

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID:

2015-21

Station:

LB01

Event #:

3

Ship:

Tully

UTC Date (dd mmm yyyy): 04 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments					
			Target Pressure	Confirmed Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	DIC								
1		1	Bot-10	✓	30	x		x					x							
2		2	20	✓		x		x		xx		xx	x							
3		3	10	✓		x		x		xx		xx	x							
4		4	5	✓		x		x		xx	xx	xx								
5		5	5	✓		x	x						xx							
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				
15																				
16																				
17																				
18																				
19																				
20																				
21																				
22																				
23																				
24																				

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s):
SR

Bottom Depth:	35	m
Transmisso Cleaned:	☒ Y ☐ N	

Time	UTC	Local
Start	1409	0709
Bottom	1410	
End	1415	

Start	Positional Information	
	Lat: 48 ° 40.40 N	Lon: 124 ° 59.47 W
Bottom	Lat: 48 ° 40.40 N	Lon: 124 ° 59.48 W
	Lat: 48 ° 40.42 N	Lon: 124 ° 59.50 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB02 Event #: 4 Ship: Tully UTC Date (dd mmm yyyy): 04 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials											Comments
			Target Pressure	Confirmed ☒ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC	Phyto			
1		6	Bot-10	✓ 52	x		x					x x				
2		7	30	✓	x		x					x x				
3		8	20	✓	x x		x		x x		x x	x x				
4		9	10	✓	x		x		x x		x x	x x				
5		10	5	✓	x		x x		x x	x x	x x	x x	x x x			
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): SR

Bottom Depth:	56	m
Transmisso Cleaned:	☒ Y ☐ N	

Time	UTC	Local
Start	1450	0750
Bottom	1452	
End	1500	

Start	Positional Information	
	Lat: 48 ° 39.00 N	Lon: 125 ° 2.39 W
Bottom	Lat: 48 ° 39.00 N	Lon: 125 ° 2.38 W
	Lat: 48 ° 39.02 N	Lon: 125 ° 2.36 W
End		

Extra comments:

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

UTC Date (dd mmm yyyy): 04 Sep 2015

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21

Station: LB04

Event #: 6

Ship: Tully

UTC Date (dd mmm yyyy): 04 Sep 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ☒ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4				
1		12	Bot-10	☒ 107	x		x								
2		13	75	☒	xx		x								
3		14	50	☒	x		xx								
4		15	30	☒ 31	x		x								
5		16	20	☒	x		x		xx		xx				
6		17	10		x		x		xx		xx				
7		18	5		x		x		xx	xx	xx				Fluo: 1.4
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type:
ROS TRM X-Niskin other?
Watchkeeper(s): SR

Bottom Depth: 110 m
Transmisso Cleaned: Y / N

Time	UTC	Local
Start	1605	0905
Bottom	1608	
End	1617	

Positional Information

Start	Lat: 48 ° 35.74 N	Lon: 125 ° 8.64 W
Bottom	Lat: 48 ° 35.75 N	Lon: 125 ° 8.66 W
End	Lat: 48 ° 35.72 N	Lon: 125 ° 8.65 W

Extra comments:

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB05 Event #: 9 Ship: Tully UTC Date (dd mmm yyyy): 04 Sep 2015

[illegible]

Profile type: ROS TRM X-Niskin other?

Watchkeeper(s): SJR

Bottom Depth: 100 m

Transmisso Cleaned: (Y) / N

<i>Time</i>	<i>UTC</i>	<i>Local</i>
Start	1821	1121
Bottom	1823	
End	1826	

Positional Information

Lat:	48 ° 33.97	N
Lon:	125 ° 12.02	W

Bottom

Lat:	48 ° 33.97	N
Lon:	125 ° 12.04	W

End	Lat: 48 ° 33.98 N
	Lon: 125 ° 12.06 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB06 Event #: 10 Ship: Tully UTC Date (dd mmm yyyy): 04 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials											Comments
			Target Pressure	Confirmed ✓ Pressure		Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4				
1	1	20	Bot-10	✓	106	x		x								
2	2	21	100	✓		x x		x								
3	3	22	75	✓	75	x		x x								
4	4	23	50	✓	50	x		x								
5	5	24	30	✓	30	x		x								
6	6	25	20	✓	19	x		x		x x		x x				
7	7	26	10	✓	10	x		x		x x		x x				
8	8	27	5	✓		x		x		x x	x x	x x				Fluo: 1.0
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): MR

Bottom Depth: 113 m
Transmisso Cleaned: ☒ Y / ☐ N

Time	UTC	Local
Start	1857	1157
Bottom	1901	
End	1912	

Positional Information

Lat:	48° 32. 21	N
Lon:	125° 15. 57	W

▼

Lat:	48° 32. 21	N
Lon:	125° 15. 57	W

▼

Lat:	48° 32. 19	N
Lon:	125° 15. 58	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB07 Event #: 16 Ship: Tully UTC Date (dd mmm yyyy): 05 SEPT 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments			
			Target Pressure	Confirmed ☒ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC						
1		28	5					x			xx	xx						Fluo: 2.7
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): MR

Bottom Depth: 156 m
Transmisso Cleaned: ☒ Y / ☐ N

Time	UTC	Local
Start	0019	1719
Bottom	0023	
End	0027	

Positional Information
Start
Lat: 48° 28.70 N
Lon: 125° 22.15 W

Bottom
Lat: 48° 28.72 N
Lon: 125° 22.22 W

End
Lat: 48° 28.73 N
Lon: 125° 22.24 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID:

2015-21

Station:

LB08

Event #:

22

Ship:

Tully

UTC Date (dd mmm yyyy): 05 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials											Comments		
			Target Pressure	Confirmed ✓	Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	DIC	RI Gases	UVic			
						MR		RS/TV		RV/TV	MB	MB	MR	UBC	SD/TV			
1	1	29	Bot-10	✓	147	x		x					x	xx	x			
2	2	30	125	✓	125	xx		x						xx				
3	3	31	100	✓	100	x		x					x	xx				
4	4	32	75	✓	75	x		xx					xx	xx				
5	5	33	50	✓	49	x		x					x	xx	x			
6	6	34	30	✓	30	x		x					x	xx				
7	7	35	20	✓	20	x		x		xx		xx	xx	xx	x			
8	8	36	10	✓	10	x		x		xx		xx	x	xx	x			
9	9	37	5	✓	5	x		x		xx	xx	xx			x			FLuo: 2.6
10	10	38	5	✓	5	x	x						x	xx				
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): MR

Bottom Depth:	153	m
Transmisso Cleaned:	☒ Y ☐ N	

Time	UTC	Local
Start	0408	2108
Bottom	0412	
End	0422	

Positional Information

Lat:	48° 25.27	N
Lon:	125° 28.80	W

Lat:	48° 25.26	N
Lon:	125° 28.80	W

Lat:	48° 25.27	N
Lon:	125° 28.83	W

Extra comments:

NUTS PUT IN RACK
IN FREEZER INSTEAD
OF IN THE AC BLOCK.

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB09 Event #: 24 Ship: Tully UTC Date (dd mmm yyyy): 05 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials												Comments
			Target Pressure	Confirmed ✓	Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4					
1	1	39	Bot-10	✓	141	x		x									
2	2	40	125	✓	124	x		xx									
3	3	41	100	✓	100	x		x									
4	4	42	75	✓	75	x		x									
5	5	43	50	✓	49	x		x									
6	6	44	30	✓	30	x		x									
7	7	45	20	✓	20	xx		x		xx		xx					
8	8	46	10	✓	10	x		x		xx		xx					
9	9	47	5	✓	5	x		x		xx	xx	xx					Fluo: 30
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
 Watchkeeper(s): MR

Bottom Depth: 149 m
 Transmisso Cleaned: ☒ Y / ☐ N

	UTC	Local
Start	0527	2227
Bottom	0530	
End	0542	

Positional Information

Start	Lat: 48° 21.92	N
	Lon: 125° 34.74	W

Bottom

	Lat: 48° 21.92	N
	Lon: 125° 34.73	W

End

	Lat: 48° 21.91	N
	Lon: 125° 34.71	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB10 Event #: 25 Ship: Tully

UTC Date (dd mmm.yyyy): 05 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC			
1		48	5	✓			x		xx	xx					Fluo: 1.2
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?

Watchkeeper(s): MR

Bottom Depth: 151 m

Transmisso Cleaned: ☒ I N

Time	UTC	Local
Start	0630	2330
Bottom	0633	
End	0637	

Positional Information

Start Lat: 48° 18' 52" N

Start Lon: 125° 41' 35" W

Bottom Lat: 48° 18' 53" N

Bottom Lon: 125° 41' 35" W

End Lat: 48° 18' 51" N

End Lon: 125° 41' 34" W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB11 Event #: 27 Ship: Tully UTC Date (dd mmm yyyy): 05 Sep 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ☒ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4				
1		49	Bot-10	☒ 201	x		x								
2		50	175		x		x x								
3		51	150		x		x								
4		52	125		x		x								
5		53	100		x		x								
6		54	75		x		x								
7		55	50		x x		x								
8		56	30		x		x								
9		57	20		x		x		x x		x x				
10		58	10		x		x		x x		x x				
11		59	5		x		x		x x	x x	x x				Fluo:
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?

Watchkeeper(s): SR

Bottom Depth: 203 m

Transmisso Cleaned: Y / N

Time	UTC	Local
Start	0748	0048
Bottom	0753	
End	0808	

Positional Information

StartLat: 48 ° 15.194 N
Lon: 125 ° 47.67 W

BottomLat: 48 ° 15.19 N
Lon: 125 ° 47.68 W

EndLat: 48 ° 15.17 N
Lon: 125 ° 47.59 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB12 Event #: 28 Ship: Tully UTC Date (dd mmm yyyy): 05 Sep 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials											Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Phyto				
1		60	Bot-10	✓ 507	x		x	x								
2		61	400	✓	x		x x	x x								
3		62	300	✓	x x		x									
4		63	250	✓	x		x									
5		64	200	✓	x		x									
6		65	175	✓	x		x									
7		66	150	✓	x		x									
8		67	125	✓	x		x									
9		68	100	✓	x		x									
10		69	75	✓	x		x									
11		70	50	✓	x		x x									
12		71	30	✓	x		x									
13		72	20	✓	x		x		x x		x x					
14		73	10	✓	x x		x		x x		x x					
15		74	5	✓	x		x		x x	x x	x x	x x x				Fluo:
16																
17																
18																
19																
20																
21																
22																
23																
24																

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?

Watchkeeper(s): SR

Bottom Depth: 501 m

Transmisso Cleaned: ☒ Y ☐ N

Time	UTC	Local
Start	0845	0345
Bottom	0855	
End	0930	

Positional Information

Start Lat: 48 ° 12.89 N

Start Lon: 125 ° 51.90 W

Bottom Lat: 48 ° 12.93 N

Bottom Lon: 125 ° 51.87 W

End Lat: 48 ° 12.86 N

End Lon: 125 ° 51.88 W

Extra comments:

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 **Station:** LB13

Event #: 29

Ship: Tully

UTC Date (dd mmm yyyy): 05 Sep 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments				
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4								
1		75	5					x		x x	x x								
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			
21																			
22																			
23																			
24																			

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast - do not touch lens

Profile type: ROS TRM X-Niskin other?

Watchkeeper(s): SR

Bottom Depth: 905 m

Transmisso Cleaned: Y / N

<i>Time</i>	<i>UTC</i>	<i>Local</i>
Start	1007	0507
Bottom	1023	
End	1039	

Positional Information		
Start	Lat: 48 ° 10.62	N
	Lon: 125 ° 56.10	W
▼		
Bottom	Lat: 48 ° 10.62	N
	Lon: 125 ° 56.13	W
▼		
End	Lat: 48 ° 10.62	N
	Lon: 125 ° 56.13	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB14 Event #: 30 Ship: Tully UTC Date (dd mmm yyyy): 05 Sep 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials												Comments
			Target Pressure	Confirmed Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4						
1		76	Bot-10	✓	1148	x		x	x								
2		77	1000	✓		x x	x x	x	x								
3		78	750	✓		x	x	x	x								
4		79	500	✓		x	x	x x	x x								
5		80	400	✓		x		x	x								
6		81	300	✓		x		x									
7		82	250	✓	251	x		x									
8		83	200	✓		x		x									
9		84	175	✓		x		x									Leaky spigot
10		85	150	✓		x		x									
11		86	125	✓		x x		x									
12		87	100	✓		x		x									
13		88	75	✓		x		x									
14		89	50	✓		x		x									
15		90	30	✓		x		x x									
16		91	20	✓		x		x	x x		x x						
17		92	10	✓		x		x	x x		x x						
18		93	5	✓		x		x	x x	x x	x x						Fluo:
19																	
20																	
21																	
22																	
23																	
24																	

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): SR

Bottom Depth: 1154 m
Transmisso Cleaned: ☒ Y ☐ N

Time	UTC	Local
Start	1120	
Bottom	1147	
End	1237	

Positional Information

Lat:	48 ° 8.60	N
Lon:	125 ° 59.98	W

Start

Lat:	48 ° 8.68	N
Lon:	126 ° 0.17	W

Bottom

Lat:	48 ° 8.63	N
Lon:	126 ° 0.14	W

End

Extra comments:
OUT-OF-ORDER
bot 1 tripped @ 1000m
bot 2 has the bottom water

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB15 Event #: 31 Ship: Tully UTC Date (dd mmm yyyy): 05 Sep 2015

			Rosette Operation			Samples Taken / Sampler's Initials											Comments	
Niskin #	Firing #	Sample #	Target Pressure	Confirmed √	Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4						
1		94	5					x		x x	x x							Fluo:
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): 8R

Bottom Depth: 1540 m
Transmisso Cleaned: ☒ Y / ☐ N

Time	UTC	Local
Start	1336	0636
Bottom	1405	
End	1432	

Positional Information
Start
Lat: 48 ° 4.37 N
Lon: 126 ° 8.41 W

Bottom
Lat: 48 ° 4.41 N
Lon: 126 ° 8.42 W

End
Lat: 48 ° 4.39 N
Lon: 126 ° 8.40 W

Extra comments:

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LB16

Event #: 32

Ship: Tully

UTC Date (dd mmm yyyy): 05 Sep 2015

Niskin #		Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments									
				Target Pressure	Confirmed Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4													
1			95	5				x		xx	xx														
2				250																					
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									
13																									
14																									
15																									
16																									
17																									
18																									
19																									
20																									
21																									
22																									
23																									
24																									

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use for other purposes

Profile type: ROS TRM X-Niskin other?

Watchkeeper(s): SR

Bottom Depth: 1780 m

Transmisso Cleaned: (Y) / N

<i>Time</i>	<i>UTC</i>	<i>Local</i>
Start	1528	0828
Bottom	1559	
End	1633	

Positional Information			
Lat:	48 °	0.55	N
Lon:	126 °	16.99	W

Bottom	Lat: 48 ° 0.51 N
	Lon: 126 ° 16.98 W

End	Lat: 48 ° 0.49	N
	Lon: 126 ° 16.98	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LC11 Event #: 37 Ship: Tully UTC Date (dd mmm yyyy): 06 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases	TV	UBC	
1		96	Bot-10	✓ 1475	x		x	x				xx			
2		97	1250	✓ 1249	xx	x	x	x				xx			
3		98	1000	✓ 1000	x	xx	x	x				xx			
4		99	750	✓ 749	x	x	xx	xx				xx			
5		100	500	✓ 501	x	x	x	x				xx			
6		101	400	✓ 399	x		x	x				xx			
7		102	300	✓ 300	x		x					xx			
8		103	250	✓ 249	x		x					xx			
9		104	200	✓ 200	x		x					xx			
10		105	175	✓ 175	x		x					xx			
11		106	150	✓ 150	x		x					xx			
12		107	125	✓ 125	xx		x					xx			
13		108	100	✓ 100	x		x					xx			
14		109	75	✓ 74	x		xx					xx			
15		110	50	✓ 50	x		x					xx			
16		111	30	✓ 29	x		x					xx			
17		112	20	✓ 20	x		x		xx		xx	xx			
18		113	10	✓ 10	x		x		xx		xx	xx			
19		114	5	5	x		x		xx	xx	xx	xx			Fluo: 0.9
20															
21															
22															
23															
24															

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
 Watchkeeper(s): MR

Bottom Depth: 1444 m
 Transmisso Cleaned: ☒ Y ☐ N

Time	UTC	Local
Start	0336	2036
Bottom	0404	
End	0449	

Positional Information

Lat:	48° 18.97	N
Lon:	126° 26.67	W

Start

Lat:	48° 18.95	N
Lon:	126° 26.70	W

Bottom

Lat:	48° 18.90	N
Lon:	126° 26.67	W

End

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LC09 / A3 Event #: 39 Ship: Tully UTC Date (dd mmm yyyy): 07 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials												Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases	DIC	Uvic	phyto		
					DY		TV	TV	MO/RT	MO	DY	UBC	MR	SDTV	MR		
1		115	Bot-10	✓	617	x		xx	xx			xx	x				
2		116	500	✓	500	x	x	x	x			xx	xx				
3		117	400	✓	400	x		x	x			xx	x				
4		118	300	✓	300	x		x				xx	xx				
5		119	250	✓	250	xx		x				xx	x	x			
6		120	200	✓	200	x		x				xx	x				
7		121	175	✓	175	x		x				xx					
8		122	150	✓	150	x		x				xx		x			
9		123	125	✓	125	x		x				xx					
10		124	100	✓	100	x		xx				xx	x				
11		125	75	✓	75	x		x				xx					
12		126	50	✓	50	x		x				xx	x	x			
13		127	30	✓	30	xx		x				xx	x				
14		128	20	✓	20	x		x	xx		xx	xx		x			
15		129	10	✓	10	x		x	xx		xx	xx	x	x			
16		130	5	✓	5	x	x					xx	x	x			
17		131	5	✓	5			x	xx	xx	xx				x		Flo0 0.4
18																	
19																	
20																	
21																	
22																	
23																	
24																	

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): MR

Bottom Depth: 613 m
Transmisso Cleaned: ☒ Y ☐ N

Time	UTC	Local
Start	0119	1819
Bottom	0131	
End	0156	

Positional Information
Lat: 48° 25.83 N
Lon: 126° 13.74 W

Lat: 48° 25.83 N
Lon: 125° 13.80 W

Lat: 48° 25.81 N
Lon: 125° 13.85 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LC08

Event #: 43

Ship: Tully

UTC Date (dd mmm yyyy): 07 SEP 2015

Cruise ID: 2015-21			Station: LC08		Event #: 43		Smp. Runy		Comments												
Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments						
			Target	Confirmed	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases	DIC								
			Pressure	✓ Pressure	MR							UBC	MR								
1		132	Bot-10	✓	191	x		x						xx	x						
2		133	175	✓	175	x		x						xx							
3		134	150	✓	149	x		x						xx							
4		135	125	✓	125	x		x						xx							
5		136	100	✓	100	x		x						xx	xx						
6		137	75	✓	75	x		xx						xx							
7		138	50	✓	50	xx		x						xx	x						DO Bottle broke
8		139	30	✓	30	X		x						xx	x						
9		140	20	✓	20	x		x		xx		xx		xx	x						
10		141	10	✓	10	x		x		xx		xx		xx	xx						ONLY 1 HPLC, RAN
11		142	5	✓	5	x	x	x		xx	X	xx		xx	x						OUT OF WATER
12																					Fluo: 1.6
13																					
14																					
15																					
16																					
17																					
18																					
19																					
20																					
21																					
22																					
23																					
24																					

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): MR

Bottom Depth: 200 m
Transmisso Cleaned: ☒ Y / ☐ N

Time	UTC	Local
Start	0453	2153
Bottom	0457	
End	0510	

Positional Information

Lat:	48° 29.40	N
Lon:	126° 07.07	W

Start

Lat:	48° 29.39	N
Lon:	126° 07.06	W

Bottom

Lat:	48° 29.40	N
Lon:	126° 07.01	W

End

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LC06 Event #: 47 Ship: Tully UTC Date (dd mmm yyyy): 07 Sep 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC			
1		143	Bot-10	✓ 82	x		x					x x			
2		144	75	✓	x		x					x x			
3		145	50	✓	x		x					x x			
4		146	30	✓	x		x					x x			
5		147	20	✓	x		x		x x		x x	x x			
6		148	10	✓	x		x x		x x		x x	x x			
7		149	5	✓	x x		x		x x	x x	x x	x x			Fluo: 6.0
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?

Watchkeeper(s): SR

Bottom Depth: 92 m

Transmisso Cleaned: ☒ Y ☐ N

Time	UTC	Local
Start	0809	0109
Bottom	0811	
End	0820	

Positional Information

Start Lat: 48 ° 36.53 N
Lon: 125 ° 54.02 W

Bottom Lat: 48 ° 36.53 N
Lon: 125 ° 54.02 W

End Lat: 48 ° 36.54 N
Lon: 125 ° 54.04 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LC04 Event #: 50 Ship: Tully UTC Date (dd mmm yyyy): 07 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials											Comments
			Target Pressure	Confirmed Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC	Uvic			
1		150	Bot-10	✓ 157	x		x					x x	x			
2		151	150	✓	x		x					x x	x			
3		152	125	✓	x		x					x x				
4		153	100	✓	x		x					x x				
5		154	75	✓	x		x					x x				
6		155	50	✓	x		x x					x x	x			
7		156	30	✓	x x		x					x x				
8		157	20	✓	x		x		x x		x x	x x	x			
9		158	10	✓	x		x		x x		x x	x x	x			
10		159	5	✓	x		x		x x	x x	x x	x x	x			Fluo: 1.1
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																

Profile type:
ROS TRM X-Niskin other?
Watchkeeper(s): 8R

Bottom Depth: 165 m
Transmisso Cleaned: Y / N

Time	UTC	Local
Start	1026	0304
Bottom	1030	
End	1042	

Positional Information

Start	Lat: 48 ° 43.43 N
	Lon: 125 ° 40.78 W
Bottom	Lat: 48 ° 43.44 N
	Lon: 125 ° 40.78 W
End	Lat: 48 ° 43.53 N
	Lon: 125 ° 40.76 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LC02 Event #: 52 Ship: Tully UTC Date (dd mmm yyyy): 07 Sep 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials												Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC	DIC	phyto			
1		160	Bot-10	✓ 98	x		x					xx	x				
2		161	75	✓	xx		x					xx	xx				
3		162	50	✓	x		x					xx	x				
4		163	30	✓	x		x					xx	xx				
5		164	20	✓	x		xx		xx		xx	xx	x				
6		165	10	✓	x		x		xx		xx	xx	x				
7		166	5	✓	x	x						xx	x				
8		167	5	✓			x		xx	xx	xx			x			Fluo: 1.5
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): SR

Bottom Depth: 108 m
Transmisso Cleaned: Y / N

Time	UTC	Local
Start	1203	
Bottom	1206	
End	1214	

Positional Information
Start
Lat: 48 ° 48.72 N
Lon: 125 ° 30.91 W

Bottom
Lat: 48 ° 48.73 N
Lon: 125 ° 30.90 W

End
Lat: 48 ° 48. N
Lon: 125 ° 30. W

Extra comments:

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LC01

Event #: 53

Ship: Tully

UTC Date (dd mmm yyyy): 07 Sep 2015

[illegible]

Profile type: ROS TRM X-Niskin other?

Watchkeeper(s): SR

Bottom Depth: 94 m

Transmisso Cleaned: (Y) / N

<i>Time</i>	<i>UTC</i>	<i>Local</i>
Start	1248	0548
Bottom	1251	
End	1300	

Positional Information	
Start	Lat: 48 ° 50.49 N Lon: 125 ° 27.74 W
Bottom	Lat: 48 ° 50.50 N Lon: 125 ° 27.74 W
	Lat: 48 ° 50. N Lon: 125 ° 27. W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21

Station: LD02

Event #: 55

Ship: Tully

UTC Date (dd mmm yyyy): 07 Sep 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments				
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC	phyto						
1		175	Bot-10			x		x					xx						
2		176	30			x		x					xx						
3		177	20			xx		x		xx		xx	xx						
4		178	10			x		xx		xx		xx	xx						
5		179	5			x		x		xx	xx	xx	xx	x					Fluo: 2.5
6																			
7																			
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			
21																			
22																			
23																			
24																			

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): SR

Bottom Depth:	43	m
Transmisso Cleaned:	☒ Y / ☐ N	

Time	UTC	Local
Start	1449	0749
Bottom	1450	
End	1457	

Start	Positional Information	
	Lat: 48 ° 58.43 N	Lon: 125 ° 47.06 W
Bottom	Lat: 48 ° 58.43 N	Lon: 125 ° 47.06 W
	Lat: 48 ° 58.43 N	Lon: 125 ° 47.07 W
End		

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LD04 Event #: 57 Ship: Tully UTC Date (dd mmm yyyy): 07 09 15

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4				
1		180	Bot-10	✓ 53	x x		x								
2		181	30	✓	x		x x								
3		182	20	✓	x		x		x x		x x				
4		183	10	✓	x		x		x x		x x				
5		184	5	✓	x		x		x x	x x	x x				Fluo: 3.0
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type:
ROS TRM X-Niskin other?
Watchkeeper(s): GC

Bottom Depth: 63 m
Transmisso Cleaned: Y / N

Time	UTC	Local
Start	1614	
Bottom	1615	915
End	1621	

Positional Information

Lat:	48 ° 53 . 21	N
Lon:	125 ° 57 . 06	W

▼

Lat:	48 ° 53 . 21	N
Lon:	125 ° 57 . 07	W

▼

Lat:	48 ° 53 . 21	N
Lon:	125 ° 57 . 18	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LG01 Event #: 58 Ship: Tully UTC Date (dd mmm yyyy): 07 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4				
					RF/RF		SP/RF		RF/JO	NO	RS				
1		185	Bot-10	✓ 43	x		x								
2		186	30	✓ 30	x		x								
3		187	20	✓ 20	xx		xx		xx		xx				
4		188	10	✓ 10	x		x		xx		xx				
5		189	5	✓	x		x		xx	xx	xx				Fluo: 17
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): MR

Bottom Depth: 53 m
Transmisso Cleaned: ☒ Y / ☐ N

Time	UTC	Local
Start	2014	1314
Bottom	2015	
End	2021	

Positional-Information
Start
Lat: 49° 20.53 N
Lon: 126° 35.08 W

Bottom
Lat: 49° 20.53 N
Lon: 126° 35.09 W

End
Lat: 49° 20.50 N
Lon: 126° 35.08 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LG02 Event #: 60 Ship: Tully UTC Date (dd mmm yyyy): 07 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials												Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	TWIST Gases	phyto	UVic			
1		190	Bot-10	✓ 91	x		x					xx		x			
2		191	75	✓ 75	xx		x					xx					
3		192	50	✓ 50	x		xx					xx		x			
4		193	30.75	✓ 30	x		x					xx					
5		194	20	✓ 20	x		x		xx		xx	xx		x			
6		195	10	✓ 10	x		x		xx		xx	xx		x			
7		196	5	✓	x		x		xx	xx	xx	xx	xxx	x			Fluo: 2.5
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): MR

Bottom Depth: 99 m
Transmisso Cleaned: ☒ Y / ☐ N

Time	UTC	Local
Start	2101	1401
Bottom	2103	
End	2111	

Positional Information

Lat:	49° 18.69	N
Lon:	126° 38.09	W

▼

Lat:	49° 18.68	N
Lon:	126° 38.10	W

▼

Lat:	49° 18.71	N
Lon:	126° 38.16	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LG04 Event #: 62 Ship: Tully UTC Date (dd mmm yyyy): 07 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	TJ/K1 Gases			
					MR		TV		FP	MR	TV	UBC			
1		197	Bot-10	✓ 136	x		x					xx			
2		198	125	✓ 125	x		x					xx			
3		199	100	✓ 100	xx		xx					xx			
4		200	75	✓ 75	x		x					xx			
5		201	50	✓ 50	x		x					xx			
6		202	30	✓ 30	x		x					xx			
7		203	20	✓ 20	x		x		xx		xx	xx			
8		204	10	✓ 10	x		x		xx		xx	xx			
9		205	5	✓ 5	x		x		xx	xx	xx	xx		Fluo: 0.9	
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type: ☒ ROS ☐ TRM ☐ X-Niskin ☐ other?

Watchkeeper(s): MR

Bottom Depth: 144 m

Transmisso Cleaned: ☒ Y ☐ N

Time	UTC	Local
Start	2252	1552
Bottom	2255	
End	2306	

Positional Information

Start

Lat: 49° 11.39 N

Lon: 126° 49.27 W

Bottom

Lat: 49° 11.40 N

Lon: 126° 49.22 W

End

Lat: 49° 11.40 N

Lon: 126° 49.16 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID:

2015-21

Station:

LG06

Event #: 65

Ship: Tully

UTC Date (dd mmm yyyy): 08 Sep 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Phyto			
				✓			MR	MR	MG	MG	EV	MG			
1		206	Bot-10	✓	928	x		x	x						
2		207	750	✓	751	x		xx	xx						
3		208	500	✓	500	xx		x	x						
4		209	400	✓	401	x		x	x						
5		210	300	✓	300	x		x							
6		211	250	✓	250	x		x							
7		212	200	✓	200	x		x							
8		213	175	✓	175	x		x							
9		214	150	✓	150	x		xx							
10		215	125	✓	125	x		x							
11		216	100	✓	100	x		x							
12		217	75	✓	75	x		x							
13		218	50	✓	49	x		x							
14		219	30	✓	30	xx		x							
15		220	20	✓	20	x		x	xx		xx				
16		221	10	✓	10	x		x	xx		xx				
17		222	5	✓	5	x		x	xx	xx	xx	xxx		Fluo: ~1.1	
18															
19															
20															
21															
22															
23															
24															

Profile type:
ROS TRM X-Niskin other?
Watchkeeper(s): MR

Bottom Depth: 932 m
Transmisso Cleaned: Y / N

Time	UTC	Local
Start	0132	1832
Bottom	0150	
End	0221	

Positional Information

Start	Lat: 49° 03.48	N
	Lon: 127° 01.04	W
Bottom	Lat: 49° 03.39	N
	Lon: 127° 00.97	W
End	Lat: 49° 03.30	N
	Lon: 127° 01.05	W

Extra comments:

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LG09

Event #: 70

Ship: Tully

UTC Date (dd mmm yyyy): 08 Sept 2015

[illegible]

Profile type: ROS TRM X-Niskin other?

Watchkeeper(s): GC

Bottom Depth: 2050 m

Transmisso Cleaned: (Y) / N

<i>Time</i>	<i>UTC</i>	<i>Local</i>
Start	8:25	1:19
Bottom	9:04	2:04
End	9:44	2:44

Positional Information

Lat:	48	°	51.19	N
Lon:	127	°	19.35	W

Start

Bottom

End

Fluo:

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LBP3 Event #: 90 Ship: Tully UTC Date (dd mmm yyyy): 9 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials												Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	gases	Uvic	Phyto			
					SR						KY						
1		229	Bot-10	✓	154	x		x				x x					
2		230	150		150	x		x				x x	x				
3		231	125		125	x x		x				x x					
4		232	100		100	x		x				x x					
5		233	75		75	x		x				x x					
6		234	50		50	x		x				x x	x				
7		235	30		30	x		x				x x					
8		236	20		20	x		x x	xx		xx	x x	x				
9		237	10		10	x		x	x x		x x	x x	x				
10		238	5		5	x		x	x x	xx	x x	xx	x	xxx			No chl dup
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	

Profile type:
ROS TRM X-Niskin other?
Watchkeeper(s):

Bottom Depth: 165 m
Transmisso Cleaned: Y / N

Time	UTC	Local
Start	13:18	6:18
Bottom	13:21	
End	13:34	

Positional Information .

Start	Lat: 50 ° 3.25 N
	Lon: 127 ° 55.86 W
Bottom	Lat: 50 ° 3.25 N
	Lon: 127 ° 55.44 W
End	Lat: 50 ° 3.35 N
	Lon: 127 ° 55.49 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: LBP5 Event #: 93 Ship: Tully UTC Date (dd mmm yyyy): 9 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments				
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases							
					SR							KY							
1		239	Bot-10	✓	1296	x		x	x										
2		240	1250	✓	1250	x	xx	x	x										
3		241	1000	✓	1000	x	x	x	x										
4		242	750	✓	750	xx	x	x	x										
5		243	500	✓	500	x	x	xx	xx										
6		244	400	✓	400	x		x	x										
7		245	300	✓	300	x		x											
8		246	250	✓	250	x		x											
9		247	200	✓	200	x		x											
10		248	.175	✓	175	x		x											
11		249	150	✓	150	x		x											
12		250	125	✓	125	xx		x											
13		251	100	✓	100	x		xx											
14		252	75	✓	75	x		x											
15		253	50	✓	50	x		x											
16		254	30	✓	30	x		x											
17		255	20	✓	20	x		x		xx		xx							
18		256	10	✓	10	x		x		xx		xx							
19		257	5	✓	5	xx		x		xx	xx	xx							Fluo:
20																			Fluo:
21																			
22																			
23																			
24																			

Profile type:
ROS TRM X-Niskin other?
Watchkeeper(s): GC

Bottom Depth: 1277 m
Transmisso Cleaned: (Y) / N

Time	UTC	Local
Start	1605	9:05
Bottom	1644	
End	1724	

Positional Information

Lat:	50 °	0.10	N
Lon:	128 °	0.10	W

▼

Lat:	50 °	0.27	N
Lon:	128 °	0.52	W

▼

Lat:	50 °	0.34	N
Lon:	128 °	0.850	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID:

2015
2014-21

Station:

LBP7

Event #:

95

Ship:

Tully

UTC Date (dd mmm yyyy):

09 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials														Comments
			Target Pressure	Confirmed ✓	Pressure	Oxy	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases	Phyto					
						MR/BJ	RS/AR	AN/OT	TJ	TJ	MR	TJ	SD/RJ	MR					
1		258	2000	✓	2000	x	x	x	x				xx						
2		259	1500	✓	1500	xx	xx	x	x				xx						
3		260	1250	✓	1250	x	x	xx	xx				xx						
4		261	1000	✓	1000	x	x	x	x				xx						
5		262	750	✓	750	x	x	x	x				xx						
6		263	500	✓	500	x	x	x	x				xx						
7		264	400	✓	398	x	x	x	x				xx						
8		265	300	✓	300	xx	x	x					xx						
9		266	250	✓	249	x	x	x					xx						
10		267	200	✓	201	x	x	x					xx						
11		268	175	✓	174	x	x	x					xx						
12		269	150	✓	150	x	x	x					xx						
13		270	125	✓	125	x	x	xx					xx						
14		271	100	✓	100	x	x	x					xx						
15		272	75	✓	75	x	x	x					xx						
16		273	50	✓	50	x	x	x					xx						
17		274	30	✓	30	xx	x	x					xx						
18		275	20	✓	20	x	x	x		xx		xx	xx						
19		276	10	✓	10	x	x	x		xx		xx	xx						
20		277	5	✓	5	x	x	x		xx	xx	xx	xx	xxx					
21																			Fluo: 0.6
23																			
24																			

Profile type:

ROS TRM X-Niskin other?

Watchkeeper(s):

MR

Bottom Depth: 2182 m

Transmisso Cleaned: Y / N

Time	UTC	Local
Start	2214	1514
Bottom	2249	
End	2343	

Positional Information

Start	Lat: 49°52.38	N
	Lon: 128°11.15	W
	▼	
Bottom	Lat: 49°52.40	N
	Lon: 128°11.08	W
	▼	
End	Lat: 49°52.38	N
	Lon: 128°11.11	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: CS02 Event #: 103 Ship: Tully UTC Date (dd mmm yyyy): 10 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials											Comments	
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Phyto	UVic				
					MRMG	MLTV	RI	RI	JD	JD	TU	JD	EP				
1		278	Bot-10	✓	1911	x		x	x								
2		279	1500	✓		x	xx	xx	xx								
3		280	1250	✓		x	xx	x	x								
4		281	1000	✓		x	xx	x	x								
5		282	750	✓		xx	x	x	x								
6		283	500	✓		x	x	x	x								
7		284	400	✓		x	x	x									
8		285	300	✓		x	x	x									
9		286	250	✓		x	x	x					x				
10		287	200	✓		x	x	xx									
11		288	175	✓		x	x	x									
12		289	150	✓		xx	x	x					x				
13		290	125	✓		x	x	x									
14		291	100	✓		x	x	x									
15		292	75	✓		x	x	x									
16		293	50	✓		x	x	x					x				
17		294	30	✓		x	x	x									
18		295	20	✓		xx	x	x		xx		xx	x				
19		296	10	✓		x	x	x		xx		xx	x				
20		297	5	✓		x	x	x		xx	xx	xx	x	x		Fluo: 1.8	
21																	
22																	
23																	
24																	

Profile type:
ROS TRM X-Niskin other?
Watchkeeper(s): GC

Bottom Depth: 1892 m
Transmisso Cleaned: (Y) N

Time	UTC	Local
Start	17:39	10:39
Bottom	18:11	
End		

Positional Information

Lat:	50 ° 41.34	N
Lon:	129 ° 28.04	W

▼

Lat:	50 ° 41.24	N
Lon:	129 ° 28.08	W

▼

Lat:	50 ° 41.34	N
Lon:	129 ° 27.87	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: CS04 Event #: 109 Ship: Tully UTC Date (dd mmm yyyy): 11 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ✓	Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4			
						MR/ST		ST/ML		MR/KV	MR	SV			
1		298	Bot-10	✓	87	x		x							
2		299	75	✓	75	x		x							
3		300	50	✓	50	x		x							
4		301	30	✓	30	x x		x							
5		302	20	✓	20	x		x		x x		x x			
6		303	10	✓	9	x		x		x x		x x			
7		304	5	✓	5	x		x x		x x	x x	x x		Fluo: 2.2	
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type: ROS TRM X-Niskin other?
Watchkeeper(s): MR

Bottom Depth: 96 m
Transmisso Cleaned: (Y) / N

Time	UTC	Local
Start	0129	1829
Bottom	0131	
End	0138	

Positional Information
Start
Lat: 50° 49.46 N
Lon: 129° 13.14 W

Bottom
Lat: 50° 49.46 N
Lon: 129° 13.15 W

End
Lat: 50° 49.47 N
Lon: 129° 13.15 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID:

2015-21

Station:

CS06

Event #:

118

Ship:

Tully

UTC Date (dd mmm yyyy):

11 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials											Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Phyto				
1		305	Bot-10	✓ 56	x		x x									
2		306	50	✓	x x		x									
3		307	30	✓	x		x									
4		308	20	✓	x		x		x x		x x					
5		309	10	✓	x		x		x x		x x					
6		310	5	✓	x		x		x x	x x	x x	x				Fluo:
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																

Profile type:

ROS TRM X-Niskin other?

Watchkeeper(s):

GC

Bottom Depth: 65 m

Transmisso Cleaned: Y / N

Time	UTC	Local
Start	0950	0250
Bottom	0952	
End	0957	

Positional Information

Start	Lat:	50 ° 59.99	N
	Lon:	128 ° 51.88	W
Bottom	Lat:	50 ° 59.98	N
	Lon:	128 ° 51.89	W
End	Lat:	50 ° 59.88	N
	Lon:	128 ° 51.92	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: CS09 Event #: 124 Ship: Tully UTC Date (dd mmm yyyy): 11 9 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials														Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic							
1		311	Bot-10	✓ 185	x		x					xP							
2		312	175	✓ 175	x		x												
3		313	150	✓ 150	x		x					x							
4		314	125	✓ 125	x		x x												
5		315	100	✓ 100	x		x												
6		316	75	✓ 75	x		x												
7		317	50	✓ 50	x x		x					x							
8		318	30	✓ 30	x		x												
9		319	20	✓ 20	x		x		x x		x x	x							
10		320	10	✓ 10	x		x		x x		x x	x							
11		321	5	✓ 5	x		x		x x	x x	x x	x						Fluo:	
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			
21																			
22																			
23																			
24																			

Profile type:
ROS TRM X-Niskin other?

Watchkeeper(s):

Bottom Depth: 191 m

Transmisso Cleaned: Y / N

Time	UTC	Local
Start	1341	0641
Bottom	1345	
End	1400	

Positional Information

Lat: 51 ° 12.48 N

Lon: 128 ° 28.06 W

Lat: 51 ° 12.49 N

Lon: 128 ° 28.00 W

Lat: 51 ° 12.500 N

Lon: 128 ° 28.02 W

Extra comments:

Water Properties Group

Sampling/Rosette Log

Institute of Ocean Sciences, Ocean Sciences Division

Cruise ID: 2015-21 Station: RI 2 Event #: 141 Vessel: TULLY UTC Date (dd|mmm|yyyy): 12 | Sept | 2015

Bottles & Samples			Rosette Operation		Samples Taken (↓ write samplers' initials under each sample type)										Comments		
Niskin #	Firing #	Sample #	Target Pressure	Confirmed Pressure	Oxy	Nut	Sal	Chl a									
1		322	250	✓	250												
2		323	150	✓	150												
3		324	50	✓	50												
4		325	20	✓	20												
5		326	10	✓	10												
6		327	5	✓	5												
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	

Profile type:
 Ros (default) | TrMetlRos | X-Niskin
 Watchkeeper(s):
GC

Bottom Depth: 330 m
 Transmisso Cleaned: Y / N
 Fluorometer Cleaned: Y / N
 Time UTC Local
 Start (BE) 09:16 2:16
 Bottom (BO) 09:22 :
 End (EN) 09:33 :

Positional Information
 Start
 Lat: 51° 31.28 N
 Lon: 127° 33.59 W
 Bottom
 Lat: 51° 31.27 N
 Lon: 127° 33.63 W
 Finish
 Lat: 51° 31.24 N
 Lon: 127° 33.65 W

Extra comments: (e.g., DMS cast, PAR on, Heavy Rain, Niskins out of order, etc)

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: 14 Event #: 145 Ship: Tully UTC Date (dd mmm yyyy): 13 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials											Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic				
1		327	0	✓ 1.5			x		xx	xx						
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																Fluo:
12																
13																
14																
15																
16																
17																
18																
19																
20																
21																
22																
23																
24																

Profile type: ROS TRM X-Niskin other?
Watchkeeper(s): GC

Bottom Depth: 312 m
Transmisso Cleaned: 1 N

Time	UTC	Local
Start	1609	0909
Bottom	1615	
End	1621	

Positional Information

Lat:	49 °	52.94	N
Lon:	124 °	59.60	W

▼

Lat:	49 °	52.94	N
Lon:	124 °	59.61	W

▼

Lat:	49 °	52.95	N
Lon:	124 °	59.61	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: 11 Event #: 147 Ship: Tully UTC Date (dd mmm yyyy): 13 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments			
			Target Pressure	Confirmed ☒ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic						
							IP			IP	IP							
1		3298	0	☒	1			x		xx	xx							1L HPLC
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		Fluo:
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		

Profile type: ROS TRM X-Niskin other?
Watchkeeper(s): GC.

Bottom Depth: 300 m
Transmisso Cleaned: ☒ / N

Time	UTC	Local
Start	1823	1123
Bottom	1829	
End	1834	

Positional Information

Start	Lat: 49 ° 42.36 N
	Lon: 124 ° 43.31 W
Bottom	Lat: 49 ° 42.38 N
	Lon: 124 ° 43.28 W
End	Lat: 49 ° 42.38 N
	Lon: 124 ° 43.28 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: CPF2 Event #: 149 Ship: Tully UTC Date (dd mmm yyyy): 13 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic			
1		329	0				x		xx	xx					Fluo: 44
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															Fluo:-
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?

Watchkeeper(s):
MR

Bottom Depth: 325 m

Transmisso Cleaned: ☒ Y ☐ N

Time	UTC	Local
Start	2048	1348
Bottom	2057	
End	2104	

Positional Information

Start

Lat: 49° 27.92 N

Lon: 124° 30.05 W

Bottom

Lat: 49° 27.92 N

Lon: 124° 30.01 W

End

Lat: 49° 27.90 N

Lon: 124° 29.98 W

Extra comments:

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 **Station:** CPF1

Event #: 157

Ship: Tully

UTC Date (dd mmm yyyy): 13 SEP 2015

Niskin #		Firing #	Sample #	Rosette Operation			Samples Taken / Sampler's Initials								Ship: Tully UTC Date (dd mm yy)						Comments
				Target Pressure	Confirmed ✓	Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic							
1			330	0					x		xx	xx									
2																					Fluo: 3.8
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					Fluo:
13																					
14																					
15																					
16																					
17																					
18																					
19																					
20																					
21																					
22																					
23																					
24																					

Version: 25 Nov 2011
Transmissometer to be cleaned before each cast, do not use A

Profile type: ROS TRM X-Niskin other?

Watchkeeper(s): MR

Bottom Depth: 250 m

Transmisso Cleaned: (Y) / N

<i>Time</i>	<i>UTC</i>	<i>Local</i>
Start	2333	1633
Bottom	2338	
End	2343	

Positional Information	
Lat:	149° 21.81 N
Lon:	124° 05.07 W

Bottom

Lat: 49° 21.80 N

Lon: 124° 05.09 W

End	Lat: 49° 21.79	N
	Lon: 124° 05.09	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: 22 Event #: 153 Ship: Tully UTC Date (dd mmm yyyy): 14 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments		
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic					
1		331	0					x		xx	xx						Fluo: 3.7
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	Fluo:
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	

Profile type:
☒ ROS ☐ TRM ☐ X-Niskin ☐ other?
Watchkeeper(s): MR

Bottom Depth:	350	m
Transmisso Cleaned:	☒ Y ☐ N	

Time	UTC	Local
Start	0238	1938
Bottom	0246	
End	0253	

Positional Information		
Start	Lat: 49° 40.13	N
	Lon: 124° 16.27	W

Bottom	Lat: 49° 40.14	N
	Lon: 124° 16.23	W

End	Lat: 49° 40.14	N
	Lon: 124° 16.20	W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: 24 Event #: 156 Ship: Tully UTC Date (dd mmm yyyy): 14 SEP 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic			
1		332	0	✓			x		xx	xx					Fluo: 3.2
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															Fluo:
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															

Profile type:

☒ ROS ☐ TRM ☐ X-Niskin ☐ other?

Watchkeeper(s): HR

Bottom Depth: 428 m

Transmisso Cleaned: ☒ Y / ☐ N

Time	UTC	Local
Start	0503	2203
Bottom	0511	
End	0520	

Positional Information

Start

Lat: 49° 30.25 N
Lon: 124° 05.89 W

Bottom

Lat: 49° 30.24 N
Lon: 124° 05.95 W

End

Lat: 49° 30.22 N
Lon: 124° 05.99 W

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21 Station: 28 Event #: 157 Ship: Tully UTC Date (dd mmm yyyy): 14 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments		
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic					
1		333	0	✓ 2.0			x		xx	xx							
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	

Profile type:
 ROS TRM X-Niskin other?
 Watchkeeper(s): GC

Bottom Depth: 135 m
 Transmisso Cleaned: ① N

	Time	UTC	Local
Start		0704	0004
Bottom		0706	
End		0708	

Positional Information

Lat: 49	° 24.11	N
Lon: 124	° 45.23	W

Start

▼

Lat: 49	° 24.12	N
Lon: 124	° 45.21	W

Bottom

▼

Lat: 49	° 24.10	N
Lon: 124	° 45.21	W

End

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21

Station: GEO1

Event #: 160

Ship: Tully

UTC Date (dd mmm yyyy): 14 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials											Comments
			Target Pressure	Confirmed ✓ Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	Phyto	Aram			
1	1	334	Bot-10	✓ 393			x									
2	4	335	300	✓ 302			x									
3	5	336	250	✓ 251			x									
4	6	337	200	✓ 201			x									
5	9	338	175	✓ 175			x									
6	10	339	150	✓ 150			x									
7	11	340	125	✓ 125			x									
8	12	341	100	✓ 100			x									
9	13	342	75	✓ 76			x									
10	14	343	50	✓ 51			xx									
11	15	344	30	✓ 30			x									Fluo:
12	16	345	20	✓ 20			x									
13	17	346	10	✓ 10			x		xx							
14	18	347	5	✓ 5			x		xx							
15	21	348	0	✓ 2			x		xx	xx		x				4.5
16	2	349	Bot-10	✓ 393									x			
17	3	350	Bot-10	✓ 373									x			
18	7	351	200	✓ 201									x			
19	8	352	200	✓ 201									x			Fired @ 19 @ 5m but
20	19	353	5	✓ 5									x			was already closed @
21	20	354	5	✓ 5									x			correct depth 200
22																
23																
24																

Profile type:
ROS TRM X-Niskin other?
Watchkeeper(s): GC

Bottom Depth: 400 m
Transmisso Cleaned: Y / N

Time	UTC	Local
Start	0901	0101
Bottom	0910	
End	0940	

Positional Information

Lat:	49 ° 15.03	N
Lon:	123 ° 44.85	W

Start

Bottom

End

Lat: 49 ° 14.98 N
Lon: 123 ° 44.79 W

Lat: 49 ° 15.01 N
Lon: 123 ° 44.60 W

Extra comments:
OUT-OF-ORDER
1-16-17-2-3-4-18-19-5 to 14-20-
21-15

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21

Station: 38

Event #: 162

Ship: Tully

UTC Date (dd mmm yyyy): 14 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation		Samples Taken / Sampler's Initials										Comments			
			Target Pressure	Confirmed Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic						
1		355	0	✓				x		xx	xx							
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
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21																		
22																		
23																		
24																		

Profile type:
 ROS TRM X-Niskin other?
 Watchkeeper(s): GC

Bottom Depth: 305 m
 Transmisso Cleaned: Y / N

Time	UTC	Local
Start	1150	0450
Bottom	1157	
End	1204	

Positional Information

Lat:	49 °	12.03	N
Lon:	123 °	26.40	W

Start

Lat:	49 °	12.03	N
Lon:	123 °	26.42	W

Bottom

Lat:	49 °	12.00	N
Lon:	123 °	26.48	W

End

Extra comments:

Water Properties Group

Sampling Log

Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

Cruise ID: 2015-21

Station: 41

Event #: 164

Ship: Tully

UTC Date (dd mmm yyyy): 14 Sept 2015

Niskin #	Firing #	Sample #	Rosette Operation			Samples Taken / Sampler's Initials										Comments			
			Target Pressure	Confirmed ✓	Pressure	Oxy	Sal	Nut-Fr	Nut-C	CHL	HPLC	NH4	UVic						
1		356	0	✓				x		xx	xx								
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10	.							.											
11																			Fluo:
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
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21																			
22																			
23																			
24																			

Profile type:
ROS TRM X-Niskin other?
Watchkeeper(s): GC

Bottom Depth:	246	m
Transmisso Cleaned:	Y	N

Time	UTC	Local
Start	1345	645
Bottom	1351	
End	1355	

Positional Information
Lat: 49 ° 325 N
Lon: 123 ° 22.42 W

Start

Bottom

End

Lat: 49 ° 328 N
Lon: 123 ° 22.40 W

Lat: 49 ° 3.29 N
Lon: 123 ° 22.41 W

Extra comments: