

# Rosette Log for IOS Cruise ID 2018-63

Ship: *CCGS Sir Wilfrid Laurier*

Event # 1 UTC Date (ddmmYYYY) 71 JUL 2018

Ice Coverage 0/10

Water Depth(Sounder) 125 m (includes 5m ship draft)

Station: *OFF QUADR4* UTC Time 1801

Weather/Sea State calm

CTD File: 2018-63-0001 Lat (N) 49 56.084

Lon (W) 125 7.266

Watchkeeper(s) SAQ/LSZ

Niskin #	Firing Order	Confirmed Fire	Target Pressure (db)	Actual Pressure (db)	Sample #	Oxygen (IOS)	DIC/Alk (IOS)	N2O (Tortell)	Nutrients (IOS)	Salinity (IOS)	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Phyto-ID (Varela)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments	
1	1	✓	12	12.6	1																					
2	1																									
3	1																									
4	1																									
5	1																									
6	1																									
7	1																									
8	1																									
9	1																									
10	1																									
11	1																									
12	1																									
13	1																									
14	1																									
15	1																									
16	1																									
17	1																									
18	1																									
19	1																									
20	1																									
21	1																									
22	1																									
23	1																									
24	1																									

Niskin Missing bottom O-ring

Niskin Missing bottom O-ring

Test cast to con firm CTD works + collect some water for Shea (Varela sampling)

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 2018-63

Ship: *CCGS Sir Wilfrid Laurier*

Event # 2 UTC Date (ddmmYYYY) 9 JUL 2018

Ice Coverage 0/10

Water Depth(Sounder) 2040 m (includes 5m ship draft)

Station: CSJ-1 UTC Time 16:15

Weather/Sea State calm

CTD File: 2018-63-0002 Lat (N) 51 52.446 Lon (W) 131 39.358

Watchkeeper(s) SE/SAC

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Oxygen (IOS)	DIC/Alk (IOS)	N2O (Tortell)	Nutrients (IOS)	Salinity (IOS)	DOC (Frey)	CDOM (Frey)	Chl-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chl-a Total (Cooper)	Phyto-ID (Varela)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	ocean Acidification (Varela)	Bottom Temperature:	Bottom Salinity:	Integrity	Comments	
1		V	Bottom	499	25	VV	1152.2	1063.5	VV	VV																		
2		V	300	300	26	VV	1173.6	1217.9	VV	VV																		
3		V	200	200	27	VV	1122.6	1148.0	VV	VV																		
4		V	0.1%	62	28	VV	1172.6	1178	VV	VV																		
5		V	0.1%	62	29	VV	1128.4	1165.7	VV	VV																		
6		V	1%	24	30	VV	1128.4	1165.7	VV	VV																		
7		V	1%	24	1																							
8		V	Bottom	200	2																							
9		V			3																							
10		V			4																							
11		V			5																							
12		V			6																							
13		V			7																							
14		V			8																							
15		V			9																							
16		V			46																							
17		V	15%	16	41	VV	1124.9	1134.1	VV	VV																		
18		V	"	16	42																							
19		V	30%	10.	43	VV	1135	1193.6	VV	VV																		
20		V	"	16	44																							
21		V	55%	5	45	VV	1110.5	1156	VV	VV																		
22		V	"	5	46																							
23		V	160%	1	47	VV	1137.8	1145.3	VV	VV																		
24		V	"	1	48																							

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.

replaced o-rings on valve

slow strips to oxygen valve hanging slightly

top valve not tight. slid down in rosette, caught on valve

slow leak bottom valve

replaced top hose clamp

10 Jul pre-SHIP-1 Replaced o-rings on valve - need note - need to pull out to ship!

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 3A

UTC Date (ddmmYYYY) 16 JUL 2018

Water Depth(Sounder) 80 m (includes 5m ship draft)

Station: SLP-1/0801.1 UTC Time 15:19:43

Weather/Sea State Foggy/calm

CTD File: 2018-63-003A Lat (N) 62° 05' 48"

Lon (W) 150° 38' 02"

Watchkeeper(s) Sarah X2

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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-frac. Chl (Varela)	Comments		
1	1	✓	Bottom	24.7	49	XX																				
2	2	✓	"	24.7	50	XX	1150/1.6	1109/1.2	XX																	Bottom Temperature: 1.43 Bottom Salinity: 32.82
3	3	✓	"	24.7	51																					
4	4	✓	"	24.7	52																					
5	5	✓	50	50	53																					
6	6	✓	35	35.5	54																					
7	7	✓	35	35.5	55																					
8	8	✓	25	25.1	56																					
9	9	✓	25	25.1	57																					
10	10	✓	15	15.3	58	XX																				
11	11	✓	15	15.3	59																					
12	12	✓	5	5.5	60																					
13	13	✓	5	5.5	61	XX																				
14	14	✓	5	5.5	62																					
15	15	✓	Bottom	24.7	63																					
16	16	✓	Bottom	24.7	X																					
17	17	✓	Bottom	24.7	X																					
18	18	✓	Bottom	24.7	X																					
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:

noticed bottom unhooked during prepping for next station. Potentially this could have come unhooked during deployment so sample 50 is suspect. #16 slow drip at bottom valve. 4.5L 2L 3.5L

Bottom Temperature: 1.43  
Bottom Salinity: 32.82  
Accidentally closed @ 75 not 50 so NOTED SAMPLES TO NEXT  
Very noisy at 50  
700m depth at 50  
Slow drip bottom vent  
Spur valve was open - was missed  
BUT may have been opened by another sampler  
Bottom stop for making up Form 10 for Tackie

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 41 UTC Date (ddmmYYYY) 16 JUL 2018

Water Depth(Sounder) 82 m (includes 5m ship dr)

Station: SIFP2/DB01.2 UTC Time 18:13

Weather/Sea State Foggy/CalM

CTD File: 2018-63-00A Lat (N) 60.2905

Lon (W) 195.123201

Watchkeeper(s) Sarah XZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	<del>N2O (Tortell)</del>	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-frac. Chl (Varela)	Bottom Temperature	Bottom Salinity	Comments			
1	1	✓	Bottom	35.5	64									1																			
2	2	✓	"	"	65		X	1179/1.6			XX	3	X	2																			
3	3	✓	"	"	66	✓						3	X	3																			
4	4	✓	"	"	67							3	X	4																			
5	5	✓	"	"	68							3	X	5																			
6	6	✓	"	"	69							3	X	6																			
7	7	✓	"	"	70	✓						5	XX	7																			
8	8	✓	"	"	71		X	1174/1.2				5	XX	8																			
9	9	✓	"	"	72	✓						3	X	9																			
10	10	✓	"	"	73	✓						3	X	10																			
11	11	✓	"	"	74	✓						3	X	11																			
12	12	✓	"	"	75	✓						3	X	12																			
13	13	✓	"	"	76	X						3	X	13																			
14	14	✓	"	"	77	✓	X	1128/7.4				3	X	14																			
15	15	✓	"	"	78	✓						3	X	15																			
16	16	✓	"	"	79	✓						3	X	16																			
17	17	✓	"	"	80	✓						3	X	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:

Oxy: e-sample not after gear/rise

due dip bottom valve

Bottom Temperature: 1.66  
Bottom Salinity: 32.39

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 49

UTC Date (ddmmmyyy) 13 JUL 2018

Station: SIF-3/5B01.4

UTC Time 09:01

Weather/Sea State Foggy calm

CTD File: 2018-63-0049

Lat (N) 62° 23.479

Lon (W) 134° 34.141

12 knots

Watchkeeper(s) Sach-X2

Water Depth(Sounder) 71 m (Includes 5m ship dr)

Water Depth ~ 75

Bottom will be ~ 20

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmeif)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: 1.27	Bottom Salinity: 31.94	Comments	
1	1	✓	Bottom (5.8)	11	81									1																	
2	2	✓	11.46	11	82		X	105/1.1		XX		5	X	2																	
3	3	✓	11.46	11	83									3	X																
4	4	✓	5.0	5.0	84					XX		3	X	4																	
5	5	✓	5.0	5.0	85									5	X																
6	6	✓	3.5	3.5	86		XX	114/1.5	184/1.6	XX		3	X	6	X																
7	7	✓	3.5	3.5	87									7	X																
8	8	✓	2.5	2.5	88					XX		3	XX	8	X																
9	9	✓	2.5	2.5	89									9	X																
10	10	✓	1.5	1.5	90					XX		3	X	10	X																
11	11	✓	1.5	1.5	91									11	X																
12	12	✓	1.5	1.5	92		X	112.6		XX		3	X	12	X																
13	13	✓	5	5	93									13	X																
14	14	✓	5	5	94									14	X																
15	15	✓	5	5	95									15	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:

2012 @ 5,35-

Chlorophyll a standard depth

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 57

UTC Date (ddmmYYYY) 13\_JUL\_2018

Water Depth(Sounder) 46 m (includes 5m ship dr)

Station: 31P5DB01.6

UTC Time 5:19

Weather/Sea State Foggy/calm

CTD File: 2018-63-0057

Lat(N) 50° 32' 51.4"

Lon (W) 133° 33.498'

12 knots

Watchkeeper(s) SARON 12

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	DOC/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. (Grebme)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments		
1	1	✓	Bottom	54.5	96									1																
2	2	✓	NOI		97		X	192/1.7		XX		3	X	2																
3	3	✓			98									3	X	X	X	X	X	X	X									
4	4	✓		50	99					XX		5	X	4	X	X	X	X	X	X	X									
5	5	✓		50	100									5	X	X	X	X	X	X	X									
6	6	✓		35	101		X	110/3.5		XX		3	X	6	X	X	X	X	X	X	X									
7	7	✓		35	102									7	X	X	X	X	X	X	X									
8	8	✓		25	103					XX		3	X	8	X	X	X	X	X	X	X									
9	9	✓		25	104									9	X	X	X	X	X	X	X									
10	10	✓		15.5	105					XX		3	X	10	X	X	X	X	X	X	X									
11	11	✓			106									11	X	X	X	X	X	X	X									
12	12	✓			107	X	X	156/2.5		XX		3	XX	12	X	X	X	X	X	X	X									
13	13	✓			108									13	X	X	X	X	X	X	X									
14	14	✓			109									14	X	X	X	X	X	X	X									
15	15	✓			109									15	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																

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:

2017 @ 5m

CHL MAX @ 35-50  
THIS LAST BOTTLE NO  
LONGER NEEDED

slowing on valve

Bottom Temperature: 1-8°C  
Bottom Salinity: 31.81

~ 71 m

# Rosette Log for IOS Cruise ID 2018-63

Ship: *CCGS Sir Wilfrid Laurier*

Event # *6A*

UTC Date (ddmmYYYY) *17 JUL 2018*

Water Depth(Sounder) *72* m (includes 6m ship dr)

Station: *STP4/DB01.8*

UTC Time *10:20*

Weather/Sea State *calm/12 knots winds.*

CTD File: *2018-63-06A*

Lat (N) *63° 1.886*

Lon (W) *123° 23.283*

Matchkeeper(s) *Soransky*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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: 0.84 Bottom Salinity: 31.75	Comments
1	1	✓	Bottom	160.1	116									1															
2	2	✓	11"	"	111		X	130/10.6	0.17	XX	X	3	X	2	X	X	X	X	X		X		X						
3	3	✓	"	"	113					XX		3	XX	3	X	X	X	X	X										
4	4	✓	50	49.8	114					XX		5	X	4	X	X	X	X	X										
5	5	✓	50	"	115		X	114/5.2		XX		5	X	5	X	X	X	X	X										
6	6	✓	35	35.5	116					XX		3	X	6	X	X	X	X	X										
7	7	✓	35	"	117					XX		3	X	7	X	X	X	X	X										
8	8	✓	25	25	118					XX		3	X	8	X	X	X	X	X										
9	9	✓	25	"	119					XX		3	X	9	X	X	X	X	X										
10	10	✓	15	15.1	119					XX		3	X	10	X	X	X	X	X										
11	11	✓	15	"	120					XX		3	X	11	X	X	X	X	X										
12	12	✓	5	5.3	121		X	1125/7.5		XX	X	3	X	12	X	X	X	X	X										
13	13	✓	5	"	122					XX		3	X	13	X	X	X	X	X										
14	14	✓	30	30.2	123					XX		3	X	14	X	X	X	X	X										
15	15	✓	30	30.1	124					XX		3	X	15	X	X	X	X	X										
16	16	✓	50	49.8	125					XX		3	X	16	X	X	X	X	X										
17	17	✓	35	35.5	126					XX		3	X	17	X	X	X	X	X										
18	18	✓	20	20.3	127					XX		3	X	18	X	X	X	X	X										
19	19	✓	10	10.4	128					XX		3	X	19	X	X	X	X	X										
20	20	✓	5	5.3	129					XX		3	X	20	X	X	X	X	X										
21	21	✓	3	3.1	130					XX		3	X	21	X	X	X	X	X										
22	22	✓	3	3.1	131					XX		3	X	22	X	X	X	X	X										
23	23	✓	3	3.1	131					XX		3	X	23	X	X	X	X	X										
24	24													24															

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

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

054m

Event # 72

UTC Date (ddmmmyy) 17 JUL 2018

Water Depth(Sounder) 54 m (includes 5m ship dr)

Station: BCL-6a

UTC Time 1853

Weather/Sea State Wind 14kt / 1m sea

CTD File: 2018-63-0672 Lat (N) 63 55.130

Lon (W) 172 6.008

Watchkeeper(s) SZ/SAR

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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: 1.85	Bottom Salinity: 32.71	Comments
1	1	✓	Bottom	47.5	132					XX	X	3	X	1	X	X	X	X	X	X	X	X	X	X	X	X	X			
2	2	✓	"	"	133					X	11/11.7	3	X	2	X	X	X	X	X	X	X	X	X	X	X	X	X			
3	3	✓			134					XX		3	X	3	X	X	X	X	X	X	X	X	X	X	X	X	X			
4	4	✓			135					XX		3	X	4	X	X	X	X	X	X	X	X	X	X	X	X	X			
5	5	✓			136					XX		3	X	5	X	X	X	X	X	X	X	X	X	X	X	X	X			
6	6	✓			137					XX		5	X	6	X	X	X	X	X	X	X	X	X	X	X	X	X			
7	7	✓			138					XX		5	X	7	X	X	X	X	X	X	X	X	X	X	X	X	X			
8	8	✓			139					XX		2	XX	8	X	X	X	X	X	X	X	X	X	X	X	X	X			
9	9	✓			140		XX	11/11.7	11/11.7	XX		2	XX	9	X	X	X	X	X	X	X	X	X	X	X	X	X			
10	10	✓			141									10	X	X	X	X	X	X	X	X	X	X	X	X	X			
11	11	✓			142									11	X	X	X	X	X	X	X	X	X	X	X	X	X			
12	12	✓	Chloro	20	143									12	X	X	X	X	X	X	X	X	X	X	X	X	X			
13														13																
14														14																
15														15																
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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:

Raymond on #2 unclipped at some point. Reached for 11m wire cast

NO TSAMPYML



~7 pm

~47 m

# Rosette Log for IOS Cruise ID 2018-63

## Ship: CCGS Sir Wilfrid Laurier

Event # 35 UTC Date (ddmmYYYY) 18\_JUL\_2018

Water Depth(Sounder) 48 m (Includes 5m ship dr)

Station: BCL-60/DB02.0 UTC Time 0045

Weather/Sea State 1msw/22knt

CTD File: 2018-63-0025 Lat (N) 64 40.349

Lon (W) 170 38.560

Watchkeeper(s) \_\_\_\_\_

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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)	Comments	
1	1	✓	Bottom	43	143									1															
2	2	✓	Bottom	11	144									2															
3	3	✓	Bot	11	145									3															
4	4	✓	Bot	11	146									4															
5	5	✓	Bot	11	147									5															
6	6	✓	Bot	11	148		X	146/3.78						6															
7	7	✓	Bot	11	149									7															
8	8	✓	Bot	11	150									8															
9	9	✓	Bot	11	151									9															
10	10	✓	Bot	11	152		X	148/4.0						10															
11	11	✓	Bot	11	153									11															
12	12	✓	Bot	11	154									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.

2019 05435

Bottom Temperature: 3.65  
Bottom Salinity: 32.873

Bottle opened 10 min before being sampled for oxygen.

no bottom water?

~1043 pm

~48 m

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 82 UTC Date (ddmmmyy) 18 JUL 2018

Water Depth(Sounder) 47 m (Includes 5m ship dr)

Station: UTB5-5/0802.1 UTC Time 0422

Weather/Sea State 1mswell/22knt

CTD File: 2018-63-0082 Lat (N) 64 40.379

Lon (W) 169 55.600

Watchkeeper(s) SE/SAQ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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)	Comments		
1	1	X	Bottom	42	155					XX	X	3	X	1																
2	2	X	"	42	158					XX	X	5	X	2	X	X	X	X	X	X	X	X	X							
3	3	X	25		157					XX	X	3	X	3	X	X	X	X	X	X	X	X	X							
4	4	X	25		159					XX	X	3	X	4	X	X	X	X	X	X	X	X	X							
5	5	X	25		159		X	153/8.1		XX	X	3	X	5	X	X	X	X	X	X	X	X	X							
6	6	X	15		160					XX	X	3	X	6	X	X	X	X	X	X	X	X	X							
7	7	X	15		161					XX	X	3	X	7	X	X	X	X	X	X	X	X	X							
8	8	X	15		162					XX	X	3	X	8	X	X	X	X	X	X	X	X	X							
9	10	X	5		163		X	141/2.3		XX	X	3	X	9	X	X	X	X	X	X	X	X	X							
10	11	X	5		164					XX	X	3	X	10	X	X	X	X	X	X	X	X	X							
11	9	X	Chlorococ	9	165					XX	X	3	X	11	X	X	X	X	X	X	X	X	X							
12														12																
13														13																
14														14																
15														15																
16														16																
17														17																
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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.

SWca SW

Bottom Temperature: 3.09  
Bottom Salinity: 32.965

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 89 UTC Date (ddmmYYYY) 18 JUL 2018

Water Depth (Sounder) 45.5 m (includes 5m ship dr)

Station: UTR5-2/D8022 UTC Time 08:19

Weather/Sea State calm swells / 12 knots winds

CTD File: 2018-63-0089 Lat (N) 64° 40.8554'

Lon (W) 169° 6.020'

Watchkeeper(s) SFD

~ 45 m / water depth

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flas/T	Oxy Flas/ T	N2O (Tortell)	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. (Grebmeier)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Comments	
1	1	✓	Bottom	40.1	166							3	X	1															Bottom Temperature: 3.93 Bottom Salinity: 32.68
2	2	✓			167							3	X	2															
3	3	✓	35	34.9	168							3	X	3															
4	4	✓	35		169							5	X	4															
5	5	✓	25	24.9	170		XX	188/42	180/42			5	X	5															
6	6	✓	25		171							3	X	6															
7	7	✓	12	15.0	172							3	X	7															
8	8	✓	12	15.0	173							3	X	8															
9	9	✓	12	5.1	174		X	119/55				3	X	9															
10	10	✓	12		175							3	X	10															
11	11	✓	Shims		176							3	X	11															
12	12													12															
13	13													13															
14	14													14															
15	15													15															
16	16													16															
17	17													17															
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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:

Shims 5m & 17m

at  
CD max used for 17m  
so no need for  
sample at 17m  
for special bottle

# Rosette Log for IOS Cruise ID 2018-63

Ship: *CCGS Sir Wilfrid Laurier*

Event # *95*

UTC Date (ddmmYYYY) *18 Jul 2018*

Water Depth(Sounder) *38* m (includes 5m ship dr

Station: *UTBS-2a/D802.3*

UTC Time *1152*

Weather/Sea State *28knt/rolling*

CTD File: *2018-63-*

Lat (N) *64 40.326*

Lon (W) *168 14.125*

Watchkeeper(s) *ST*

*~38m*  
*✓ labeled*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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)	Comments			
1	1	✓	Bottom	32	177						X	3	X	1																	
2	2	✓	Bottom	32	178							3	X	2																	
3	3	✓	25		179		X	180/4.2				3	X	3																	
4	4	✓	25		180							3	X	4																	
5	5	✓	15		181							3	X	5																	
6	6	✓	15		182							3	X	6																	
7	7	✓	5		183		X	303				3	X	7																	
8	8	✓	5		184							3	X	8																	
9	9	✓	ChalMoy	18	185							3	X	9																	
10														10																	
11														11																	
12														12																	
13														13																	
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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: *3.939*  
 Bottom Salinity: *32.046*

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 101

UTC Date (ddmmYYYY) 18 JUL 2018

Station: DB02.7

UTC Time 1500

CTD File: 2018-63-

Lat (N) 65 0.005

Lon (W) 168 13.265

Weather/Sea State Wind 22knt

Water Depth(Sounder) 46 m (includes 5m ship dr)

Watchkeeper(s) SZ

~ 45 m

Label 6

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	DIS/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. (Grebmei)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: 3.735 Bottom Salinity: 32.236	Comments
1	1	V	Bottom	41	1850							3	X	1	X	X	X	X	X	X	X	X	X						
2	2	V	Bottom	41	187							5	X	2	X	X	X	X	X	X	X	X	X						
3	3	V	35		188							3	X	3	X	X	X	X	X	X	X	X	X						
4	4	V	35		189							3	X	4	X	X	X	X	X	X	X	X	X						
5	5	V	25		190		X	3.96/4.1				3	X	5	X	X	X	X	X	X	X	X	X						
6	6	V	25		191							3	X	6	X	X	X	X	X	X	X	X	X						
7	7	V	15		192							3	X	7	X	X	X	X	X	X	X	X	X						
8	8	V	15		193							3	X	8	X	X	X	X	X	X	X	X	X						
9	9	V	5		194		X	3.182/7.4				3	X	9	X	X	X	X	X	X	X	X	X						
10	10	V	5		195							3	X	10	X	X	X	X	X	X	X	X	X						
11	11	V	Bottom	17	196							3	X	11	X	X	X	X	X	X	X	X	X						
12	12											3	X	12	X	X	X	X	X	X	X	X	X						
13	13											3	X	13	X	X	X	X	X	X	X	X	X						
14	14											3	X	14	X	X	X	X	X	X	X	X	X						
15	15											3	X	15	X	X	X	X	X	X	X	X	X						
16	16											3	X	16	X	X	X	X	X	X	X	X	X						
17	17											3	X	17	X	X	X	X	X	X	X	X	X						
18	18											3	X	18	X	X	X	X	X	X	X	X	X						
19	19											3	X	19	X	X	X	X	X	X	X	X	X						
20	20											3	X	20	X	X	X	X	X	X	X	X	X						
21	21											3	X	21	X	X	X	X	X	X	X	X	X						
22	22											3	X	22	X	X	X	X	X	X	X	X	X						
23	23											3	X	23	X	X	X	X	X	X	X	X	X						
24	24											3	X	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.

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 108 UTC Date (ddmmYYYY) 18 JUL 2018

Station: UTBS-1/D802.5 UTC Time 18:58

CTD File: 2018-63-008 Lat (N) 69.59.502

Lon (W) 169.84041

Weather/Sea State ~ BKN winds / Fogging rain.

Water Depth(Sounder) ~ 48.9 m (includes 5m ship dr)

Watchkeeper(s) Sarahsx2

~ 48 m  
V labelled

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmei)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments	
1	✓	1	Bottom	4A.1	197					XX		3	X	1														Bottom Temperature: 3.54 Bottom Salinity: 32.74	
2	✓	2	Bottom	"	198									2															
3	✓	3	35	35.4	199			3204		XX		3	XX	3															
4	✓	4	35	"	200									4															
5	✓	5	25	25.1	201		X	3204/4.5		XX		3	X	5															
6	✓	6	25	"	202									6															
7	✓	7	15	14.8	203					XX		5	X	7															
8	✓	8	15	"	204									8															
9	✓	9	5	5.3	205		X	3174/3.5		XX		3	X	9															
10	✓	10	5	"	206									10															
11	✓	11	5	"	207									11															
12	✓	12	5	"	208									12															
13	✓	13	0.1%	22	209									13															
14	✓	14	1%	14	210									14															
15	✓	15	1%	6	211									15															
16	✓	16	30%	5	212									16															
17	✓	17	55%	5	213									17															
18	✓	18	100%	3	214									18															
19	✓	19	100%	3	215									19															
20	✓	20	100%	3	216									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.

Swaa -> prod

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 115 UTC Date (ddmmmyy) 19 JUL 2018

Water Depth(Sounder) 49.3 m (includes 5m ship dr)

Station: UTR5-4/0802.4 UTC Time 08:01

Weather/Sea State Foggy/Calm with winds.

CTD File: 2018-63-0115 Lat (N) 69.57.6241

Lon (W) 169.53.411

Watchkeeper(s) SPO

~48 m

2 labeled

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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: 3.00 Bottom Salinity: 32.859 Comments
1	✓	✓	Bottom 4A.1	217							X	3	X	1														
2	✓	✓	Bottom "	218								3	X	2	X		X		X		X		X					
3	✓	✓	35	219								3	X	3	X		X		X		X		X					
4	✓	✓	35	220									X	4	X		X		X		X		X					
5	✓	✓	25	221			X	31.71	3.4 C			3	X	5	X		X		X		X		X					
6	✓	✓	25	222									X	6	X		X		X		X		X					
7	✓	✓	15	223								3	X	7	X		X		X		X		X					
8	✓	✓	15	224									X	8	X		X		X		X		X					
9	✓	✓	5.4	225			X	10.85			X	3	X	9	X		X		X		X		X					
10	✓	✓	5	226									X	10	X		X		X		X		X		X			
11	✓	✓	Bottom 18	227									X	11	X		X		X		X		X		X			
12														12	X		X		X		X		X					
13														13														
14														14														
15														15														
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24														24														

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

Comments:

SWOA SW

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

RS2  
Vaballed

Event # 120 UTC Date (ddmmYYYY) 19 JUL 2018

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

Station: RS-2 UTC Time 0638

Weather/Sea State 17knt / wmsced

CTD File: 2018-63- Lat (N) 65 40.093

Lon (W) 168 24.053

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	DOC/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. (Grebmeier)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature	Bottom Salinity	Comments	
1	1	✓	Bottom	47	228							3	X	1	X	X	X	X	X	X	X	X	X								
2	2	✓	"	"	229							3	X	2	X	X	X	X	X	X	X	X	X								
3	3	✓	35		226							3	X	3	X	X	X	X	X	X	X	X	X								
4	4	✓	35		231							3	X	4	X	X	X	X	X	X	X	X	X								
5	5	✓	25		232							3	X	5	X	X	X	X	X	X	X	X	X								
6	6	✓	25		233							3	X	6	X	X	X	X	X	X	X	X	X								
7	7	✓	15		234							3	X	7	X	X	X	X	X	X	X	X	X								
8	8	✓	15		235							3	X	8	X	X	X	X	X	X	X	X	X								
9	8	✓	5		236		X	3191				3	X	9	X	X	X	X	X	X	X	X	X								
10	11	✓	5		239							3	X	10	X	X	X	X	X	X	X	X	X								
11	9	✓	Chl max	10	238							3	X	11	X	X	X	X	X	X	X	X	X								
12														12	X	X	X	X	X	X	X	X	X								
13														13																	
14														14																	
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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 2018-63

Ship: CCGS Sir Wilfrid Laurier

~52  
Vabellod

Event # 112

UTC Date (ddmmYYYY) 19 Jul 2018

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

Station: RRS-3

UTC Time 0747 0809

Weather/Sea State 16kt / ~1m swell

CTD File: 2018-63-

Lat (N) ~~65 40.982~~ 65 40.987

Lon (W) ~~168 33.995~~ 168 34.068

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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		✓	Bottom	48	239					XX	X	3	X	1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2.70	21.520	
2		✓	"	"	240					XX	X	3	X	2	X	X	X	X	X	X	X	X	X	X	X	X	X				
3		✓	"	"	241					XX	X	3	X	3	X	X	X	X	X	X	X	X	X	X	X	X	X				
4		✓	"	"	242					XX	X	3	X	4	X	X	X	X	X	X	X	X	X	X	X	X	X				
5		✓	"	"	243		X	3.51	3.1	XX	X	3	X	5	X	X	X	X	X	X	X	X	X	X	X	X	X				
6		✓	"	"	244					XX	X	3	X	6	X	X	X	X	X	X	X	X	X	X	X	X	X				
7		✓	"	"	245					XX	X	3	X	7	X	X	X	X	X	X	X	X	X	X	X	X	X				
8		✓	"	"	246					XX	X	3	X	8	X	X	X	X	X	X	X	X	X	X	X	X	X				
9		✓	"	"	247		X	3.89	7.4	XX	X	3	X	9	X	X	X	X	X	X	X	X	X	X	X	X	X				
10		✓	"	"	248					XX	X	3	X	10	X	X	X	X	X	X	X	X	X	X	X	X	X				
11		✓	"	"	249					XX	X	3	X	11	X	X	X	X	X	X	X	X	X	X	X	X	X				
12		✓	"	"	249					XX	X	3	X	12	X	X	X	X	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 a skin fails, explain this in the comments column.

Comments:

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 124 UTC Date (ddmmmyy) 19 JUL 2018

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

Station: BRS-A UTC Time 0859

Weather/Sea State 15 knt / AWS swell

CTD File: 2018-63- Lat (N) 65 41.896

Lon (W) 168 42.720

Watchkeeper(s) SZ

NS2m  
Vlabelled

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Fodell)	DIC/AIK (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chi-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chi-a Total (Cooper)	Resp exp. (Grebmeik)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: 4.10 Bottom Salinity: 31.91 Comments	
1		✓	Bottom	47	150							3	X	1															
2		✓	"	47	151							3	X	2	X	X	X	X	X	X	X	X	X						
3		✓			252							3	X	3	X	X	X	X	X	X	X	X	X						
4		✓			253							5	XX	4	X	X	X	X	X	X	X	X	X						
5		✓			254							5	XX	5	X	X	X	X	X	X	X	X	X						
6		✓			255							3	X	6	X	X	X	X	X	X	X	X	X						
7		✓			256							3	X	7	X	X	X	X	X	X	X	X	X						
8		✓			257							3	X	8	X	X	X	X	X	X	X	X	X						
9		✓			258							3	X	9	X	X	X	X	X	X	X	X	X						
10		✓			259							3	X	10	X	X	X	X	X	X	X	X	X						
11		✓	✓	5	260							3	X	11	X	X	X	X	X	X	X	X	X						
12		✓	✓	5	260							3	X	12	X	X	X	X	X	X	X	X	X						
13														13															
14														14															
15														15															
16														16															
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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:

034m

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 127 UTC Date (ddmmmyy) 19 JUL 2018

Water Depth(Sounder) 36 m (includes 5m ship dr)

Station: UTN-1

UTC Time 1444

Weather/Sea State 10knt calm

CTD File: 2018-63-

Lat (N) 66 42.505

Lon (W) 168 23.876

Watchkeeper(s) ST

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Fortell)	DIC/AIk (IOS)	Nutrients (IOS)	Salinity (IOS)	Niskin #	DOC (Frey)	CDOM (Frey)	Chi-a/Phaeo Total (Frey)	SPM (Frey)	O-18 (Cooper)	Nutrient (Cooper)	Chi-a Total (Cooper)	Resp exp. (Grebmet)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: 4.35	Bottom Salinity: 31.47	Comments
1		✓	Bottom	30	261						X	3	X	1																
2		✓	"	30	262						X	3	X	2																
3		✓	"	30	263						X	3	X	3																
4		✓	25		264						X	3	X	4																
5		✓	25		265						X	3	X	5																
6		✓	15		266						X	3	X	6																
7		✓	15		267						X	3	X	7																
8		✓	15		268		X	1434/6.1			X	3	X	8																
9		✓	5		269						X	3	X	9																
10		✓	Chlorophyll	5	270						X	3	X	10																
11														11																
12														12																
13														13																
14														14																
15														15																
16														16																
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19														19																
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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 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 1341 UTC Date (ddmmYYYY) 19 JUL 2018

Water Depth(Sounder) 40 m (Includes 5m ship dr)

Station: UTM-2

UTC Time 12:59

Weather/Sea State calms / 11-12 knots

CTD File: 2018-63-0134

Lat (N) 43° 3.013

Lon (W) 108° 43.694

Watchkeeper(s) Sarahs X2

~46m

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmeir)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: 4.58 Bottom Salinity: 32.12	Comments
1	1	✓	Bottom	41.1	291									1															
2	2	✓	11	41.1	292					XX		3	X	2															
3	3	✓	11	A1	293							3	X	3	X	X	X	X	X	X	X		X						
4	4	✓	3.5	35.2	294							3	X	4	X	X	X	X	X	X	X		X						
5	5	✓	3.5	35.2	295							3	X	5	X	X	X	X	X	X	X		X						
6	6	✓	2.5	15.0	296		X	3207/510		XX		3	X	6	X	X	X	X	X	X	X		X						
7	7	✓	2.5	15.0	297							5	XX	7	X	X	X	X	X	X	X		X						
8	8	✓	1.5	15.2	298					XX		5	XX	8	X	X	X	X	X	X	X		X						
9	9	✓	1.5	15.2	299							5	XX	9	X	X	X	X	X	X	X		X						
10	10	✓	1.5	15.2	280		X	3201/7.6		XX		3	X	10	X	X	X	X	X	X	X		X						
11	11	✓	1.5	15.4	281							3	X	11	X	X	X	X	X	X	X		X						
12	12	✓	1.0	7.2	282							3	X	12	X	X	X	X	X	X	X		X						
13	13													13															
14	14													14															
15	15													15															
16	16													16															
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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 a skin fails, explain this in the comments column.

Comments:

CTD going down @ 10.6 km/sec.

Shea 2017 DSM

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 141

UTC Date (ddmmYYYY) 19 Jul 2018

Water Depth (Sounder) 50.1 m (Includes 5m ship dr)

Station: UHN-3

UTC Time 21:44

Weather/Sea State calm sunny /kn winds

CTD File: 2018-63-01A1

Lat (N) 67-19.888

Lon (W) 168-54.310

Watchkeeper(s) Sarah AB

~51m

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Fortell)	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. (Grebmeir)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments		
1	1	✓	Bottom	44.8	283							3	X	1								X							Bottom Temperature: 2.92 Bottom Salinity: 32.64	
2	2	✓	"	"	284							3	X	2																
3	3	✓	"	"	285							3	X	3																
4	4	✓	35	35.3	286							3	X	4																
5	5	✓	35	"	287							3	X	5																
6	6	✓	35	35.2	288		X	3107	3.3			3	X	6																
7	7	✓	35	"	289							3	X	7																
8	8	✓	35	15.5	290							3	X	8																
9	9	✓	35	"	291							3	X	9																
10	10	✓	35	"	292		X	1440	5.6			3	X	10																
11	11	✓	35	"	293							3	X	11																
12	12	✓	35	"	294							3	X	12																
13	13	✓	Bottom	"	294							3	X	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																

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:

FOR SUKREFORMALIN  
NO sample #

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 148 UTC Date (ddmmYYYY) 20\_1\_JUL\_2018

Water Depth(Sounder) 51 m (includes 5m ship dr)

Station: UTM-4

UTC Time 0045

Weather/Sea State Sunny/Calm/0-1kn wind

CTD File: 2018-63-

Lat (N) 53° 35.008

Lon (W) 1108° 54.491

1m Swell

Watchkeeper(s) Sachis X2

~ 51m

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmeil)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments	
1	1	1	Bottom	18	295									1															Bottom Temperature: 3.94 Bottom Salinity: 34.37
2	2	2	"	"	296					XX	X	3	X	2	X	X	X	X	X	X	X	X							
3	3	3	"	"	297					XX	X	3	X	3	X	X	X	X	X	X	X	X							
4	4	4	"	"	298					XX	X	3	X	4	X	X	X	X	X	X	X	X							
5	5	5	"	"	299									5	X	X	X	X	X	X	X	X							
6	6	6	"	"	300									6	X	X	X	X	X	X	X	X							
7	7	7	"	"	301									7	X	X	X	X	X	X	X	X							
8	8	8	"	"	302									8	X	X	X	X	X	X	X	X							
9	9	9	"	"	303									9	X	X	X	X	X	X	X	X							
10	10	10	"	"	304									10	X	X	X	X	X	X	X	X							
11	11	11	"	"	305									11	X	X	X	X	X	X	X	X							
12	12	12	"	"	306									12	X	X	X	X	X	X	X	X							
13	13	13	"	"	307									13	X	X	X	X	X	X	X	X							
14	14	14	"	"	308									14	X	X	X	X	X	X	X	X							
15	15	15	"	"	309									15	X	X	X	X	X	X	X	X							
16	16	16	"	"	310									16	X	X	X	X	X	X	X	X							
17	17	17	"	"	311									17	X	X	X	X	X	X	X	X							
18	18	18	"	"	312									18	X	X	X	X	X	X	X	X							
19	19	19	"	"	313									19	X	X	X	X	X	X	X	X							
20	20	20	"	"	314									20	X	X	X	X	X	X	X	X							
21	21	21	"	"	315									21	X	X	X	X	X	X	X	X							
22	22	22	"	"	315									22	X	X	X	X	X	X	X	X							
23	23	23	"	"	315									23	X	X	X	X	X	X	X	X							
24	24	24	"	"	315									24	X	X	X	X	X	X	X	X							

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:

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 155 UTC Date (ddmmmyy) 20 Jul 2018

Station: 568/0503.1 UTC Time 1408

CTD File: 2018-63- Lat (N) 68 17.992

Lon (W) 166 56.498

Weather/Sea State 14/14 f

Water Depth(Sounder) 35 m (includes 5m ship dr)

Watchkeeper(s) SZ / SGA Q

~ 35 labeled.

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmeil)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments		
1		✓	Bottom	30	810						X	3	X	1							X								Bottom Temperature: 8.25 Bottom Salinity: 30.88	
2		✓	Bottom	30	817						X	3	X	2	X						X									
3		✓	25		818							3	X	3	X						X									
4		✓	25		819							3	X	4	X						X									
5		✓	15		820							3	X	5	X						X									
6		✓	15		821							3	X	6	X						X									
7		✓	5		822						X	3	X	7	X						X									
8		✓	5		823							3	X	8	X						X									
9		✓	5		824							3	X	9	X						X									
10														10	X						X									
11														11	X						X									
12														12	X						X									
13														13	X						X									
14														14	X						X									
15														15	X						X									
16														16	X						X									
17														17	X						X									
18														18	X						X									
19														19	X						X									
20														20	X						X									
21														21	X						X									
22														22	X						X									
23														23	X						X									
24														24	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:

N/O bottle fired (extra sample #)

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 161 UTC Date (ddmmYYYY) 20 JUL 2018

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

Station: SEC-7/DB03.2 UTC Time 1551

Weather/Sea State 13knt / calm seas

CTD File: 2018-63- Lat (N) 68 14.642

Lon (W) 167 7.314

Watchkeeper(s) SZ

~ 43m labelled.

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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.-(Grebme)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments			
1	1	V	Bottom	395	325					XX	X	3	X	1																	
2	2	V	Bottom		326					XX				2	X	X	X	X	X	X	X		X								
3	3	V	35		327					XX		3	X	3	X	X	X	X	X	X	X		X								
4	4	V	35		328									4	X	X	X	X	X	X	X		X								
5	5	V	25		329					XX		3	X	5	X	X	X	X	X	X	X		X								
6	6	V	25		330									6	X	X	X	X	X	X	X		X								
7	7	V	15		331					XX		5	XX	7	X	X	X	X	X	X	X		X								
8	8	V	15		332									8	X	X	X	X	X	X	X		X								
9	9	V	5		333					XX	X	3	X	9	X	X	X	X	X	X	X		X								
10	10	V	5		334									10	X	X	X	X	X	X	X		X								
11	11	V	Chl/Mex	21	335									11	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																	

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: 5.05  
Bottom Salinity: 31.524

2nd chl mx

- Jolly? T2, S2, FL and blocks from 35 to 25, cleaned for bottle trip.

Comments



# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 167 UTC Date (ddmmYYYY) 20 JUL 2018

Station: SEC-6/0303.3 UTC Time 1741 Weather/Sea State 14/10/ calm

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

CTD File: 2018-63- Lat (N) 68 11.172

Lon (W) 167 18.538

Watchkeeper(s) SE

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmet)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: Bottom Salinity:	Comments			
1		V	Bottom	44	340		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>	X	3	X	1																		
2		V	Bottom	44	337		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>		3	X	2	X																	
3		V	35		338		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>		3	X	3	X																	
4		V	35		339		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>		3	X	4	X																	
5		V	25		346		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>		3	X	5	X																	
6		V	25		341		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>		3	X	6	X																	
7		V	15		342		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>		3	X	7	X																	
8		V	15		343		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>		3	X	8	X																	
9		V	5		344		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>	X	3	X	9	X																	
10		V	5		345		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>		3	X	10	X																	
11		V	Chlorophyll	5	346		<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>		3	X	11	X																	
12							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				12	X																	
13							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				13																		
14							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				14																		
15							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				15																		
16							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				16																		
17							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				17																		
18							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				18																		
19							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				19																		
20							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				20																		
21							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				21																		
22							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				22																		
23							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				23																		
24							<del>/</del>	<del>/</del>	<del>/</del>	<del>/</del>				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: 4.41  
Bottom Salinity: 31.685

~ 49m  
labeled

Chl max @ 15m  
dot need Niskin 11

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 173 UTC Date (ddmmmyy) 20\_JUL\_2018

Water Depth(Sounder) 51 m (includes 5m ship dr)

Station: SEC-5/DBD3.4 UTC Time 1921

Weather/Sea State 16kn / calm

CTD File: 2018-63- Lat (N) 68 7.675

Lon (W) 167 29.650

Watchkeeper(s) SZ

~ 5/m

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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 (Grebmeil)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments		
1	V	1	Bottom	46	347					XX	X	5	XX	1																
2	V	2	Bottom	46	348					XX				2	X	X	X	X	X	X	X	X	X							
3	V	3	35	35	349					XX		3	X	3	X	X	X	X	X	X	X	X	X							
4	V	4	35	35	350					XX				4	X	X	X	X	X	X	X	X	X							
5	V	6	25	25	351					XX		3	X	5	X	X	X	X	X	X	X	X	X							
6	V	7	25	25	352					XX				6	X	X	X	X	X	X	X	X	X							
7	V	11	15	15	353					XX		3	X	7	X	X	X	X	X	X	X	X	X							
8	V	12	15	15	354					XX				8	X	X	X	X	X	X	X	X	X							
9	V	14	5	5	355					XX	X	3	X	9	X	X	X	X	X	X	X	X	X							
10	V	15	5	5	356					XX				10	X	X	X	X	X	X	X	X	X							
11	V	8	Chl/Mox	12	357									11	X	X	X	X	X	X	X	X	X							
12	V	9	Chl/Mox	12	358									12	X	X	X	X	X	X	X	X	X							
13	V	5	0.1	32	359									13	X	X	X	X	X	X	X	X	X							
14	V	10	1%	17	360									14	X	X	X	X	X	X	X	X	X							
15	V	13	12%	6	361									15	X	X	X	X	X	X	X	X	X							
16	V	16	30%	5	362									16	X	X	X	X	X	X	X	X	X							
17	V	17	55%	3.5	363									17	X	X	X	X	X	X	X	X	X							
18	V	18	100%	2.7	364									18	X	X	X	X	X	X	X	X	X							
19	V	19	100%	"	365									19	X	X	X	X	X	X	X	X	X							
20	V	20	100%	"	366									20	X	X	X	X	X	X	X	X	X							
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:

Productivity cast ~~?~~ yes!

Bottom Temperature: 4.07  
Bottom Salinity: 31.815

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 179 UTC Date (ddmmYYYY) 1 JUL 2018

Water Depth(Sounder) 54 m (includes 5m ship dr

Station: SEC-4/DB03.5 UTC Time 2156

Weather/Sea State 16knt / calm sea

CTD File: 2018-63- Lat (N) 68 0.830

Lon (W) 167 51.946

Watchkeeper(s) 52

~ 54m V labels

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy-Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmeier)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Comments		
1	✓	1	Bottom	49	367						X	3	X	1																
2	✓	2	Bottom	49	368						X	3	X	2																
3	✓	3	Bottom	49	369						X	3	X	3																
4	✓	4	35		370						X	3	X	4																
5	✓	5	35		371						X	3	X	5																
6	✓	6	25		372						X	3	X	6																
7	✓	7	25		373						X	3	X	7																
8	✓	9	15		374						X	3	X	8																
9	✓	10	15		375						X	3	X	9																
10	✓	11	5	15	376						X	3	X	10																
11	✓	12	5	15	377						X	3	X	11																
12	✓	8	Chlorophyll	20	378						X	3	X	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:

Added bottom bottle for possible HAPS core

(Shear: 2017 @ 25)

Fired at 15 by accident

Bottom Temperature: 4.242  
Bottom Salinity: 32.445

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 186 UTC Date (ddmmYYYY) 21 JUL 2018

Water Depth(Sounder) 57 m (includes 5m ship dr)

Station: SEC-3/DBD 3.6 UTC Time 00:23

Weather/Sea State: foggy/rain/10k winds

CTD File: 2018-63-186 Lat (N) 62°53.957

Lon (W) 116°14.224

Watchkeeper(s) SAQ/SZ

~ 60m Labels

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmeil)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments		
1	✓	1	Bottom	54	379									1															Bottom Temperature: 3.11 Bottom Salinity: 32.61	
2	✓	1	Bottom	"	380					XX	X	3	X	2															Sample # 380 May not have added HClg to one of these 400 samples	
3	✓	3	Bottom	"	381									3	X	X	X	X	X	X	X	X							Sample 384: Rethook samples cause first set may not have had HClg added	
4	✓	4	50	50.1	382					XX		5	XX	4	X	X	X	X	X	X	X									
5	✓	5	50	"	383									5	X	X	X	X	X	X	X									
6	✓	6	35	35.5	384					XX		3	X	6	X	X	X	X	X	X	X									
7	✓	7	35	"	385									7	X	X	X	X	X	X	X									
8	✓	8	25	25.5	386					XX		3	X	8	X	X	X	X	X	X	X									
9	✓	9	25	"	387									9	X	X	X	X	X	X	X									
10	✓	10	16	16.5	388					XX		3	X	10	X	X	X	X	X	X	X									
11	✓	11	16	"	389									11	X	X	X	X	X	X	X									
12	✓	12	5	"	390					XX	X	3	X	12	X	X	X	X	X	X	X									
13	✓	13	5	"	391					XX	X	3	X	13	X	X	X	X	X	X	X									
14	✓	14	5	"	392					XX	X	3	X	14	X	X	X	X	X	X	X									
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 portcock 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 2018-63

Ship: *CCGS Sir Wilfrid Laurier*

Event # *193* UTC Date (ddmmYYYY) *2018 JUL 12 2018*

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

Station: *UTN-6* UTC Time *03:00*

Weather/Sea State *calm/no wind*

CTD File: *2018-63-0193* Lat (N) *62.44.426*

Lon (W) *108.26.461*

Watchkeeper(s) *SAD*

*3:03*

*~50m*  
*Labels*

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmeier)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments			
1	✓	✓	Bottom	44.8	393							3	X	1																	
2	✓	✓	Bottom	11	394							3	X	2																	
3	✓	✓	Bottom	11	395							3	X	3																	
4	✓	✓	35	35.1	396							3	X	4																	
5	✓	✓	35	35	397							3	X	5																	
6	✓	✓	25	25.6	398							3	X	6																	
7	✓	✓	25	25	399							3	X	7																	
8	✓	✓	15	15.5	400							3	X	8																	
9	✓	✓	15	15	401							3	X	9																	
10	✓	✓	5	5.7	402							3	X	10																	
11	✓	✓	5	5	403							3	X	11																	
12	✓	✓	10	10.8	404							3	X	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:

*consider adding N2O in*

*Bottom Temperature: 3.4  
Bottom Salinity: 32.45*  
*Bottle was off by 100 percent re: the  
sample back analyzed for salinity  
and figure had the 100 percent*

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 200 UTC Date (ddmmYYYY) 2018\_JUL\_12

Water Depth(Sounder) 505 m (includes 5m ship dr

Station: SEC-2/DB03.7 UTC Time 05:31

Weather/Sea State calm/obscure/no winds

CTD File: 2018-63-0200 Lat (N) 67° 47.02

Lon (W) 108° 36.090

Watchkeeper(s) SAO

~ 51m  
Labels

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmeier)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fnac. Chl (Varela)	Bottom Temperature: 3.68 Bottom Salinity: 32.54 Comments
1	✓	1	Bottom	45.7	405									1														
2	✓	2	Bottom	"	406						X	3	X	2														
3	✓	3	Bottom	"	407							3	X	3	X	X	X	X	X	X	X							
4	✓	4	35	95.5	408							3	X	4	X	X	X	X	X	X	X							
5	✓	5	35	"	409							5	XX	5	X	X	X	X	X	X	X							
6	✓	6	25	85.5	410							5	XX	6	X	X	X	X	X	X	X							
7	✓	7	25	"	411							3	X	7	X	X	X	X	X	X	X							
8	✓	8	15	55	412							3	X	8	X	X	X	X	X	X	X							
9	✓	9	15	"	413							3	X	9	X	X	X	X	X	X	X							
10	✓	10	5	55	414						XX	3	X	10	X	X	X	X	X	X	X							
11	✓	11	5	"	415							3	X	11	X	X	X	X	X	X	X							
12	✓	12	211Mox	30	416							3	X	12	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														

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

Shore: 2017 @ 5:25 PM was

(old UTN-5)

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 207 UTC Date (ddmmYYYY) 21 JUL 2018

Water Depth(Sounder) 50.5m (includes 5m ship dr)

Station: SEC-1/DB03.8 UTC Time 0812

Weather/Sea State 14/knt / 1m swell

CTD File: 2018-63- Lat (N) 67 40.313

Lon (W) 168 55.776

Watchkeeper(s) SZ

25/m

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Elast/T	Oxy Elast/ T	N2O (Tortell)	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. (Grebmer)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-fac. Chl (Varela)	Bottom Temperature:	Bottom Salinity:	Comments			
1	1	✓	Bottom	46	417									1																			
2	2	✓	Bottom	46	418					XX	X	3	X	2																			
3	3	✓	Bottom	46	419					XX	X	3	X	3	X	X	X	X	X	X	X	X											
4	4	✓	35	35	420					XX	X	3	X	4	X	X	X	X	X	X	X												
5	5	✓	35	35	421					XX	X	3	X	5	X	X	X	X	X	X	X												
6	6	✓	25		422					XX	X	3	X	6	X	X	X	X	X	X	X												
7	7	✓	25		423					XX	X	3	X	7	X	X	X	X	X	X	X												
8	8	✓	15		424					XX	X	3	X	8	X	X	X	X	X	X	X												
9	9	✓	15		425					XX	X	3	X	9	X	X	X	X	X	X	X												
10	10	✓	5		426					XX	X	3	X	10	X	X	X	X	X	X	X												
11	11	✓	5		427					XX	X	3	X	11	X	X	X	X	X	X	X												
12	12	✓	Callout	32	428					XX	X	3	X	12	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.

(Skua 2017 @ 5, 15)

Bottom Temperature: 4.16  
Bottom Salinity: 32.40

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

~59 m  
V. bels

Event # 214 UTC Date (ddmmYYYY) 21\_JUL\_2018

Water Depth(Sounder) 58 m (includes 5m ship dr)

Station: UTN-7 UTC Time 1129

Weather/Sea State 15knt / 1m swell

CTD File: 2018-63- Lat (N) 67 59.972

Lon (W) 168 55.762

Watchkeeper(s) SZ

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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)	Comments				
1	✓	1	B. Horn	53	429		✓	✓	✓	✓	X	3	X	1																		
2	✓	2	B. Horn	53	430		✓	✓	✓	✓	X	3	X	2	X								X									
3	✓	3	B. Horn	53	431		✓	✓	✓	✓	X	3	X	3	X								X									
4	✓	4	50		432		✓	✓	✓	✓	X	3	X	4	X								X									
5	✓	5	35		433		✓	✓	✓	✓	X	3	X	5	X								X									
6	✓	6	35		434		✓	✓	✓	✓	X	3	X	6	X								X									
7	✓	7	35		435		✓	✓	✓	✓	X	3	X	7	X								X									
8	✓	8	25		436		✓	✓	✓	✓	X	3	X	8	X								X									
9	✓	9	25		437		✓	✓	✓	✓	X	5	X	9	X								X									
10	✓	10	15		438		✓	✓	✓	✓	X	5	X	10	X								X									
11	✓	11	15		439		✓	✓	✓	✓	X	3	X	11	X								X									
12	✓	12	5		440		✓	✓	✓	✓	X	3	X	12	X								X									
13	✓	13	5		441		✓	✓	✓	✓	X	3	X	13	X								X									
14	✓	14	CHLWOP 22		442		✓	✓	✓	✓	X	3	X	14	X								X									
15	✓	15					✓	✓	✓	✓	X	3	X	15	X								X									
16	✓	16					✓	✓	✓	✓	X	3	X	16	X								X									
17	✓	17					✓	✓	✓	✓	X	3	X	17	X								X									
18	✓	18					✓	✓	✓	✓	X	3	X	18	X								X									
19	✓	19					✓	✓	✓	✓	X	3	X	19	X								X									
20	✓	20					✓	✓	✓	✓	X	3	X	20	X								X									
21	✓	21					✓	✓	✓	✓	X	3	X	21	X								X									
22	✓	22					✓	✓	✓	✓	X	3	X	22	X								X									
23	✓	23					✓	✓	✓	✓	X	3	X	23	X								X									
24	✓	24					✓	✓	✓	✓	X	3	X	24	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:

CTD shows  
just above chl wop -  
bke Hr at 25m  
so skip wops  
bottle sampling

Chl wop is better  
@ 25m so skip  
Niskin 14 sampling

Bottom Temperature: 2.647  
Bottom Salinity: 32.710



# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 223 UTC Date (ddmmmyy) 22 JUL 2018

Station: DB04.6m UTC Time 1A: \_\_\_\_\_

CTD File: 2018-63-0223 Lat (N) 31° 51.104

Lon (W) 162° 9.452

Weather/Sea State calm/soygy/no winds

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

Watchkeeper(s) Sarah Y2

labelled

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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. (Grebmer)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: -1.38	Bottom Salinity: 32.61	Comments	
1	✓	✓	Bottom	29.3	443							5	XX	1																	
2	✓	✓	"	"	444					XX	X		XX	2																	
3	✓	✓	"	"	445					XX		3	X	3																	
4	✓	✓	"	"	446					XX		3	X	4																	
5	✓	✓	"	"	447							3	X	5																	
6	✓	✓	"	"	448							3	X	6																	
7	✓	✓	"	"	449							3	X	7																	
8	✓	✓	"	"	450					XX		3	X	8																	
9	✓	✓	"	"	451					XX		3	X	9																	
10	✓	✓	"	"	452					XX	XX	3	X	10																	
11	✓	✓	"	"	453							3	X	11																	
12	✓	✓	"	"	454							3	X	12																	
13														13																	
14														14																	
15														15																	
16														16																	
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21														21																	
22														22																	
23														23																	
24														24																	

✓: 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 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 130 UTC Date (ddmmYYYY) 22 JUL 2018

Water Depth(Sounder) 44 m (includes 5m ship dr)

Station: DBO 4.5m incore JY Time 17:10

Weather/Sea State Foggy / Am swell / 15-30 km winds.

CTD File: 2018-63-0130 Lat (N) 71.43.630

Lon (W) 161.46.228

Watchkeeper(s) Sarah X2

labelled

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast	Oxy Flast	N2O (Tortell)	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. (Grebme)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Bottom Temperature: -1.31	Bottom Salinity: 32.45	Comments		
1	✓	✓	Bottom	28.8	454									1																		
2	✓	✓	"	"	455					XX	X	3	X	2																		
3	✓	✓	"	"	456					XX	X	3	X	3																		
4	✓	✓	"	"	457					XX	X	3	X	4																		
5	✓	✓	"	"	458					XX	X	3	X	5																		
6	✓	✓	"	"	459					XX	X	3	X	6																		
7	✓	✓	"	"	460					XX	X	3	X	7																		
8	✓	✓	"	"	461					XX	X	3	X	8																		
9	✓	✓	"	"	462					XX	X	3	X	9																		
10	✓	✓	"	"	463					XX	X	3	X	10																		
11	✓	✓	"	"	464					XX	X	3	X	11																		
12	✓	✓	"	"	465					XX	X	3	X	12																		
13														13																		
14														14																		
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23														23																		
24														24																		

Comments: waypoints/location wasn't the right one; off by 0.5 miles. (in gravel so couldn't do mud grabs & cores).  
 After CTD, skip moved to correct location for fluid grabs & core.

Very nervous about CTD and both may not agree

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 238 UTC Date (ddmmYYYY) 22 JUL 2018

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

Station: DB04.AN UTC Time 22:20

Weather/Sea State in Swells/浪高/浪周期/浪向

CTD File: 2018-63-0238 Lat (N) 2°35.352

Lon (W) 161°24.038

Watchkeeper(s) Sarah X2

labelled

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sampl #	Bottle Integrity	Oxygen (IOS)	Oxy-Flast/T	Oxy-Flast/ T	N2O (Tortell)	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. (Grebmeir)	Phyto-ID (Var-Greb-Coop)	Phyto Product (Varela)	bSilica (Varela)	nuts (Varela)	size-frac. Chl (Varela)	Comments	
1	1	Bottom	45	410.0	410									1															
2	2		"	410.5	410					XX	X	X	X	2															
3	3		"	410.8	410					XX	X	X	X	3															
4	4		"	411.1	410					XX	X	X	X	4															
5	5		"	411.4	410					XX	X	X	X	5															
6	6		"	411.7	411					XX	X	X	X	6															
7	7		"	412.0	412					XX	X	X	X	7															
8	8		"	412.3	413					XX	X	X	X	8															
9	9		"	412.6	414					XX	X	X	X	9															
10	10		"	412.9	415					XX	X	X	X	10															
11	11		"	413.2	416					XX	X	X	X	11															
12	12		"	413.5	417					XX	X	X	X	12															
13	13		"	413.8	418					XX	X	X	X	13															
14	14		"	414.1	419					XX	X	X	X	14															
15	15		"	414.4	420					XX	X	X	X	15															
16	16		"	414.7	421					XX	X	X	X	16															
17	17		"	415.0	422					XX	X	X	X	17															
18	18		"	415.3	423					XX	X	X	X	18															
19	19		"	415.6	424					XX	X	X	X	19															
20	20		"	415.9	425					XX	X	X	X	20															
21	21		"	416.2	426					XX	X	X	X	21															
22	22		"	416.5	427					XX	X	X	X	22															
23	23		"	416.8	428					XX	X	X	X	23															
24	24		"	417.1	429					XX	X	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.

Bottom Temperature: -1.72  
Bottom Salinity: 32.20

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 2410

UTC Date (ddmmYYYY) 23 JUL 2018

Station: DBOA3M

UTC Time 01:52

Weather/Sea State foggy/calm/rockward.

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

CTD File: 2018-63-0240

Lat (N) 21°27.287

Lon (W) 161°2.093

Watchkeeper(s) Sarah XR

labelled

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Samp #	Bottle Integrity	Oxygen (IOS)	Oxy Flast/T	Oxy Flast/ T	N2O (Tortell)	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)	Comments				
1	1	✓	Bottom	46.8	487		✓	✓	✓	XX	X	5	XX	1															Bottom Temperature: -1.59 Bottom Salinity: 32.78			
2	2	✓	"	"	488					XX	X	5	XX	2															Retool red N2O as it had bubble			
3	3	✓	"	"	489					XX	X	3	XX	3															slow drip on 4 during initial check			
4	4	✓	"	"	490					XX	X	3	XX	4																		
5	5	✓	"	"	491					XX	X	3	XX	5																		
6	6	✓	"	"	492					XX	X	3	XX	6																		
7	7	✓	"	"	493					XX	X	3	XX	7																		
8	8	✓	"	"	494					XX	X	3	XX	8																		
9	9	✓	"	"	495					XX	X	3	XX	9																		
10	10	✓	"	"	496					XX	X	3	XX	10																		
11	11	✓	"	"	497					XX	X	3	XX	11																		
12	12	✓	"	"	498					XX	X	3	XX	12																		
13	13	✓	"	"	499					XX	X	3	XX	13																		
14	14													14																		
15	15													15																		
16	16													16																		
17	17													17																		
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19	19													19																		
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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:

Retool N2O as one bottle had big bubble in it. Bottle sent down closed - no nutrients good

Retool red N2O as it had bubble  
slow drip on 4 during initial check

21

21

Labelled

# Rosette Log for IOS Cruise ID 2018-63

Ship: CCGS Sir Wilfrid Laurier

Event # 15A

UTC Date (ddmmmyy) 21 JUL 2018

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

Station: D80 A.2M

UTC Time 05:16

Weather/Sea State 12mswells/Boggy 15kn winds

CTD File: 2018-63-025A

Lat (N) 71°19.38A

Lon (W) 160°39.328

Watchkeeper(s) Sarah X2

Niskin #	Firing Order	Confirmed Fire	Target Property	Actual Pressure (db)	Sample #	Bottle Integrity	Oxygen (IOS)	Oxy-Flast/T	Oxy Flast/T	N2O (Tortell)	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-fac. Chl (Varela)	Bottom Temperature: -1.34	Bottom Salinity: 32.92	Comments	
1		✓	Bottom	AA	499					X	X	5	X	1																	
2		✓	"	"	506					X	X	5	X	2																	
3		✓	"	"	501					X	X	5	X	3																	
4		✓	"	"	502					X	X	5	X	4																	
5		✓	"	"	503					X	X	5	X	5																	
6		✓	"	"	504					X	X	5	X	6																	
7		✓	"	"	505					X	X	5	X	7																	
8		✓	"	"	506					X	X	5	X	8																	
9		✓	"	"	507					X	X	5	X	9																	
10		✓	"	"	508					X	X	5	X	10																	
11		✓	"	"	509					X	X	5	X	11																	
12		✓	"	"	510					X	X	5	X	12																	
13														13																	
14														14																	
15														15																	
16														16																	
17														17																	
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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:

will be on DISO 4/1

← old max