# Sampling Log

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

	Cruise	ID:	2015-20	S	Station:		Haro5	9		Event	: #:	2	-	_	Ship:		Tully			dd mmm yyyy		<u>y</u> 2015
Niskin #			Rosette C Target Pressure	Operat Conf	tion firmed	Samn	les Tak	en / Sar	noler's	Initials	HPLC		-						Comments	Profile ROS Watch	type: TRM X-Niskii keeper(s):	n other?
1		1	50					x		xx	xx											
2								1.28											20 19		Depth: 22	
3												~								Transr	nisso Cleaned	: (Y) / N
4																				Time	UTC	Local
. 5													1		. ,	+	+	- 4-	1	<i>Time</i> Start	2041	
6					Nis	kni	1	use	h,	2-	24	Cl	ored	1	ist	to	- 14	est				
7												а 		0	_					Bottor	205	
8				4												_		-		End	203	<u>-  </u>
9																			-			
10																					onal Informatio	
11	14				<u> </u>																48 . 36	
12			6									-						-		ω Lon:	122014	/ - t V
13																				ε	10 0 01	A/I
14		1.00																_		Q Lat:	48 ° 34 123 ° 14.	. 94 1
15								1			_									Lon:	123 014.	73
16															16			1			40.00	a.
17												-			-					P Lat:	48 ° 34	- 16
18	(P.																	_		ш Lon:	(23 0 1 2	t72 1
19														-								
20											_		2							Extra	comments:	
21																						
22					4									-				_				
23													_					-				
24		-										1.0										

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

http://www.pac.dfo-mpo.gc.ca/sci/osap/projects/waterproperties/

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#### **Sampling Log**

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

	Cruise	ID:	2015-20	Station:		LB01		Event	t #:	26	2	_	Ship: _	Tully	UTC Date (d	d mmm yyyy): <u>28   05   2015</u>
			Rosette C	Operation	Sampl	es Taken / Sal-R Nut	Sampler's	Initials							Comments	Profile type:
		Sample	Target	Confirmed	Oxy	Sal-R Nut	-Fr Nut-C	CHL	HPLC	NH4	DIC	Gases				(ROS) TRM X-Niskin other?
#	#	#	Pressure	√ Pressure	JF.	R	L	NN	NN	TF	Kelli	Rober	<u> </u>			Watchkeeper(s): TF
1	1	2	Bot-10	25.8	x		(	xx		xx	x					
2	2	3	10	10.8	x	)	(	xx		xx	x					Bottom Depth: <u>36</u> m
3	3	4	5	4.7	x	>	(	xx	xx	xx						Transmisso Cleaned: (Y) / N
4	4	5	5	15.3.	х		_				xx	xx				
5																Time UTC Local
6																Start 7:08
7																Bottom 7:00
8																End 7:13
9																
10					_											Positional Information
11																Lat: 48 0 40,393 N Lon: 124 0 59,490 W
12																<b>b</b> Lon: 124 ° 59,490 W
13																
14																Lat: 48 ° 40.402 N
15											-					Lat: 48 ° 40.402 N Lon: 124 ° 59.484₩
16															2	
17	. N															Lat: 48 • 40,409 N Lon: 124 • 59,483 W
18									-							ш Lon: 129 • 59, 483 w
19							_									
20																Extra comments:
21																
22													-			
23																
24																

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

http://www.pac.dfo-mpo.gc.ca/sci/osap/projects/waterproperties/

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# Sampling Log

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

	Cruise	ID:	2015-20		Station:		LB02		2	Event	#:	7		_	Ship:	Tull	у	UTC Date (dd	mmm yyyy): _2	8 05	2015
Niskin #	Firing #	Sample #	Rosette C Target Pressure	per Co	ation	Sampl	es Take Sal-R	n / Sar	npler's	Initials							Com	ments	Profile type ROS TRM Watchkeep	: X-Niskin er(s): TF	other?
1		6	Bot-10		45	x		x					xx								
2	2	7	30		30	x		x					xx						Bottom De	oth: <u>55</u>	m
3	3	8	20		20.5	xx		x		xx		xx	x x 🐗						Transmiss	Cleaned:	Y / (N
4	4	9	10		10.3	x		x		xx		xx	xx								
5	5	10	5		5.5	x		хх		хх	xx	xx	хx	xxx					Time	UTC	Local
6																	_		Start	07:58	
7																			Bottom	07:59 08:03	
8				-						1									End	08.03	
9																			-		
10				-												1			Positional	nformation	000
11																			<b>Lat:</b> 48	• 39.4	0857 N
12																			Lat: 48	• 02,	302 W
13				-			_												= ε	•	- Da
14				-																3°39,	08C N
15				_															Lat: 4 Don: 125	° 02.	302 W
16																					2021
17														-					Lat: 4	<u>r ° 39 i</u>	OTY N
18						_													Lon: 12.5	° 02,	285 W
19																	_				-
20			*	-															Extra com	nents:	
21				_						-	- w						_				
22				-															-		
23				-						-			1								
24															_						

Version: 25 Nov 2011

# Sampling Log

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

	Cruise	ID:	2015-20	-	Station:				_	Event	t #:	8		Ship:		Tully	UTC Date	(ddimn	יm yyyy): <u>אר</u>	8 05	2015
Niskin #	Firing #	Sample #		Co	ration onfirmed Pressure	Samp Oxy	oles Tak Sal-R	en / San Nut-Fr	mpler's	Initials	HPLC		Gases UBC				Comments		Profile type	e: 1 X-Niskin	other?
1		11	5		4.7			x		xx	xx						Fluo:			<u></u>	F
2		-														1 K . M				oth:95	
3											1								Bottom De		
4		den des				. II. <sup>11</sup>													Transmiss	Cleaned:	<u>Y / N</u>
5																					
6									-								-		Time	UTC	Local
7																			Start	08:40	
8									12.00						-				Bottom	08:42	
9	i.	1								-							- hard and a state		End	08:44	
10					- 1 <b>-</b> 5 - 1																
11																	al and a state of the		Positional I		
12											21.1							t	Lat: 48	037 .2	255 N
13																		St	Lat: 48 Lon: 125	· 05,	566 w
14			Re-Real																	V	12
15																		ttor	Lat: 48	• 37.	258 N
16						-					-							ñ	Lat: 48 Lon: 12	· 05.	569 w
17																					
18						-									-				Lat: 48 Lon: 12	° 37.	N
19																		<u>س</u>	Lon: /2	5° 05.	w
20																					
21																	-		Extra comm	ents:	
22		_												_					did not	start arc fil dozerne @ 600.	Ir Miny
23										_									11	the append	ast
23																				6 6 G	m
24								-					-	-							

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

# Sampling Log

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

	Cruise	ID:	2015-20	Station:		LB04		Event	#:	9		Ship	:	Tully		UTC Date (dd				
Niskin #	Firing #	Sample #	Rosette C	peration Confirmed				 			UBC gases					Comments	H V	ROS TRM Vatchkeepe	X-Niskin er(s): TF	other?
1		12	Bot-10	101	x		x													
2	2	13	75	74	xx		x										E	Bottom Dep	th: <u>    </u>	m
3	3	14	50	50.4	x		хx											ransmisso	Cleaned:	<u>(Y) N</u>
4	4	15	30	30.3	x		x													
5	5	16	20	19.8	x		x	xx		xx							12	Time	UTC	Local
6	6	17	10	9.6	x		x	хx		xx							_	Start	0911	
7	7	18	5	5.0	x		x	хх	xx	xx	xx					Fluo: 5 mgl		Bottom	0914	
8			1.1.118				1			1_3		010			6			End	0921	
9																dechhands	_			
10					$\Delta_{\rm c}$ I			25					5-12-19			cleaning near voscille NH4	4	Positional I	nformation	
11																voselle NH4	- 1	<b>_at:</b> 48	• 35	686 N
12								 	11.1							Spell,	\$	<u>-on:</u> 125	• 08 1	. 686 N 736 W
13														_						
14					ý –			1		a ( <u>)</u>		- 36-5	1	1			otton	Lat: 48	• 35	: 712 N :750 W
15																		Lon: 125	· 08	.750 W
16			2					1.1								and the second sector she	-  r	"		<u></u>
17														_			p	Lat: 48	• 25	. 694 N 782 W
18		1						P									ե	Lon: 12	<b>j</b> • 08	the w
19													-	_			r	i se f		
20				19 mar	1.1								_	1			- 1	Extra comi	nents:	
21																	_			
22								-					1							
23													_				_			
24	1. S. 1.			-																

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

	Wat	ter Pr	roperti	es	Grou	р		Sar	mpli	ing	Loç	J	Inst	titut	e of O	cean	Scienc	es, Ocean Science	s Divis	sion, Sidne	y, BC	
	Cruise	ə ID:	2015-20		Station:		LB05			Even <sup>r</sup>	t #:	X	12		Ship:		Tully	UTC Date	dd mm	ım yyyy): <u>28</u>	05	2015
Niskin #	Firing #	Sample #	Rosette C Target Pressure	Cor	ration onfirmed Pressure	Samp Oxy	les Tak Sal-R	ken / Sar Nut-Fr	mpler's	Initials		NH4	Gases UBC					Comments		Profile type: ROS TRM Watchkeepe	X-Niskin	other?
1	1	19	5					x		xx	xx							Fluo: 3,74		L		
2														1 . C						Bottom Dept	th: 110	<u> </u>
3	<u> </u>																			Transmisso	Cleaned:	(Y)/ N
4												31.0		- 4								9
5					/				'											Time	UTC	Local
6																		and the second states		Start	1141	
7	<u> </u>			$\downarrow$		7		-		Constant of					Treatest					Bottom	1143	
8				44		5.1														End	1146	
9 10						6_11 <sup>00</sup>														Positional In	formation	
11								1.											t	Lat: 48	034.	026 N
12																			sta	Lat: 48 Lon: 125	0 12.1	04 W
13																			s2.		- •	
14			21105	+			150 00												E ct	Lat: 48 Lon: 125	· 34.	606 N
15																			L C R	Lon: 125	0 12.	144 w
16																			112			
17																				Lat: 48 Lon: 125	• 33.1	786 N
18																			ů,	Lon: 125	0 12.	184 w
19		L							'													
20											1									Extra comm	ents:	
21		L							/	<u> </u>	<u> </u>											
22			and the state														S					
23		L									'											
24				4 1		1.1	1	l	1-0-9/	hu 1.7	6 J	1.1.1	1.04									

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

# Sampling Log

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

	Cruise	ID:	2015-20	_	Station:		LB06			Even	t #:	14			Ship:	Т	ully	UTC Date		
NI:-1 ·	ler i		Rosette C	Opera	ation	Samp	les Tak	en / Sau	nnier's	Initiale	A THE R A						uny	UIC Date	(dd mmm yyyy)	28 05 201
NISKIN #	Firing #	Sample #	Target Pressure			Оху	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	UBC gases	UVic				Comments	Profile	ype:
1	1	20	Bot-10	Π	105	v							13.000						Watchk	eeper(s):
2	2	21	75	$\uparrow$	35	x xx		x								-	_			
3	3	22	50		50			X		-						-		in the second second	Bottom	Depth: 15 m
4	4	23	30		30,1	X		XX											Transmi	sso Cleaned: (Y) / N
5	5	24	20		20.6	x x		X												
6	6	25	10		10.1	x		x	-	<u> </u>		XX		-					Time	UTC Local
7	2	26	5		4.3			X		хх		хх							Start	1220
8					11.5	×		x		<u> </u>	XX	XX	XX					Fluo: 3.6	Bottom	1222
9																			End	1230
10								7.001						-						
11																121111-1		a hard a second of	Position	al Information
12					1.12.2012					-	in the second						-		E Lat: 4	8 ° 32,191 N
13								-		1.56.7									Ets Lon: 12	5 . 15,545 W
14		1.11								(har)				100	genzie ou	-				8 ° 32,191 N 5 ° 15,545 W ▼
15							-										_		E Lat: 4	-8 ° 32 196 N S ° 15, 546 W
16	6 - 1							-Andrews					-					_	B Lon: 12	5 . 15, 546 w
17								-						_						
18											2		-						Lat: L	18 · 32,167 N 5 · 15,580 W
19																	-	- Andrew - A	Lon: 12	5 . 15,580 w
20									1											
21																			Extra con	iments:
22																				
23																				
24					1.1.1									-						-
V	ersion: 25	Nov 2011		Tr	ansmissome	ter to bo	cloaned										_			

Transmissometer to be cleaned before each cast, do not use Ammonia products

Sampling Log

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

	Cruise	ID:	2015-20	_	Station:		LB07			Even	t #:	2	2	Shir	<b>.</b> :	Tully					
	г т	_	Rosette 0	Oper	ration	Samp	les Tak	en / Sa	mpler's	iiiiiiais				•••••		Tuny		TC Date (d	a mn	nm yyyy): <u>28</u> [	5 20
Niskin #	Firing #	Sample #	Target Pressure		nfirmed Pressure	Оху	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC		-	+ +	Commen	ts		Profile type: ROS TRM X-Nisk	in other?
4		07		17	66		1	1						_	_					Watchkeeper(s):	F
2		27	5		5.5			x		хх	XX						Fluo:	3.7			
3										h					-		-			Bottom Depth:	56 m
4											A. 1								_	Transmisso Cleaned	: <u>()</u> / M
5	5															1-1-		_	-		St. 1.
6										<n=-< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>Time UTC</td><td></td></n=-<>									-	Time UTC	
7																			-	Start 1630	
8	1.2						-													Bottom 164	
9																				End 16 41	2
10	U.S.				and and					n (m)		1.00			-					_	
11																			-	Positional Information	
12															1.10	ing and inst				Lat: 48 0 38	.667 N
13																			_ °	Lat: 48 • 28 Lon: 125 • 22	.064 w
14	و زیک ا				di m		100 <sup>-12</sup>														
15		-	-	_															ĭ	Lat: 10 0 28.	OUT N
16														-						Lat: 48 ° 28. Lon: 125 ° 22.	044 w
17				_					1	_					-						
18																			E	Lat: 48 º 28 Lon: 1ひ º つう	OLG W
19 20	No.		1.51	-		-															UTC W
20					-					_										Extra comments:	
22																				bottle Laved at 1	tbm
23																				bothez find @	
24					1.111.2010												-			Dotter arealla	
	ersion: 25 N	lov 2011		T	ransmissome	ter to be	cleaned	before e	ach cast	do.not		onia pro	duoto	1							
									0000,	10 1001				2 Jug L	2 X	2L 1L X 625 V		http://www.pac.o	dfo-mpc	o.gc.ca/sci/osap/projects/wate	properties/
				Q.									2-	5	JY.	16	â				
													>	SMIC	4	× 625 v	nl				

#### Sampling Log

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

	Cruise	ID:	2015-20		Station:		LB08			Event	#:	29			Ship:	Tully			(dd mm		28 MAI	2015
		Sample #	Rosette C	Dpera	ation	Samp Oxy	les Tak Sal-R	an / Can	anlar's	Initiale				Pac	UVic			Comments		Profile typ ROS TR Watchkee	M X-Niskin	other?
1	t	28	Bot-10	~	14-3	x		x					x		X						epth:/57	~ m
2	2	29	100	-	100	xx		x					x		X						so Cleaned:	-
3	3	30	75	1	75	x		x					X		-					Transmis	so cleaned.	(1) (
4	4	31	50	1		x		xx					XX		×					Time	итс	Local
5	5	32	30	1	30	x		x	s				x				-			Time Start	2037	1
6	6	33	20	1	19	x		x		xx		XX	x		1		-				2040	
7	7	34	10	1		x		x		xx		XX	xx		X			the second second second		Bottom	2051	
8	8	35	5	/	- 1 - <u>1</u> 1 -	x		x	ų.,				x	XX	X					End	2001	
9	9	36	5	1				x		xx	xx	xx								Desition	al Information	
10										19,71		1.00										
11																					48 • 25	33 N 67 W
12	, in			0			1 o 11		2.3									den se de la se de la seconda de la second			<b>V</b>	
13													_		-							. 33 N
14														1						Lat:	48 • 25. 25 • 28.	67 W
15														-							<u> </u>	
16											1.1.5			-			i de ser la			Lati	48 • 25	
17													-		_		-				125 • 28	70 V
18			1							1			1.0								123	
19				_					-			-	-					Contraction of the second		Extra co	omments:	
20			in Kasul				-							1							mmento.	
21													-	1 2 - 2 - 2 - 2 - 2								
22											-			-				a su su ser et servet				
23															-							
24	1 million		1									dina.						L.H. 11			/osap/projects/wa	aterproperties/

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

	Cruis	e ID:	2015-20	-	Station:		LB09	Sar							cean S	cience	s, Ocean Scienc	es D	ivision, Sidney, BC
kin ŧ	Firing #	Sample #	Rosette ( Target Pressure	Co	ration onfirmed Pressure		es Take Sal-R	n / Sam Nut-Fr	Nut-C	CHL	HPLC	2  NH4	Lofz Gases		T.	ully	UTC Date Comments	€ (dd r	nmm yyyy): <u>28</u> MAI Profile type:
	,	07	r		1	K 2/4		nt		203	606	14 (1	UBC				_		L POC TOM
	2	37	Bot-10	1	140	X		x											Watchkeeper(s):
	3	38	125	1	125	X		xx	1										
	4	39	100	V	99	X		x											Bottom Depth: 149
	5	40	75	-	74	x		x				11 BU							Transmisso Cleaned:
1	1	41	50	1	50	x		x											(
1	7	42	30		30	x		x		T I									Time UTC
1	8	43	20	1	20	xx		x		хx		xx				-			Start
1	9	44	10	-	10	x		x		xx		xx				-			Bottom 2138
+	/	45	5	-	5	x		x		xx	xx	xx	xx						End 2149
+	-		and the second	-	1.1.1.1												Fluo: 28		
+				-	Thereasters														Positional Information
+				-	1							-							E Lat: 48 . 21 98
+																		1	Lat: <u>48 ° 21.98</u> Lon: 125 ° 34 74
+						-										-			
+				-											2.			to the second	Lat: <u>48 • 21. 97</u> Lon: 125 • 34. 74
+																		ton to the	Lon: 125 . 34 74
	Tennel								1.5							-			V
+				+															Lat: 48 0 21 97
				-														End	Lat: 48 • 21.97 Lon: 125 • 34.65
+				+															1.2
-				+															Extra comments:
1				+-											-				
-				1										for provide the					
Ļ	rsion: 25 I	1.			Insmissomet														

	Wat	er Pr	opertie	es	Grou	р		Sar	npli	ing	Log	ļ	Inst	titute	of Oc	cean S	Science	es, Oc	ean Sciences				
	Cruise	ID:	2015-20	S	Station:		LB10		e.	Event	#:	31		S	hip: _	-	Tully		UTC Date (o				2015
			Rosette C	perat	tion	Samp	les Take	en / San	npler's	CHI	HPLC		Gases		1	1	478 J. T.	Co	mments		ROS TRM	1 X-Niskin	other?
Niskin #	Firing #	Sample #	Target Pressure		Pressure	Uxy	Sal-R	INUL-FT	Nut-C	ONL			UBC								Watchkeep	er(s): M	R
		46	5					x		xx	xx							Flu	D:				
1		46	5					^		~ ~ ~		1				12.5		(-)	vent was not		Bottom De	pth:5	
2																			closed tigththe		Transmiss	o Cleaned:	(Y) / N
3	1		hile S							h*		M. D.	fi fire			Sau <sup>r</sup>			0				
4																			ā		Time	UTC	Local
5						H		1					1241/						Sils, Little	1262	Start	2236	1536
6					2																Bottom	22.40	
7			19.00		5 - 10-	7.1					1	1.5				AL 11					End	2244	
8				++																			
9			9. CA., 19										T-silve						I Sharter III	Contraction of the second s		Information	
10 11																				E	Lat:	48 0 18	56 N
12								1												Sta	Lon: 1	250 41	56 N 34 W
13																					18 L. T.		
14	1										1.0			in de la					the Second Sec	tto	Lat:	48 º 18.	56 N
15																				ß	Lon: 1	25 • 41	56 N 33 W
16		-T	n-							5										16.20	_		
17																					Lat:	<u>t8 • 18</u>	58 N 33 W
18					1		122								510	1944		ян <u>11 г</u>		<u>_</u> _	Lon:	25 0 77,	⊃3 W
19																					-		×
20																			parts of starts		Extra cor	nments:	
21			1															-					
22																			- 1 4 H				
23															-								
24														1								san/projects/wa	torproportios/

#### Version: 25 Nov 2011

http://www.pac.dfo-mpo.gc.ca/sci/osap/proje terprop

# Sampling Log

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

	Cruise	D:	2015-20		Station:		LB11			Ever	nt #:	33		Chin			ee, occan Scienc				
	r		Rosette	Ope	ration	Samp	les Tak	en / Sa	mnler's	Initial	0			Ship:		Tully	UTC Date	; (dd m	mm yyyy): 🧾	18 MAI	12015
NISKIN #	Firing #	Sample #	Target Pressure	Co	onfirmed	Оху	Sal-R	Nut-Fr	Nut-C	CHL	HPLC		Gases UBC				Comments		Profile type	e: A X Nickip	oth - 0
1		47	Bot-10	~	195	x	1.	x			T	1							Watchkeep	per(s): 전	R
2		48	175	V	175	x		xx				1								ŝ.	
3		49	150	1	149	x		x									And states of the second		Bottom De	pth: 20	<u>3</u> m
4		50	125	1	12.4	x		x		1 1 1								-	Transmiss	o Cleaned:	(Y) / N
5		51	100	1	100	х		x				1									
6		52	75	1	75	x		x										TT TS TE	Time	UTC	Local
7		53	50	1	50	xx		x											Start	2357	1654
8		54	30	1	30	x		x										1.818 11	Bottom	2358	
9		55	20	V	20	x		x		хх		xx							End	0011	
10		56	10	1	10	x		x		xx		xx			1						
11 12		57	5	-	5	x		×		xx	xx	xx	xx				Fluo: 08		Positional I		
12			d																Lat: A.	5 015.26	<u> </u>
14						-	-													V 1116	w
15			Here and the			1.2													Ellat:	0 15 2.	- 1
16		1000	-		1					_									Lat: 48 Lon: 125	0 47 6	N N
17					18.1		in a													V	W
18									TO AT 1					_					Lat: 4	3 . 15.14	1 N
19						-												L n l	Lon: 12.5	5 0 47.6	o w
20		<u>1 1 57</u>			ALC: NO									_							
21															-			1	Extra comme	ents:	
22																					
23																					
24																					
Ve	ersion: 25 N	ov 2011		Tr	ansmissomet	er to be	leaned b						and the second second								

n to be cleaned before each cast, do not use Ammonia products

 $\sim 10^{-1}$ 

http://www.pac.dfo-mpo.gc.ca/sci/osap/projects/waterproperties/

- 2

# Sampling Log

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

	Cruise	ID:	2015-20		Station:		LB12		-	Event	t #:	3	4		Ship		Tully		UTC Date (de	limm	mivvvv).	29 MA	1221
Niskin #	Firing #	Sample #	Rosette C Target Pressure	C	onfirmed	Samp Oxy	les Tak Sal-R	en / Sar Nut-Fr	npler's	Initials	1.0.0			HULFER S	1000	Ĩ		1	Comments		Profile typ ROS TR	e: M X-Niskin	
1	1	58	Bot-10	1.7	503	x							1	1 020			-	1		=	Watchkee	per(s):	K
2	2	59	400		400	x		X	X						HS115es					_	· · · · ·		
3	3	60	300	V	300	xx		X	X							199					Bottom De	pth:	5 m
4	4	61	250	1	250	x		X						a light of			-			_	Transmiss	o Cleaned:	(Y) / N
5	5	62	200	V	201	x		x xx						-			-			7			
6	6	63	175	1	174	x	No. 1	x	in es		2.100		-							_	Time	UTC	Local
7	7	64	150	1	150	x		x			-						-			-	Start	0046	1746
8	8	65	125	No.	12.5	x		x					1	-							Bottom	0056	
9	9	66	100	~	100	x		x												2	End	0119	
10	16	67	75	1	75	x	150	x		141					- William				NC.				
11	11	68	50	1	50	x		x		-									and the second second second			Information	_
12	12	69	30	1	30	x		x						Ne sy l		11	1.1.1.2			art	Lat: 42	• 12.88	<u>N</u>
13	1.3	70	20	1	20	x		x		xx		xx								<u>ت</u>	Lon: 12	S • (2,88 S • S 1, 1	39 W
14	14	71	10	1	10	xx		x		xx	1	xx		S. WILLES			1 11 11 11		*				
15	15	72	5	/	5	x		x		XX	xx	xx	xxx	~ ~ ~						-li	Lat: 48	) • 12,3 5 • 51, 9	<u>3 N</u>
16								~			^^		~ ~ ~ ~	XX					Fluo:	- ă	Lon: 12.	5 • 51. 4	70 W
17																an Year				-			
18	4.11						and with						2							- P	Lat:{	8 0 12 8	N
19					×										<u></u>						Lon: 12	5 . 51.8	37 w
20							N IN H	1						100					The second second	-			-
21																				40	Extra comr	nents:	6
22										and l				S. 1	1.57	ing Su		*					
23																			and the second				
24		12.13								-			THE			1.4							

Version: 25 Nov 2011

	Wat	ter Pr	operti	es Gi	roup	)		Sar	npli	ing	Log	ļ	Inst	titute	e of Oc	ean	Scienc	es, Oceai	Sciences l	Division, Si	dney, BC	
	Cruise	D:	2015-20	Stat	ion:		LB13			Event	:#:	35			Ship:		Tully		UTC Date (do	l mmm yyyy)	29 MA	2015
Niskin #	Firing #	Sample #	Rosette C Target Pressure	Deration Confirme	ed	Sample	es Take	en / San Nut-Fr	npler's	Initials			Gases UBC					Comm	ents	Profile ROS Watchk	ype: TRM X-Niskin eeper(s):	other?
1		73	5					x		хх	xx							Fluo:	1.2			
2																4 du	1.			Bottom	Depth: 9	<u>5</u> m
3																				Transm	isso Cleaned:	(Y) / N
4																		1.1				
5																				Time	UTC	Local
6											P - 14-					6 N				Start	0155	
7		-			14															Bottom		
8		1 1.		1	5. A. J.	<u>y</u> =			15. E.J.											End	0225	<u></u>
9																				-		
10		1.12				6.14					1	0-1-2									nal Information	
11		ing and the			1			1.422		16		1.78	-		1,						48010.	<u>aa</u>
12																			Oran - Marsara	o [Lon:	▼	<u> </u>
13														2 m								61 N
14					- Aller															ton:	48 . 10.	09 W
15 16	7 11 5									(t e.)	R PAT	i m										
17		-																		Lat:	48010	62 N
18			1.0			1.12						1					-			Lon:	48010 1250 56	15 W
19																						
20							1.21.17							1.00						Extra	omments:	
21	2																					
22													14 n 75									
23																						
24		E La R																1.1				

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# Sampling Log

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

	Cruise	יחו	2015-20		Station:		LB14			Event	#:	37			Ship:		Tully		(dd mmm yyyy):		1.2013
, c	cruise	ю.				1 Camer	lee Tak	on / Car	mplor's	Initials	2 U.U. 11.		OT.	111152				Comments	Profile ty	pe:	othor?
	Eiring I	Sample	Rosette C Target	per Co	nfirmed	Oxv	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases						ROS	RM X-Niskin	other?
	#	Sample #	Pressure	V	Pressure	MR	MK	RI	RT	RI	MG	MG	UBC						watchke	eper(s): h	R
	I		1			1	1	1												Mr.	-
1	1	74	Bot-10	-	1182	×		X	X	100						1946			Bottom	Depth: 1170	<u> </u>
2	2	75	1000	1	1000	XX	XX	X	X			a personal de la companya de la comp			_				Transmi	sso Cleaned:	() IN
3	3	76	750	V	750	x	x	x	X					10 M 1		71					
4	4	77	500	1	560	x	x	xx	XX	1		in Theme							Time	итс	Local
5	5	78	400	1	401	x		x	x	ale -									Start	0 300	2000
6	6	79	300	1	300	x	-	x							1.1.1		12.7.2		Bottom	0322	
7	~~~)	80	250*	1	250	х		x											End	0357	_
8	9	81	200	1	200	x	6.05	x						t (au						10001	
9	70	82	175	1	175	×		x												- I Information	
10		83	450	1	150	x	Same	x	l line e							1				al Information	
11	12	84	125	1	125	xx		x												48008.5	99 W
12	13	85	100	1	100	x		x							ų i				ω Lon:	[23 ° 3 ].	<u> </u>
13	14-	86	75	1	75	x		x											E		5-1
14	15	87	50	V	51	x		x				1. da.							Lat:	48 0 08	
15	16	88	30	1	30	×		xx											🖾 Lon:	126 . 00	. <u>01</u> V
16	17	89	20	1	20	x		x		xx		xx								•	- 2
17	18	90	10	1	10	×		x		xx		xx							p Lat:	48.08.	5.5
18	19	91	5	1	5	x		x		xx	xx	xx	xx	2	C			Fluo:	យ Lon:	[260 00	02 V
19	8	92	250	1	2.50	1												Water for NH4			
	9	52	- ()		2.0-		1													omments:	
20				-				-											OUT-O	-ORDER	
21				+															1-7	; 19; 8-1	18
22			-	+	Martin - Province																
23				-			11-51***							da.							

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http://www.pac.dio-mpo.gc.ca/sci/osap/p

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# Sampling Log

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

	Wat	er Pr	opertie	es	Grou	р		Sar	npli	ng	Log	J	Instit	tute of	Ocea	າ Scienc	es, Ocean Science			
	Cruise		2015-20		Station:		LB15			Event	: #:	38		Ship	:	Tully		(dd mmm yyyy): 🚊		2015
Niskin #		Sample	Rosette C	Dper	ation	Camp	les Tako Sal-R	en / San Nut-Fr	nnler's	nitials		1.2	Gases UBC				Comments	Profile typ ROS TR Watchkee	M X-Niskin	
1		93	5	1				x		хx	xx	C. F. L.					Fluo:	Bottom D	epth: <u>1538</u>	<u>s                                    </u>
2				-															so Cleaned:	(Y) / N
3 4 5																		Time Start	<b>UTC</b>	<b>Local</b>
6																		Bottom	0522	
7 8																		End	0548	
9																			I Information	
10 11	1																	Lat:	48 • 04.3	42 W
12	الماليا											l a fa	-	NG Pur	<u>di</u> ut			й [Lon: ۱	▼	<u>42 W</u>
13 14																		Lat:	48°04. 26°08.	31 N 41 W
15				-																
16	,																	Lat:	48º 04. 126º 08.	33 N
17 18																	in prairie and a second second second		126.08.	36 W
19															ter liger			Extra co	mments:	
20	1																			
21 22	·																			
23			and the state	r / 10 m / s		2.865						THE PROPERTY.								

# Sampling Log

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

mmm yyyy): <u>29</u> <u>05</u> <u>20</u>	UTC Date (dd mi	Tully	Ship:	)	40	t #:	Event	-0				Station:		2015-20	ID:	Cruise	
Profile type:	Comments					Lune of	Initials	mpler's Nut-C	en / Sar	les Tak	Samp	ation		Rosette C	<b>C</b>	Etato a I	laki
ROS         TRM         X-Niskin         other?           Watchkeeper(s):         TF	-			Gases UBC	NH4	HPLC	CHL	Nut-C	Nut-Fr	Sal-R	Оху	Pressure	Cor	Target Pressure	Sample #	Firing #	skin #
	Fluo: 0,5					xx	xx		×	1	1	5.5	IJ	5	94		
Bottom Depth: <u>1769</u> m	11401 07.5																
Transmisso Cleaned: (Y) /																	
			March 1		ц Ц						1.811						
Time UTC Loca																	
Start 09:11												1.10					
Bottom 09:39																	
End 10:07														n - Pala			4
																	_
Positional Information				11.00										8 a		14.14	
+ Lat: 48 . 00.562																and a cost	
Lat: 48 ° 00.562 Lon: 126 ° 17.064		the second second		21.23 C						hu di						Sent. Ser.	
▼																	
5 Lat: 48 ° 00.575						8 <u>0</u> 00		1.5	цС.,							i, oʻni	
End         Lat:         48         00.575           M         Lon:         126         17.161			A Martine in Martine														_
and the second															w		
Lat: 48 ° 00.556 Lon: 126 ° 17,094											103-17-0						
Б Lon: 126 ° 17,094												5 N 1-2					
and the second second second																	+
Extra comments:	the strength of the second		-						H.		_						-
pump on @~590 m On downcast																	
- I ON down cast				and the second								_			L. Connert		-
- altimeter did not				-													+
List a hulan		0.0		100												21	

# Sampling Log

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

(	Cruise	ID:	- 2015-20		Station:		LC11				#:	4	5	Ship:	1	ully		d mmm yyyy): <u>2</u> Profile type		1 2015
Niskin #	Firing #	Sample #	Rosette C Target Pressure	Co	ration onfirmed Pressure	Samp Oxy	les Tak Sal-R	en / San Nut-Fr	npler's Nut-C	CHL	HPLC	NH4	Gases UBC				Comments	ROS TRM Watchkeep	X-Niskin	other?
1	1	95	Bot-10	1	1415	x		x	x				xx					Bottom Deg	th: 14	28 m
2	2	96	1250		1250	хx	x	x	x				Mursell.							
3	3	97	1000		1000	x	xx	x	x				X X	-				Transmisso	Cleaneu.	
4	4	98	750		751	x	x	xx	xx										UTC	Local
5	5	99	500		501	x	x	x	x				xx					Time		LUCA
6	6	100	400		399	x		x	x				XX					Start	1647	
7	7	101	300		300	x		x					xx					Bottom	1757	
8	8	102	250		250	x		x					xx					End	11757	
9	9	103	200		200	x		x					xx							
10	10	104	175		176	x		x			17. 5		xx	14/14/19		Alexandra and			Information	
11	11	105	150		150.	x		x					xx					Lat: 48	0 18.9	16 1
12	12	106	125		125	xx		x					xx					0 Lon: 12.0	, <del>4</del> 6.	654 1
13	13	107	100		100	x		x					xx					E		01 Ø
14	14	108	75		76	x		xx					xx	1. Jan				ELat: 48	• 10,	768
15	15	109	50		49	x		x					xx					Lat: 48	0°26	. 611
16	110	110	30		30	x		x		1.1			xx							-20
17	17	111	20		20	x		x		xx		xx	xx					Lat: 4	8 0 19.	015
18	18	112	10		10	x		x		xx		xx	xx				ALL PROPERTY AND A	ū Lon: []	16 ° 16.	546
19	19	113	5		5	x		x		xx	xx	xx	xx							
20									Mage)			ne vu			1			Extra com Winch N 4 Unwind a and h	ments:	oblea
21																		winch	44m -to	nd to
22																		wind a	ill of the	upcast
23																		and h	wind	e
24	21								1.1.1											

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

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

	Wat	er Pro	opertie	es	Grou	р		Sar	npli	ng	Log		Ins					es, Ocean Science	(dd/mmm/yyyy): <u>29   MAI   2015</u>
	Cruise		2015-20		Station:		LC09				#:		_	-	Ship:		Tully	Comments	Profile type:
		Sample	Rosette C	Co	ation nfirmed Pressure	Оху	les Tak Sal-R	en / San   Nut-Fr	npler's Nut-C	CHL	HPLC	NH4 MG	Gases UBC	DIC MA-60	Uvic	phyto			ROS TRM X-Niskin other? Watchkeeper(s):
			Bot-10	17	606	×		xx	xx				хx	X					Bottom Depth: 611 m
1	2	114	500	1	500	x		x	x			I I H	xx	хх					Transmisso Cleaned: (Y) / N
2	3	115	400	.(	400	×		x	x				xx	x					Transmost
3	4	116	300	V	301	x		x					xx	xx					Time UTC Local
4	5	117	250	17	2.50	xx		x					xx	x	x				Start 2132 1432
5	5	118	200	11	200	×		x				12.5	xx	x					Bottom 214-4
6	7	119	175		175	×		x					xx		-				End 2.2.08
7	8	120 121	150		1248	×		x					хx		x	1.00	++		
8	0		125		125	x		x					XX	<u> </u>					Positional Information
9		122 123	100	1	100	×		xx	$  _{\eta} =  $				XX	×			++		10 0 2 - 93
10	10	123	75		175	×		x					xx				++		Lat: 48 • 25.13 Lon: 126 • 13.72
11	1916 J		50	1	50	×		x		[d], [m]		1	xx	x	x				
12	12	125 126	30	V		××		x					XX	×	-				E Lat: 48 . 25, 93
13	14		20		20	×	10-12	x		xx	-	xx	xx		x		++		Lat: 48 • 25, 93 Lon: 126 • 13, 73
14	15	127 128	10		19	×		x		xx		xx	xx	×	×		_		
15	100	120	5			×		×					xx	x	X				Lat: 480 25.96
16	16		5	-				x		xx	xx	XX			-	x	_	Fluo:	Lon: 1260 13.71
17	17	130		+							1				-				
18	1			-										_	-	-			Extra comments:
19	the state			-										a (11)			-		
20		-		-															
21																			
22				-											_				
23								1 8										http:/	/www.pac.dfo-mpo.gc.ca/sci/osap/projects/waterproperties/

# Sampling Log

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

	Cruise	ID.	2015-20		Station:		LC08			Event	:#:	53		_	Ship:		Tully		UTC Date (dd)	and the second sec		2015
	Gruise	ю.				Comp	loo Tak	on / Sal	moler's	Initials	1.1.1	The second second							Comments	Profile typ	e:	
Niskin #	Firing #	Sample #	Rosette C Target Pressure	Co	nfirmed Pressure	Oxy	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC	DIC						Watchkee	M X-Niskin per(s):	other?
		_				1	1				1	<b>I</b>	x x	x		Γ						
1	)	131	Bot-10	1	191	X		X												Bottom D	epth:	3 _ m
2	2.	132	200	~	191	X		X					XX	XX							so Cleaned:	ØI N
3	3	133	175	~	175	x		X					XX				101 - 11 <sub>1</sub>					-
4	4	134	- 150	1	150 -	x		X	100		-		XX					<u>,</u> 11.4		Time	UTC	Local
5	5	135	125	1	124	×		x					XX	-	-					Start	0132	1832
6	6	136	100	J	100	x		xx				1.00	XX	×								10.3.2.
7	7	137	75	1	74	хx		x					XX			-	-			Bottom	0137	
8	8	138	50	1	49	x		x		117	1.10		xx	x						End	0150	
9	q	139	30	1	30	x		x		λХ	XX		xx	x								
10	10	140	20	1	20	×		x		xx		xx	xx	x							I Information	
	H	141	10	1	9	x		x		xx		xx	xx	xx						Lat:	48029.	32. N
11	12	142	5	1	4	×		x		xx	xx	xx	xx	x	1.0					ິທີ Lon:	26.07	03 N
12	600	142	<u> </u>	1	1	<u> </u>																
13	100		-										10 y -							Lat:	48 0 29	31 1
14			1			1	1.11			1	1									Lon:	48 0 29	03 N
15			-	-				-					1 1 N									
16			mind loss								1									Lat: Lon:	48 . 29.	2.8
17				_		-		-		1		1								Lon:	1260 07.	06 V
18						-				-	-	-		-								
19				-		-	0.00				-									Extra co	mments:	
20				-		-															1.1.8	
21							_						-		11.1							
22												-				-						
23										_			_	-	-							
24						1		100								1.1.1	1.0					

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

	Wat	er Pr	opertie	es	Grou	р		Sar	npli	ng	Log		Instit	tute of (	Ocean	Science	s, Ocean Sciences			12.215
	Cruise	ID:	2015-20		Station:		LC06			Event	#:	576		Ship:		Tully		d mmm yyyy): <u>3</u> Profile type:	S FIAI	1
			Rosette C	pera	ation	Comp	les Tak	en / Sar	npler's	nitials		NILLA	Quand	1	1	1 1	Comments	ROSTRM	X-Niskin	other?
	_	Sample		1 1		Оху	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	UBC					Watchkeepe	er(s): M	R
#	#	#	Pressure		Pressure			1							1					
1		143	Bot-10	1	84	x		x					XX					Bottom Dep	th: 0, 3	5m
2		144	75	5	75	x		x			-		xx					Transmisso		(Y)/ N
3		145	50	1	49	x		x					хх					Tuiloinee		
4		146	30	15	30	x		x					xx		-			Time	UTC	Local
5		147	20	1	20	x		x		хx		хх	xx		_			Start	0349	2049
6		148	10	1	10	x	h	xx	-	xx		xx	xx					Bottom	0552	
7	1	149	5	1	5	xx		x		хx	хх	хx	xx	<u></u>			Fluo:		0400	
8											e ne						Fluo: ~13.	End		
9															-			Positional	Information	
10					1													Lat:	18 . 36	49 N
11											1							Lat:	5 . 53.	95 W
12								il.i.u											V	
13																		E Lat:	48 0 36	49 N
14						- Tu			1					de Spile				Lat:	25 . 53.	95 W
15			=								-	-							V	
16														2				Lat:	t8 • 36.	47 N
17								_							-		the state of the s	Lon:	25 • 53	~1 <b>9</b> M
18		0						1.1												
19								_	1						-			Extra con	nments:	
20					1.00															
21																				
22					1							-								
23																				
24						1											hitm://hanan	w.pac.dfo-mpo.gc.ca/sci/c	sap/projects/wat	terproperties/

Transmissometer to be cleaned before each cast, do not use Ammonia products

# Sampling Log

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

	Cruise	D:	2015-20	-	Station:	-	LC04			Event	t #:	50	1		Ship:		Tully		UTC Date (	ddimn	m vvvv)	· 30	MAL	12015
Niskin #	Firing #	Sample #	Rosette C Target Pressure	Co	ration onfirmed Pressure	Samp Oxy MG	les Tak Sal-R	en / Sar Nut-Fr	npler's Nut-C	CHL	HPLC	NH4	Gases	Uvic			-	1	Comments		ROS	type: TRM X	-Niskin	
1		150	Bot-10	1	159	x		×		61.2						1	1			=	Watchk	eeper(s	): M	R
2	2	151	150	1	150	x		x	-			1	x x x x	X	1 not	i in	-				<u>[</u>			
3	3	152	125	4	125	x		x					xx	~~~									166	-
4	4	153	100	1	100	x		x				11.57	xx	7 - 1 - 1							Transm	isso Cle	aned:	Y N
5	5	154	75	1	75	x		x					xx			1	1				-			
6	6	155	50	1	:50	x		xx	ιά tr	2.1		1	xx	X	12.00						Time Start		UTC 05-47	Local
7	7	156	30	1	ودر	xx		x					xx								Bottom		2551	2247
8	8	157	20	J	20	x		x		xx		xx	xx	×							End		23-21	
9	9	158	10	1	10	x		x		хx		хх	xx	×									2001	
10	10	159	5	1		x		x		хx	xx	xx	xx	×.					Fluo:		Position	al Infor	motion	
11																			Fluo:					7
12																					Lat:	1250	40.0	<u>84</u> w
13															2								V	<u>va</u> v
14						110	an la fa	التي						in H V H			310-1			Ę	Lat:	480	43."	36 N
15	sme ste	entras-e																		Rot	Lat: Lon:		40.8	
16		1 - 7 -	h																				V	
17																					Lat:	-480	43 -	42 N
18						0.2.5		S. 11						( A1 ) )						End	Lon:		40 8	
19				_			_																	
20			1 100											1							Extra co	mments		
21				-	muse in the																			
22																							<i>\$</i> 2	
23												_												
24																								

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128<sup>10</sup>11

# Sampling Log

. 3<sup>1</sup> - 1

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

	Cruise	D:	2015-20	Station:	-	LC02			Event	t #:	6	1		Ship:		Tully		UTC Date	(dd]mm	וm yyyy): <u>א</u>		
Niskin #	Firing #	Sample #	Target	Deration Confirmed √ Pressure	Samp Oxy	les Take Sal-R	n / Sar	npler's	Initials						11			nents		Profile type: ROS TRM Watchkeepe	X-Niskin r(s): TF	other?
1	1	160	Bot-10	100.5	x		x					xx	x									
2	2	161	75	75	xx		x	5-11	1		6.55	xx	xx				t AM )	Sides uthat		Bottom Dep	<b>th:</b> 11C	) m
3	3	162	50	51	x		x					xx	x							Transmisso	Cleaned:	() / N
4	4	163	30	30	×		x				5.	xx	x	The co	ns.							
5	5	164	20	21	x		хx		xx		xx	xx	x							Time	итс	Local
6	6	165	10	10	x		x		xx		xx	xx	x		1					Start	0718	
7	7	166	(5)	5.5	x		x					xx	x							Bottom	0720	
8	8	167	5	5.5	1		x		xx	xx	xx	- 18		x	n tê na		Fluo	10		End	0728	
9			C																			
10	10.00	1.2.2				1.25	121.5		1						4.1.7				-	Positional II		
11									(										-	Lat: 48 Lon: (25	° 48.6	73 N
12		1			1.5								1							Lon: 125	• 30, 8	368 w
13																						
14												m	1			1 - 2 <sup>0</sup>		ių jeje rajili-		Lat: 48 Lon: 125	· 48.1	078 N
15																				Lon: 125	• 30, 8	865 w
16	1.1.1		а.,+																1.1.1.1.1			A Marine Land
17																				Lat: 48 Lon: 125	• 48.	670 N
18										ectivit									i	Lon: 125	• 30.8	320 W
19																						
20	·					- 1					< _1	1.			6.12			1.1.1		Extra comm	ents:	
21																						
22					1.1			1.1														
23																				a.,		
24								2, 10												• .		

Version: 25 Nov 2011

 $(\mathbf{x})$ 

Transmissometer to be cleaned before each cast, do not use Ammonia products

	Wat	ter Pr	opertie	es Grou	р	S	am	pling	Log	J	Ins	stitut	e of Oce	an Scie	ences	, Ocean S	Sciences	Division, S	Sidne	y, BC	
	Cruise	D:	2015-20	Station:		LC01		Even	t #:		63	_	Ship:	Tully		U	FC Date (de	d mmm yyyy	): <u>3</u> C	05	2015
Niskin #	Firing #	Sample #	Rosette Op Target		Sampl Oxy	es Taken / Sal-R Nu	Samp t-Fr N	oler's Initials Nut-C CHL	6		N 11 C					Comment		Profile	e <b>type:</b> TRM		
1		168	Bot-10	87	x		x				xx									1. J.	101
2	2	169	75	75	x	x	x			3.0	xx	4.1.						Botto	n Dept	h: <u>96</u>	<u></u> m
3	3	170	50	51	xx		x				xx							Trans	misso	Cleaned:	Y / N
4	4	171	30	31	x		ĸ				xx		i de la			11 20	-1				
5	5	172	20	21	x		x	xx		xx	xx							Time		UTC	Local
6	6	173	10	10	x		x	xx		xx	xx							Start		0832	
7	7	174	5	5	x		×	xx	x x	xx	xx					Fluo:	7	Botto	m	0834	
8										I.,		π.					21.51.2	End		0841	
9																					
10		142.51		S. 1. 1873	1.13															formation	7
11																		E Lat:	48	° 50,	390 N
12										16 P.	100	3.15 	1		1.25		and the second	ton:	125	<ul> <li>50,</li> <li>27,</li> </ul>	730 W
13															_						111.00
14		1								= 11						1.200		Lat:	48	• 50,0 • 27,7	401 N
15																-		Lon:	125	• 27,	722 W
16																	. u. 2 1000.		14		4
17																		Lat:	48	· 50,1	40/ N
18								stan or in second	12	27								ញ្ញ្រី Lon:	125	· 27,	658 N
19																			difference.		
20								1.1	1						-	1		Extra	comm	ents:	C
21																_		CF	flma	× CONZ NISF	SM
22										210							1 11-11-51		14	~ lot	24
23							-								_						
24							1.1														

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

# Not sampled - cancelled due to fishing gear + boats. Sampling Log Institute of Ocean Sciences, Ocean Sciences Division, Sidney, BC

	Cruise	ID:	2015-20	-	Station:	$\sum$	LD01			Even	t #:			Ship:		Tully	UTC Date	(dd mmm yyyy):
No. 1 - J	(		Rosette C	per	ration	Samp	les Tak	en / Sa	mpler's	Initials	0			Sec. 19.	-		Comments	Profile type:
NISKIN #	Firing #	Sample #	Target Pressure			Оху	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	UBC					ROS TRM X-Niskin other
π		#	Pressure	IV	Pressure		1						Gases					Watchkeeper(s):
1		175	Bot-10			×		X										
2		176	20	-		x		x		xx		xx						Datter Danti
3	I	177	10			xx		x	$\square$	xx		xx						Bottom Depth:
4		178	5			x		xx		xx	xx	xx	xx					Transmisso Cleaned: Y
5										A A		<u>^^</u>					Fluo:	
6							111						1.1					Time UTC Loc
7																		Start
8	1.1.1										-						N	Bottom
9																		End
10			10111-1															
11									1.1					a free free of	5	1.0		Positional Information
12		10.00		-			A.5.1	Intel min			N			_				Lat: °
13			S	-							1				al Qui			Lat: ° Lon: °
	200				1													
14				-	- A			8 - U										Lat: • Lon: •
15					01-22-00		-											Lon: °
16			_															
17				_														lat: 0
18							mile											Lon: •
19																		
20																		Extra compression
21																		Extra comments:
22																		
23																		
24																		

Water Properties Group

	Wat	ter Pr	opertie	es Grou	р		San	_										Sciences [				
	Cruise	D.	2015-20	Station:		LD02			Event	#:	65	-	_	Ship:		Tully		UTC Date (dd			05	2015
	oruise		Rosette O	peration	IComp	loc Tak	on / Sam	nler's l	nitials					1			Comme	ents	Profile	type: TRM	X-Niskin	other?
	Firing	Sample	Target		Оху	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases UBC	phyto						The second se	keeper(		
#	#	#	Pressure	√ Pressure									1	1								
1		179	Bot-10	3	-*		-*					**							Botto	n Denth	: 41	m
121	1	175180	30	31	x		X		2			XX									leaned:	0
32	2	176.181	20	20	XX		X		XX	1921-200	XX	XX			<u>a.</u>			- no set no set				(
A3	3	1779182	10	10	X	-	XX		<u> </u>		XX	XX					Fluo:	9.5	Time		итс	Local
54	4_	178 183	5	5	×		X		XX	XX	XX	XX	X				1100.	1.0	Start		1052	
6		214 a - 100			i terrete								1						Botto	m	1054	
7							12010				-1.1	-							End		1058	
8						-																
9						-			Tex I				-								formation	
10					-														Lat:	48	.58.	498 N
11					1	1.1		- n W											Lon:	125	• 47.	<u>498 n</u> 335 w
12					1			(11) USE		-			1								V	
13					-	1.1.1.1		1. A.											E Lat:	48	° 58.	<u>5</u> N
14			1		-	-													Lon:	125	• 47	5 N 133 W
15									1.77.7		5.01							un Ar at-				
16			11			-													Lat:	48	• 58	,320 W
17	-																		Lon:	125	· 47	,320 W
18	_																					A Same
19 20			· · · · · · · · · · · · · · · · · · ·		12.51	1.5		È.							N					a comm		1.91.
20																				VL CNG	ins au	du
22		<u>.</u>				1.5												ni i Senatesta tran	- 1	· fish	in ha	1 @
23		Contraction of the second																		4	LOOZ ing boar	
24							35												ac dfo-mno dC C			

http://www.pac.dto-mpo.gc. sah/hiole

# Sampling Log

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

	Cruise	D:	2015-20	-		LD04		_	Event	t #:	6	8		Ship:	Τι	ıllv		ITC Date (d	dimm	maaad	20 05	201
Niskin #	Firing #	Sample #	Rosette O Target Pressure	Confirmed	Samp Oxy	les Tak Sal-R	en / Sar Nut-Fr	nnlor'e	Initiale				UVic				Commer	its		Profile ty	pe: M X-Niskir	other?
1	1	179	Bot-10	55	x		x						X						=	watchke	per(s):	TP
2	2	180	30	30	x		x		-							259 6.4			01	Rottom D	anth (	)/ m
3	3	181	20	20	хх		x		хx		xx		X						12.00.010	Bottom D		10000
4	4	182	10	10	x		хx		xx		xx		×							Transmis	so Cleaned:	<u>()</u> / N
5	5	183	5	4,6	x		x		хх	хх	хх	хх	×				Fluo:	0,8		Time	1/70	
6		1 South L											F	- 1 7		Rolline,	1100.	010		Start	UTC	Local
7																					1235	-
8			1.51		A 1	ben il			T E N			00 - <del>1</del> 0						Star 4		Bottom End	1236	
9	-																		-	Ena	1241	
10					-11								- 1-5							Positiona	Information	
11																			_	Lat: (/	2 0 ~ 2	11.1
12		<u></u>				5		5. J.A											Start	Lon: 12	5 0 56	992
13		EX L																		2011. 10	<u> </u>	164 N 987 W
14							1.15								1.000				E	Lat: 4	2 0 53	164 n 988 w
15																			Bott	Lon: 12	5 . 54	988 W
16						v 10 <sup>10</sup>						11.	S								▼	780 W
17				-																Lat: 4	2 • 53	162 1
18												S							- P	Lon: 122	0 51	,167 N .995 W
19					210 040															10	20	
20																				Extra com	ments:	
21																			3			
22						1.4.																
23 24									-													
_	ersion: 25			Transmissome						14 . I												

	Wat	er Pr	opertie	es Gr	oup	)		Sar	npli	ng	Log							es, Ocean	Sciences   TC Date (do	Division, S	<b>3idney</b> y): <u>30</u>	<b>, BC</b>	201	5
	Cruise		2015-20	Stati	on:		LD06				#:	1		_	Ship:		Fully	Commen		Profi	e type:			٦
		Sample	Rosette O	peration Confirme	d	Sampl Oxy	es Take Sal-R	n / San Nut-Fr	n <b>pler's</b> Nut-C	nitials CHL	HPLC	NH4	DIC	UBC							) TRM hkeeper(	X-Niskin (s):		
#	#	#	Pressure	√ Pres	sure								1	guees		T								
1	Ï	184	Bot-10	10	26	x		x											17	Botto	om Depth	n: <u> 35</u>	m	_
2	2	185	100	1	00	x		хx												Tran	smisso C	leaned:	ØI	N
3	3	186	75	1	75	x		x																
4	U	187	50		50	x		x			1100_0	-								Time	>	UTC	Local	<u> </u>
5	5	188	30	3	30	x		x				100			inc			Contra 1		Star	t	1434		
6	6	189	20		20	x		x		XX		XX			XX XX					Bott	om	1433		-
7	2	190	10		10	хх		x		XX		XX			XX			Fluo:		End		1446	,	
8	8	191	5		5	x		x		XX	XX	XX		XX	INX.									
9													-			1717	5.			Pos		formation		
10					244									-						ד Lat:	48	• 46. • 10.	216	N
11							1													ton Sta	1: 126	<u> </u>	178	W
12					101		-					ALC:									이 귀친 소리			
13									-					-							48	• 46		N
14				and the second		1						-		-	-					B Lor	1: 126		. 188	W
15										+			100										18 -	
16					5.00			-		-		-									. 48	8 • 46.		
17					_				-	-		-	-				1.1.1			Lo	<u>n: 126</u>	° 10	180	M
18					and the second	e en esta p			-			-												
19							-	-												Ex	tra comn	nents:	6252	Ø
20			1 Same			1	-	-	_												HPLC	= 3 X	btt	13 -
21			_			-			-										1. A. 1. U.		(will sta	int-doing	4 6F	ts
22					5.751					-											@625	me du	625m btt 4 btt cy other	1
23						-				-												stanor		es/
24							6-			_		Ammoni	a produc	te					http://www	v.pac.dfo-mpo.g	ca/sci/osa	hihioleciaim	atorproportio	

Transmissometer to be cleaned before each cast, do not use Ammonia products

# Sampling Log

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

	Cruise	ID:	2015-20	Station:		LD08		•	Event	t #:	7.	3		Ship:		Tully		UTC Date (dd r	nmm yy	vy): 3	50 OS	<b>-</b>	2015
A12-1 -	i		Rosette Op		Samp	les Tak	en / Sar	npler's	Initials	14					8			Comments	Pro	file type	);		
NISKIN #	Firing	Sample #	Target Pressure	Confirmed √ Pressure	Оху	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	DIC	phyto	Gases					RC	S) TRM	I X-Niskir	<u>oth</u>	ner?
,		#	Flessure	V Flessure						<u> </u>			<u></u>	UBC					Wa	tchkeep	er(s):	F	
1	1	192	Bot-10	7:59	x		x	x															
2	2	193	750	747	x	x	xx	хx			d in	· · · · · ·							Bot	tom Dep	oth: 7	60	m
3	3	194	500	501	хх	x	x	x													Cleaned:		Y) N
4	4	195	400	400	x		x	x												124			
5	5	196	300	300	x		x												Tim	е	итс	L	Local
6	6	197	250	250	x		x												Sta		1641		
7	7	198	200	2.00	x		x												Bot	tom	1656		
8	8	199	175	175	х		x			Miles I		1.4							Enc		17 23	3	
9	9	200	150	149	x		x																
10	10	201	125	125	х		x	27.47- 11-11-11-11-11-11-11-11-11-11-11-11-11								11			Pos	itional I	nformation	,	
11	_11	202	100	100	х		x														and the second se		N
12	12	203	75	75	x		xx		а п				, And the						Lon	: 121	• 39. • 23	5.30	78° W
13	13	204	50	50	x		x													10.1	V		<u> </u>
14	14	205	30	31	xx		x		iini							57.5			E Lat:	4.8	· 39.	229	N
15	15	206	20	20	x		x		хx		xx									: 121	• 39. 5 • 23	, 26	28 W
16	16	207	10	10	x		x		хx		xx									7 72	V	212.0	<u> </u>
17	17	208	5	4.8	x		x		хx	хх	xx		x	хx			6	Fluo: 4,5	_ Lat:	4	8.39	2 //	
18		100.0				104												-bottom cap not		: 12	6 ° 23.	25	/ w
19																		Seated properly #17		10	0 51	20,	
20													l silui l			N. Ngil	1016		Extr	a comm	ents:		
21											e –												
22																			<b>1</b> 10				
23																							
24													-										

Version: 25 Nov 2011

Transmissometer to be cleaned before each cast, do not use Ammonia products

# **Sampling Log**

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

	Cruise	ID:	2015-20	_	Station:		LD11			Event	#:	78		-	Ship:		Tully		-	d mmm yyyy): <u>3</u>		2015
			Rosette (			Samp	les Tak	en / Sar	npler's	Initials			R.S.	n a li m					Comments	Profile type		
Niskin	Firing	Sample	-		nfirmed	Oxy	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases						-	ROS TRM	X-Niskin	other?
#	#	#	Pressure	• 1	Pressure	45/05	RV	44	NA	45	6.7	PA PL	UBC							Watchkeep	er(s): MR	
1	1	209	Bot-10	1	164	x		x	x											and the second s		
2	2	210	1500	1	1500	x	хх	x	x				<u>.</u>				2			Bottom Dep	oth: <u>/5</u> 76	
3	3	211	1250	ſ	1250	xx	x	x	x					2						Transmisso	Cleaned:	<u>(Y)</u> / N
4	4	212	1000	1	1000	x	x	x	x				1. 21			1				and the second		
5	5	213	750	V	750	×	x	xx	xx											Time	UTC	Local
6	6	214	500	V	500	x	. ÷	x	x				1							Start	2141	1441
7	7	215	400	1	400	x		x	x											Bottom	22.08	
8	8	216	300	1	300	x		x		.7					1					End	2252	
9	9	217	250	1	2:30	x		x														
10	10	218	200	~	200	x		x		0.5							5.0			Positional		
11	15	219	175	1	175	x		x												Lat: 4	8°28.8	0 <b>N</b>
12	12	220	150	1	150	x		x										1.1		ິ່ Lon: 12-	6 • 42 - 4	?.5 W
13	_13_	221	125	0	12-5	хx		x											The second s	e [		
14	14	222	100	1	100	x		x		(1,2)		-	Ser.								8 . 28.	
15	15	223	75	1	75	x		xx							<					<b>ద</b> Lon: 12	6 • 42.	88 W
16	16	224	50	r	SD	x		x					a a								V	
17	17	225	30	V	30	x		x									-			Lat: 4,	p o 28.	
18	18	226	20	1	20	x	1	x	1.0	xx		xx		ار اللي			1			Lon: (24	6 • 42.	79 W
19	19	227	10	/	10	x		x		xx		xx									- Meet	
20	20	228	5	1	5	x		x		xx	xx	xx	xx						Fluo: 0.5	Extra com	ments:	
21																						
22											-				12100							
23						1													-	39.		
24										100				1, 8								

Version: 25 Nov 2011

# Sampling Log

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

	Cruise	ID:	2015-20	_	Station:		LG06			Event	#:	ଟ୍ୟ			Ship: _		Tully		UTC Date (c				2015
Niskin #	Firing #	Sample #	Rosette C	Dper Co	nfirmed	Samp Oxy	les Take Sal-R	en / Sar Nut-Fr	npler's	Initials								Com	ments		Profile type ROS TRM Watchkeep	: X-Niskin er(s): TF	other?
1	1	229	80t-10		949	x		x	×														
2	2	230	750	V		x		хх	xx												Bottom De	oth: <u>93</u>	<u>9                                    </u>
3	3	231	500	$\checkmark$		xx		x	x												Transmiss	o Cleaned:	(Y) / N
4	4	232	400	V		x		x	x														
5	5	233	300		301	x		x													Time	UTC	Local
6	6	234	250	1		x		x								_					Start	1435	
7	7	235	200		201	x		x													Bottom	1451	
8	8	236	175	V		x		x		-										_	End		
9	9	237	150	V		x		xx													Desitional	Information	
10	10	238	125		126	x		X									-				and the second se	Information	66 N
11	11	239	100		101	x		X												tart	Lan: 101	• 03. 3 + • 01.0	25) W
12	12	240	75	V	1.0	x		x						-		-				0			<u> </u>
13	13	241	50		49	×		x												E	Lat: U	1 0 17 2	bo N
14	14	242	30			XX		x				~ ~ ~								Botte	Lon: 12	) • 03,3 7 • 01,	027 W
15 16	15	243 244	20 10		11	x x		x x		x x x x		x x x x									<u></u>	V	
17	12	245	5		/ 11	x		x		xx	xx	xx	xx	XXX				Flue	D:		Lat: 4	9 ° 03	N
18	12	240											- AA							End	Lat: 4	7001	w
19																							
20																					Extra com	ments:	
21																							
22																							ş
23																			<i></i>				64.
24																							

# Sampling Log

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

	Cruise	ID:	2015-20	_	Station:		LG04		_	Even	t #:	59		Ship:	Tul	V		s bivision, sidney, BC
iskin	Firina	Sample	Rosette C Target	Ope	ration	Samp	les Tak	en / Sa	mpler's	Initials					T UI	y	UIC Date ( Comments	dd mmm yyyy): <u>31</u> 05 24
#	#	#	Pressure			Oxy	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4						Profile type: ROS TRM X-Niskin other?
1	1	246	Bot-10		138	x		x								_		Watchkeeper(s):
2	2	247	125	V		x	Ш	x										
	3	248	100	1		хx		хx									N N	Bottom Depth: 289
24	4	249	75		174	x	-	x			-		1.1					Transmisso Cleaned:
-	5	250	50	1	_	x		x										
_	2	251	30		31	x		x			F in F							Time UTC Loc
+	4	252	20		, 19	x		x		хx		хx						Start 17/1
-	à	253	10	-		x		x		хх		xx						Bottom 1715
	4	254	5	V		x		x		хx	xx	xx					Fluo: 6.9	End 1725
1																		Positional Information
							1.2	1.0		-								t Lat: 49 ° 11.401
																-	disc in the second	Lat: 49 • 11,401 Lon: 126 • 49,411
						E.				-			installer en		-			▼
															1011-115			E Lat: 49 º 11,402
+										-						-		En: 126 • 11,402 Lon: 126 • 49,430
-																	A second second	V
_					11.14		- 4			-								P Lat: 49 º 11, 399
																1.5.5		$= \underbrace{Lat:}_{Lon:} \underbrace{49 \circ 11, 399}_{Lon:} \underbrace{49 \circ 11, 399}_{Lon:} \underbrace{49, 411}_{Lon:}$
+						- 1,												
+																		Extra comments:
+				_														
				-			- Ca											-
<u> </u>	ersion: 25 N				ransmissomet									201				-

# Sampling Log

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

	Cruise	D:	2015-20	<u></u>	Station:		LG02		_	Event	t #:	92			Ship:	7	Fully	UTC Date (	dd mm	m vvvv):	31 MAN	2015
Niskin #	Firing #	Sample #	Rosette C Target Pressure	Co	onfirmed	Samp Oxy そうしど	les Tak Sal-R	en / Sar Nut-Fr	npler's Nut-C	Initials CHL いんい	HPLC	NH4	MA-/P	Dhuto	47 cit. suer	JD		Comments		Profile typ	e: M X-Niskin o	ther?
1	}	255	Bot-10		93	x		x					xx	1		17			=		Der(s): MR	
2	2	256	75	1	75	x		x					xx#							Bottom De	pth:	m
3	3	257	50	1	50	xx		xx					xx			1					o Cleaned: (	
4	4	258	30	1	30	x		x					xx								o cleaned. (	<u><b>Y</b></u> )/ N
5	5	259	20	1	20	x		x		хx		xx	X X M		XX					Time	итс	Local
6	6	260	10	1	10	x		x	15	хx		xx	xx		XX	1		and the second second		Start	1	12.12
7	7	261	5	V	5	x		x		хx	хх	xx	xx	XXX	XX	1		Fluo: 8.4		Bottom	1915	Com Com
8							10.								1.0			71		End	1923	
9																						Street of
10										17.11										Positional	Information	
11																				Lat: 🖂	9 . 18.61	N
12			Lable of the										86.5						Star	Lon: 12	9 • 18.61	w
13	(IS' 1') 1							-													V	
14							1 Sugar		/		1.237			1			f		tom	Lat: 4	901860	N
15																			Bot		6. 38.17	w
16	10.00		<u>.u. u</u>	_					-1.1	1					. I., I.)							
17				_																Lat: A	9. 18. 61	N
18								_				6.197			- 1,52				Ē	Lon: 12	6 • 38 18	w
19				-									_									
20				-															110	Extra comm	nents:	
21																						
22																						
23 24		18 <sup>1</sup>		-													20					
24						-		10													-17 	

# Sampling Log

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

	Cruise	D:	2015-20	-	Station:		LG01		_	Even	t #:	9	4-	Ship:	Tully		UTC Date	ر ما ما امم <u>م</u>			Que.
Niskin	Firina		Rosette C Target	Ope	ration	Samp	les Tak	en / Sai	npler's	Initials	Lun	1	RT Gases		- Tuny	Co	mments	aa mr	Profile typ		201
#	#	#	Pressure	√	Pressure	KS/4	Sal-R	Nut-P1	Nut-C	CHL	HPLC	MR MR	Gases						POC TOM	A VARAL	other?
1	ľ	262	Bot-10	1	46	×		×			I								Watchkeep	ver(s):	12
2	2	263	30	~	30	x		x											<b></b>		
3	3	264	20	1	20	хx		xx		хx								_	Bottom De	oth:56	m
4	4	265	10	1	10	x		x		xx		x x x x							Transmiss	o Cleaned:	<u>()</u> / N
5	5	266	5	1	5	x		x													
6						_^		^		<u> </u>	XX	<u> </u>	XX			Flu	o: 7.7		Time	UTC	Local
7																			Start	2006	1366
8	1					., 11 J													Bottom	2008	
9																			End	2013	
10																					
11																	and the second		Positional I	nformation	
12																		t	Lat: 4	1 . 20. 1	4 N
13												-							Lat: 4 Lon: 120	• 35,0	7 w
14																17	100000000000000000000000000000000000000				
15																			Lat:	1020.	Ad N
16																		ĕ	Lat: 4 Lon: 12	<u>4° 35 0</u>	7 w
17																				V	
18																			Lat: 4 Lon: (2.0	90 20 4	3 N
19																		<sup>1</sup>	Lon: (2.0	35.	og w
20																		72479-1			
21																			Extra comm	ents:	
22																					
23																					
24			er.								31						0				

Transmissometer to be cleaned before each cast, do not use Ammonia products

#### **Rosette Log**

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

Cruise	ID: <u>2</u> e	: 2015-20 Station: LTC							Event	: #:	919	(	-	Ship:	TU	LLY	UTC Date (dd n	nmn	nlyyyy): 01 JUN 2015
	Sample #	Uxygen I	Value	Rosette O Target Pressure	Cor	nfirmed	Sampl Oxy	es Take Nut	en Sal	Chl a	NH <sub>4</sub>	HPLC	-				Comments		Watchkeeper(s):
1	267	1		5	V			X		XX		××						1	Bottom Depth: m
2																			Transmisso Cleaned: Y/ N
3											10								
4																			Time UTC Local
5			1															1	Start 00/5 1715
6																		1	Bottom         Ø0/7           End         Ø020
8																		с. (A	
9																			Positional Information
10									l I						_			- Ka	
11																		Sta	Lat: 49 ° 42,65 N Lon: 127 ° 5,18 W
12										<u>14</u>									
13		_																otton	Lat: 49 ° 42,64 N
14 15																		ă	Lat: $49 \circ 42.64$ N Lon: $127 \circ 5.17$ W
16			1.00																
17									,									End	Lat: 49. 42.64 N Lon: 127. 05.17 W
18								1				l							
19																			Oxygen Info For This Cast
20																			Blank Value: mL • L <sup>-1</sup>
21																			Std Value: mL • L <sup>-1</sup>
22									<u>m</u>	-					_				*Date Run:
23 24	T																		Analyst: * Oxygen blanks and standards should be run daily, if possible

Version: 28 Feb 2008

Transmissometer to be cleaned before each cast, do not use Ammonia products

#### **Rosette Log**

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

Cruise	ID:	015-	200	Station:	\	LJOS	5		Event	t #:	10	4	_	Ship:	-	VLL	UTC Date (dd r	nmn	n yyyy): <u>OI   300   201</u>
		Oxygen T	itrations	Rosette 0	per	ation	Samp	les Tak	en								Comments	1	
	Sample		Value	Target			Оху	Nut	Sal	Chl	NH <sub>4</sub>	12015							Watchkeeper(s):
#	#	Serial #	mL • L <sup>-1</sup>	Pressure		Pressure				а		neur							MR
1	268			5	J.	5		Х		XX		XX						1	Bottom Depth: _/0 55 _ m
2												ĺ,						1	Transmisso Cleaned: Y
3																			
4																		1	Time UTC Local
5																		1	Start 0302 2003
6																		1	Bottom 0321
7																			End 0338
8																			
9																			Positional Information
10														_				<del>-</del>	Lat: 49.31.68
11																		Sta	Lat: 49 • 31. 68 Lon: 127 • 22.37 ▼
12		1												L	,				▼
13														_				tom	Lat: 49. 31.70
14				-														Bol	Lat: 49 • 31 70 Lon: 127 • 22 32
15										1									
16																		J	Lat: 49 • 31, 70 Lon: 127 • 22, 35
17													-					ш	Lon: 127 · 22,35
18										<u></u>									
19										_									Oxygen Info For This Cast
20												1							Blank Value: mL • L
21																			Std Value: mL • L
22																			*Date Run:
23									_										Analyst: * Oxygen blanks and standards should be
24											1								run daily, if possible

Version: 28 Feb 2008

4

Transmissometer to be cleaned before each cast, do not use Ammonia products

#### **Rosette Log**

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

Cruise		015-	20	Station:	L	-J08			Event	t #:	10	9	_	Ship:	TU	LL)	UTC Date (dd r	mmm/yyyy): 01   June   2015
		Oxygen T	itrations	I Kosette L	Jper	ration	Samp	les Tak	en			~					Comments	
	Sample		Value	Target			Оху	Nut	Sal	Chl	NH <sub>4</sub>	HAC	1	1	1	1		Watchkeeper(s):
#	#	Serial #	mL • L <sup>-1</sup>	Pressure	√	Pressure				а		KNIC						TF
1	269			5	V	1		X		XX		ХУ					Fluo @ 6 FSU @Sm	Bottom Depth: 1714 m
2																		Transmisso Cleaned: Y / N
3																		
4								}										Time UTC Local
5																		Start 0753 1253
6																		Bottom 0822 0/22
7																		End 0850 0150
8																		
9					L													Positional Information
10																		En: 49 • 20,114 N Lon: 127 • 40, 894 w
11																		5 Lon: 127 • 40, 894 w
12																		
13					_													5 Lat: 49 • 20, 100 N
14									<u> </u>		<u> </u>							by Lat: 49 • 20. 100 N Lon: 127 • 40,942 W
15																		
16					-													Lat: 49 • 20, 147 N Lon: 127 • 40, 829 W
17						·						-						ш Lon: 127 • 40, 829 w
18					2		· · · · · · · · · · · · · · · · · · ·											
19							_											Oxygen Info For This Cast
20																		Blank Value: mL • L <sup>-1</sup>
21																		Std Value: mL • L <sup>-1</sup>
22																		*Date Run:
23																		Analyst: * Oxygen blanks and standards should be
24				1														run daily, if possible

Version: 28 Feb 2008

Transmissometer to be cleaned before each cast, do not use Ammonia products

#### Sampling Log

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

	Cruise	ID:	2015-20	-	Station:		LBP7		-	Event	: #:	115			Ship:		Tully		UTC Date	) (dd mn	nm yyyy): _<	NUC 11C	2015
			Rosette C			Samp	les Take	en / Sar	npler's	Initials			1	RI		1		Co	mments		Profile typ	e:	
		Sample				Oxy	Sal-R	Nut-Fr	Nut-C					Gases UBC			_				(ROS) IR	M X-Niskin	other?
#	#	#	Pressure	V	Pressure	12/20	45 48	5 V	Pric	MR	MR	MR	ME								watchkee	per(s): MR	-
1	1	270	2000	1	2001	x	x	x	x												-		
2	2	271	1500	1	1500	хх	xx	x	x												Bottom De	pth: 2185	5m
3	3	272	1250	J	12.50	x	x	хх	xx												Transmiss	o Cleaned:	(Y) N
4	4	273	1000	1	1000	x	x	x	x														
5	5	274	750	1	750	x	x	x	x												Time	UTC	Local
6	6	275	500	1	500	x	x	x	x	1-1											Start	2005	1305
7	7	276	400	V	400	x	x	x	x												Bottom	2039	
8	8	277	300	1	300	x 🕊		x			u <sup>60</sup> 52 (					_			1. I. P		End	2130	
9	9	278	250	1	2.50	x	_	x															
10	10	279	200	1	200	x		x												1.1.2	Positional	Information	
11	Π.	280	175	1	175	x		x													Lat: 4 Lon: 12	9 . 52.3	•4 N
12	12	281	150	1	150	x		x													Lon: 12	801113	5 w
13	13	282	125	1	12-4	x		хх														V	
14	14	283	100	1	100	x		x													Lat: -4 Lon: 12	9.52	33. N
15	15	284	75	1	75	x		x												7	Lon: 12	8 . 11 1	3 w
16	16	285	50	1	50	x		x											Second Second	11.5		V	
17	1-7	286	30	1	31	x		x													Lat:	490 52	35 N
18	18	287	20	J	20	x		x		xx		xx							1.	1		280 11.1	<b>w</b>
19	19	288	10	J	10	x		x		xx		xx											
20	20	289	5	1	5	x		x		xx	xx	xx	xxx	xx							Extra com	ments:	
21																							I.
22																							
23																							
24									6.								214				2		

#### Sampling Log

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

	Cruise	ID:	2015-20	_	Station:	-	LBP5		-	Event	t #:	118		-1	Ship:	Т	ully	UTC Date (	dd mmm yyyy): _	12 06	2015
Niskin #	Firing #	Sample #	Rosette C Target Pressure	Co	onfirmed	Samp Oxy ४० २४	Sal-R	en / Sai Nut-Fr	Nut-C	Initials CHL RS	HPLC	NH4	Gases UBC			_		Comments	ROS TR		other?
1		290	Bot-10	$\checkmark$	1280	×	p	x	x												
2		291	1250	1		x	xx	x	x		_								Bottom D	epth: 1275	m
3		292	1000	1		x	x	x	×										Transmis	so Cleaned:	(Y) / N
4		293	750	$\checkmark$	^	хx	×	×	x												
5		294	500	V		x	x	xx	xx										Time	UTC	Local
6		295	400	1		×		x	x		_								Start	2356	
7		296	300	V		x		×				-							Bottom	0018	1718
8		297	250	$\checkmark$		x		x											End	0058	
9		298	200	V	ſ	x		x													
10		299	175	$\checkmark$		x	_	×											Positiona	Information	
11		300	150	$\bigvee$		x		×											는 Lat: 식석	1 . 59.	95 N
12		301	125	V		хx		x						o tella stir s					Lat: 40 Lon: />2	0	24 W
13		302	100	V		x		хx												V	
14		303	75	V	1	- x	_	x						L.					Lat: 40 Lon: /23	h • 59	97 N
15		304	50	V		x	-	x											Lon: /25	3 ° G.	13 W
16		305	30	$\checkmark$		x		x				1									_
17		306	20			x		x		xx		xx								9 . 59.0	75 N
18	-	307	10	1		xx	_	x		xx		xx							Lon: 1	200 00 C	2 W
19		308	5	1		x		x		xx	xx	xx	xx								
. 20																			Extra com	ments:	
21																					
22																					
23																					
24																	-				

# Sampling Log

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

	Cruise	ID:	2015-20	_	Station:		LBP3			Event	#:	121			Ship:	-	Tully	UTC Date (dd r	nmm yyyy)	: 02 50	2015
			Rosette C	per	ation	Sampl	les Take	n / San	npler's	Initials				MR/RI	-			Comments	Profile	type:	
		Sample	Target			Oxy	Sal-R	Nut-Fr	Nut-C		HPLC	NH4	phyto	Gases	-6	UVIC			and a subscription of the	TRM X-Niskin	
#	#	#	Pressure	V	Pressure	42/01		51		04	DY	Nr	NY	UBC		50			watch	keeper(s):	MR
1	1	309	Bot-10	/	158	x		x						xx					-		
2	2	310	150	1	150	x		x						xx	1				Bottom	Depth: 16	
3	3	311	125	1	125	xx		x						xx					Transn	nisso Cleaned:	(Y)/ N
4	4	312	100	1	100	x		x						xx					_		
5	5	313	75	1	75	x		x						xx	A				Time	UTC	Local
6	6	314	50	1	50	x		x						xx	V				Start		9 20
7	7	315	30	1	30	x		xx						xx					Bottom		
8	8	316	20	$\checkmark$	20	x		x		хх		xx		xx	1				End	034	3
9	9	317	10	~	10	x		x		хх		xx		xx	1				_		
10	10	318	5	1	5	x		x		хх	xx	xx	xxx	xx	1				Positio	onal Information	
11																			Lat:	50.03	23 N
12																		in the second	Lon:	1270 55	34 w
13																		14		▼	
14																		5	Lat: Lon:	500 03.	
15																			Lon:	1270 55	.34 w
16																		<b>3</b>	17	V	
17																			Lat:	500 03	23 N
18																			Lon:	1270 55	34 w
19																					
20																			Extra	comments:	
21																					
22		2.1																			
23																					
24																					

	Wat	ter Pr	operti	es	s Grou	р		Sai	mpl	ing	LOG	J	Ins	stitut	e of Oc	ean s	Scienc	es, Ocean Science	s Divis	sion, Sidne	у, ВС	
	Cruise	e ID:	2015-20	<u>C</u>	Station:		CS00			Even	t #:	134		_	Ship:	-	Tully	UTC Date	(dd mm	m yyyy): <u>02</u>	June	2015
Niskin #	Firing #	Sample #	Rosette C Target Pressure	Co		Samp Oxy <del>ເ</del> ະ/ພັ	Sal-R	en / Sar Nut-Fr	Nut-C	CHL	HPLC	NH4		Gase UBC				Comments		Profile type: ROS TRM Watchkeepe	X-Niskin	other?
1	l	319	2000		2000	×	x	x	x							_						
2	2	320	1500	1	1500	x	xx	x	x									1		Bottom Dept	:h: 217	
3	3	321	1250	/	1250	x	x	x	x											Transmisso	Cleaned:	(Y) L N
4	4	322	1000	1	1000	x	x	x	x		1											
5	5	323	750	1	750	xx	x	x	x											Time	UTC	Local
6	6	324	500	r	500	x	x	×	x											Start	2006	1306
7	~7	325	400	$\checkmark$	400	x	x	xx	хx											Bottom	2039	
8	8	326	300	-	300	x	x	×						<u> </u>						End	2133	
9	9-	327	250	$\bigvee$	250	x	x	x						See.								
10	ŧØ	328	200	1	200	x	x	×												Positional In		
11	R	329	175	1	175	x	x	x												Lat: 50	D·27.	83 N
12	n	330	150	~	150	x	x	x				2.							-+2	Lat: 50 Lon: 12	9 . 55.	10 W
13	13	331	125	/	125	xx	x	x												- (	•	
14	14	332	100	1	100	x	x	x												Lat: 50 Lon: 12	° 27.	76 N
15	15	333	75	1	75	x	x	x											0	Lon: 12	90 55.	10 W
16	16	334	50	1	49	x	x	xx					1					and the second second		· · ·		
17	17	335	30	1	30	x	x	x												Lat: 50	0 27.	
18	18	336	20	J		x	x	x		xx		xx	Ц. — Ц. <sup>— Ц</sup>							Lon:  2.	9.55	08 W
19	19	337	10	J		xx	x	x		xx		xx										
20	20	338	5	1	1	x	x	x		xx	xx	xx	xxx	××				Fluo:		Extra comm	ents:	
21																				1 K		
22																						
23																				÷.		
24	141																					

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# Sampling Log

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

	Cruise	e ID:	2015-20	-	Station:	-	CS02			Even	t #:	14	S		Ship:		Tully		UTC Date (dd m	ımm yyyy):	03 JUL	1 2015
Niskin #	Firing #	Sample #	Rosette C Target Pressure	Co	nfirmed	Oxy	Sal-R	Nut-Fr	npler's Nut-C	Initials CHL	HPLC	NH4	Gases UBC	50					Comments	ROS T	/pe: RM X-Niskin	other?
1		339	Bot-10	17	1909	×		x	x			T	1								eper(s):	IR
2		340	1500	J	1500	×	xx	xx	xx											Bottom	Depth: _ / 8 9	3
3		3-4-1	1250	1	1250	x	x	x	x												sso Cleaned:	<u> </u>
4		3-4-2-	1000	1	1000	x	x	х	x			N									sso olcaneu.	
5		343	750	1	750	хx	x	x	x											Time	итс	Local
6	1. A. 1.	344	500	J	500	x	x	х	x	100									BACK TO 530 6/0 spool	Start	0440	1
7		345	400	$\lor$	400	X		x												Bottom	0511	
8		346	300	$\checkmark$	300	x		x		_		and the					20			End	0604	
9		347	250		250	x		х														
10	1	348	200	1	200	x		хх							10.41	a. or 181-				Position	al Information	
11		349	175	1	175	X	and the second second	x	-					1				_		날 Lat:	50 .41,3	2. N
<b>12</b> 13		350	150 125		150	XX		X						/						Lon:	50 .41, 3	) <b>w</b>
14		352	125	1	125	×		x												1. Statement		
14		353	75		75	x x		<u>x</u>												#	50 . 41 3	
16	100	354	50	/	50	x		x						V				1 - 24		Lon:	29.28.	
17		355	30	1	30	x		x						~							•	
18		356	20	1	20	x		x	1.2.1	хx	115	xx		1						Lat: Lon:	50 ° 41, 2 129 ° 28.	141
19		357	10	1	10	x		x		xx		xx		1							12 1 20.	21 W
20	8	358	5	J	5	x		x		xx	xx	××	xx	1					Fluo: ~ 3.6	Extra cor	nments	T
21																				LAGU CON	initerita:	~
22	1.1.1																					
23																						×
24	7												2.1	42							9	

Version: 25 Nov 2011

١	Nati	ar Pro	opertie	25	Grou	p		San	npli	ng	Log		Instit	tute of O	cean	Science	es, Ocean Science	s Division, Sidney, BC
					Station:	<b>F</b>	CS04				#:		144	Ship:		Tully		(dd mmm yyyy): <u>03</u> <u>06</u> <u>20</u> Profile type:
C	Cruise		2015-20	-		Samn		10	mlor's	nitiale						شاليك	Comments	ROS TRM X-Niskin other?
in Î i	Eiring I	Sample	Rosette O Target	Co	nfirmed	Oxy	Sal-R	Nut-Fr	Nut-C	CHL	HPLC	NH4	Gases					Watchkeeper(s):
"	#	#	Pressure										UBC		r			
÷	/	050	Bot-10		88	×		x										Bottom Depth:97m
	0	359 360	75	1	00	×		x										Transmisso Cleaned:
+	2	361	50	1		×		x										
1	3	362	30	1		xx		x	. i.					-				Time UTC Loc
+	4	363	20		19.4	x		x		xx		XX		_	100			Start 0827 01.
+	5		10		9.5	×		x		xx		хx						Bottom 0819 01 0
-	6	364	5	1	5.7			xx		хx	xx	xx	xx					End 08 01:
-	7	365	5		0.1				d'ur-									ETTU
															-			Positional Information
-		118306													-			
0				+-	2													Lat: 50 ° 49. 223 Lon: 129 ° 12.990
1				+	60		1								4.1			
2	(n., 1)			-													THE R. LEWIS CO.	E lat: 50 . 49. 217
3	1.1			+														1 an: 129 ° (2, 96)
4				+												_		En: 50 • 49, 217 Lat: 50 • 49, 217 Lon: 129 • (2, 96)
5	-			+	1 1 1 1 1													Lat: 50 ° 49. 22
6	1.21					-												Lat: 50 • 49. 22. Lon: 129 • 12. 96
7	1.1			+					100							A		
8					-										_	_		Extra comments:
9		10.000																
20	1																	
21	27	-	-			1911										-		
22		-	100.00			-												
23				-	<i>2</i> 0					11	1000		0					//www.pac.dfo-mpo.gc.ca/sci/osap/projects/waterprop

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Transmissometer to be cleaned before each cast, do not use Ammonia product

,	Wat	er Pro	opertie	es	Grou	р		San										UTC Date (dd	mmm yyyy): <u>4 Jun 2015</u>
(	Cruise		2015-20				CS06	en / Sam								ully	Co	mments	Profile type: ROS TRM X-Niskin other?
		Sample	Rosette O Target Pressure	Con	firmed Pressure	Oxy	Sal-R	n / Sam Nut-Fr	Nut-C	CHL	HPLC	NH4 Mt	Gases UBC	Phyto					Watchkeeper(s):
≠   	#	#			59	×		xx											Bottom Depth: 65 m
-	1	366 367	Bot-10 50	1	) ;	xx	1.00	x						1.51					Transmisso Cleaned: (Y) / N
	3	368	30	1		x		x						10.00					
	4	369	20	1		x		x		xx		XX		1000					Time UTC Local
-	5	370	10	)		x		x		хx		XX		×			4	Fluo: 17	Start 0001 1701
	6	371	5	1		x		x		XX	XX	XX	XX		1				Bottom 0004
										-									End 0011
						1													
													+						Positional Information
0	1,21						1	12-5				-	1-	-					Lat: 50 • 5997 N Lon: 128 • 5186 W
1				-				-			-		100						<b>E</b> Lon: 128 ° 5186 W
2			12.2	124		-	-	1.000		-									
3				-		-	20					100		PE-					Lat: 50 • 59 97 M Lon: 12.8 • 51.85 V
4		-		+			-												Lon: [28 0 5 . 05
5			1			-													Lat: 50 . 59 89
6	1					-	-		-										Lat: 50-51.96
17			-															Sector Contractor	
18	-							-									10		Extra comments:
19	-	-								*					2				
20			_													 -			
21	-			-		and the second s										 			
22	-			-															
23							- M				-					1		h 44 // 400.004	/_pac.dfo-mpo.gc.ca/sci/osap/projects/waterproperties/

#### Sampling Log

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

	Cruise	ID:	2015-20	2	Station:	-	CS09			Event	: #:	16	3		Ship:		Tully		UTC Date (dd	l mmm yyyy): <u></u>	4 JUN	2015
	r		Rosette C			Samp	les Take	en / Sam	npler's l	nitials			RE					= ;	Comments	Profile type	:	
Niskin #	Firing #	Sample #				Oxy	Sal-R			CHL RJ	HPLC	NH4 MR	Gases	JD					-	(ROS)TRM Watchkeep	X-Niskin	
#		#	Plessure		Pressure	45/N2	l	KSIET	-	KY	N	Fik						l		watchkeep	er(s): M	Q
1	1	372	Bot-10	1	185	x		x						×		- N.						
2	2	373	175	1		x		x	1.17		S. 5.		-						n i n n i de tra	Bottom De	oth: <u>193</u>	m
3	3	374	150	1		x		x						×						Transmisse	Cleaned:	Y N
4	4	375	125	1		x		xx					ц. =					E F			s pur u	
5	5	376	100	$\bigvee$		x		x												Time	UTC	Local
6	6	377	75	J		x		x	1.1		10 <sup>-00</sup>	n= <sup></sup>				1.4	1.5			Start	0351	2051
7	7	378	50	$\bigvee$		хx		x						×						Bottom	0355	
8	8	379	30	1		x		x			35.5									End	0406	
9	9	380	20	J		x		x		хх		xx		×							÷	19
10	10	381	10	J		×	an ýr	x		хх		xx		×						Positional	nformation	Ĉ. i.
11	Ч.	382	5	J		x		x		хх	xx	xx	xx	X					8.0	E Lat: 5	1012 4	N N
12																				Lat: 5 Lon: 12	80279	5 w
13																				×	V	
14																n hag				Lat:	510 12 .	4-1 N
15																				Lon:	280 27.	96 w
16				-	5.45						1.1										V	
17																				– – – – Lat:	510 12.4	[. N
18																					8. 28.0	2. W
19																						
20																		1		Extra com	nents:	
21												-										
22																						
23																						
24		12			1 						14											

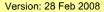
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#### **Rosette Log**

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

	Cruise	ID:	015-2	0	Station:	6	383			Event	#:	16-	ר		Ship:	TU	)	UTC Date (dd n	nmm	<b> yyyy):</b> <u>04</u>	Juni	12015
	Niskin	Sample	Oxygen Ti Flask	itrations Value	Rosette C	pera	ation Ifirmed	Sampl Oxy	es Take Nut	en Sal	Chl	NH4	hes al	Uby	f	1	<u> </u>	Comments	] r	Watchkeeper	(s):	
	#	#	Serial #	Value mL • L <sup>-1</sup>	Pressure						а		HAC	gaves						T	F	
7	1)	383			5	Π			X		XX		XX	χx				fluo@5m = 1.5	] [	Bottom Dept	n: 291	m
	2																			Transmisso (	Cleaned:	() / N
	3																					
	4																			Time		Local
	5		Ţ																	Start	0932	0232
	6																			Bottom	0937	0237
	7																			End		02.44
	8									1												
	9																		- 26	Positional In		
	10																		ť	Lat: 51 Lon: 129	· 15.1	70/ N
	11																		Sta	Lon: 129	• 21.	234 W
	12																					
	13																		to to	Lat: 5/	0 14. 9	90 N
	14											L							B B	Lat: <u>5/</u> Lon: (29	• 21. :	232 W
	15																		- 11-			
	16																			Lat: 51 Lon: 129	0 14,99	76 N
	17																		Ē	Lon: 129	• 21, 2	29 W
	18											1										
	19																			Oxygen Info		
	20																			Blank Value:		mL·L <sup>-1</sup>
	21																			Std Value:		L <sup>-1</sup>
	22																			*Date Run:		
	23																			Analyst:		
	24																			* Oxygen blanks run daily, if possi	and standards : ble	snould be



Transmissometer to be cleaned before each cast, do not use Ammonia products

#### **Rosette Log**

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

Cruise	ID: _2	015-	20	Station:	354			Event	#:	13	0		Ship:	TU	LLY	UTC Date (ddļn	nmn	n yyyy): 04   June   2015
		Oxygen T	itrations		peration	Samp	les Tak	en			a			<		Comments		
Niskin	Sample		Value		Confirmed	Оху	Nut	Sal	Chl	NH4	HAC							Watchkeeper(s):
#	#	Serial #	mL • L <sup>-1</sup>	Pressure	√ Pressure				а		ALLE							TF
<b></b>	101		1			1				1	ľ.	-	-				i	
1	384			5			X		XX		хх							Bottom Depth: <u>240</u> m
2										<u> </u>								Transmisso Cleaned: (Y) / N
3		1																
4									L	ļ								Time UTC Local
5																		Start 1141 0441
6					·			L										Bottom 1145 0445
7																		End 1151 0451
8																		
9																		Positional Information
10										-							1.	Lat: 51 ° 20.962 N
11																	Star	Lat: 51 ° 20.962 N Lon: 129 ° 00.061 W
12											1 s							
13																	٦ E	Lat: 51 ° 20,960 N
14																	Bott	Lat: 5/ ° 20.960 N Lon: [29 ° 00.070w
15																	1	
16											i i i i i						1	Lat: 51 020, 930 N
17																	End	Lat: 51 ° 20, 930 N Lon: 129 ° 00, 102 w
18																		
19																		Oxygen Info For This Cast
20																	1	Blank Value: mL * L <sup>-1</sup>
21																	1	Std Value: mL ' L <sup>-1</sup>
22																	1	*Date Run:
23																	1	Analyst:
24																		* Oxygen blanks and standards should be run daily, if possible

Version: 28 Feb 2008

Transmissometer to be cleaned before each cast, do not use Ammonia products