1477		4	X	1	2.7854	2.2850												8.3°	8.4°		
2	2	✓	45	97	2	✓	X	1440			4	X	2	3.635													8.6°			
3	3	✓	50	92	3	✓	X	1402			4	X	3	4.003													8.7°			
4	4	✓	85	87	4	✓	X	1460			4	XX	4	5.133													9.3°			
5	5	✓	25	97	5	✓	X	1495			4	X	5	5.948													10.7°			
6	6	✓	15	17	6	✓	XX	1485	1497		4	X	6	6.295	6.295												14.1°	14.3°	Bottom	
7	7	✓	5	7	7	✓	X	1414			4	X	7	6.440													15.2°		leeward	
8	8												8																wind	
9	9												9																on	
10	10												10																recovery	
11	11												11																on #6	
12	12												12																	
13	13												13																	
14	14												14																	
15	15												15																	
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Comments: Bottle integrity: First test lower petcock then test top valve. 'Check' means pass, 'X' means fail. If niskin fails, explain this in the comments column.