

RB1904 CTD Cast Sheet

Station Number: A5 CTD cast #: 031 Transect #: 6
 Start time (UTC): 21:45 End time (UTC): 22:04 Bottom Depth: 83m
 Start date (UTC): 2019-05-15 End date (UTC): 2019-05-15 Initials: W2

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
WS 10mab	1	73						✓			✓	✓		
HS 10mab	2	73		✓										
WS	3	60						✓			✓	✓		
HS	4	80		✓		✓								
WS	5	40						✓			✓	✓		
HS	6	40		✓		✓	✓		✓				✓	✓
WS	7	30						✓			✓	✓		
HS	8	30		✓		✓	✓		✓				✓	
chl max WS	9	18						✓			✓	✓		
chl max HS	10	18		✓		✓	✓		✓				✓	✓
WS	11	10						✓			✓	✓		
HS	12	10		✓		✓	✓		✓					✓
WS	13	sfc						✓			✓	✓		
HS	14	sfc		✓		✓	✓		✓					✓
ZS	15	sfc	✓											
	16	sfc												
	17													
	18													
	19													
	20													
	21													
	22													
	23													
	24													
	Sampler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
 Floating: Chl max, 10mab

7
 ✓ 18
 ✓ 18
 ✓ 73

RB1904 CTD Cast Sheet

Station Number: A18 CTD cast #: 032 Transect #: 11b
 Start time (UTC): 10:12 End time (UTC): 10:45 Bottom Depth: 2282
 Start date (UTC): 2019-05-16 End date (UTC): 2019-05-16 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	300		✓										
	2	250		✓										
	3	200		✓										
	4	150		✓										
	5	120		✓										
	6	100		✓								✓		
HS	7	80		✓		✓						✓		
WS/HS	8	49		✓	✓	✓						✓		
DC	9	49												
DC	10	49												
	11	49												
WS/HS	12	32		✓	✓	✓						/		
WS/HS	13	21		✓	✓	✓						/		
DC	14	21												
DC	15	21												
	16	21												
WS/HS	17	14		✓	✓	✓			✓	✓		/	✓	✓
WS/HS	18	6		✓	✓	✓						/		
WS/HS	19	Sfc		✓	✓	✓	✓		✓	✓		/	✓	✓
JT	20	Sfc												
JT	21	Sfc												
DC	22	Sfc												
DC	23	Sfc												
ZS	24	Sfc	✓									/		
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

D 6/14 ✓ 21 ✓ 32 ✓ 49 ✓
 JT 0 09/1 ✓ 04/0 ✓
 JT 0 02/1 ✓ 04/0 ✓
 DC 0 21 ✓ 49 ✓
 DC 0 21 ✓ 49 ✓

RB1904 CTD Cast Sheet

Station Number: A18 CTD cast #: 033 Transect #: 116
 Start time (UTC): 12:15 End time (UTC): 12:21 Bottom Depth: 2282
 Start date (UTC): 2019-05-16 End date (UTC): 2019-05-16 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
JT	1	sfc												
JT	2	sfc												
	3													
	4													
	5													
	6													
	7													
	8													
	9													
	10													
	11													
	12													
	13													
	14													
	15													
	16													
	17													
	18													
	19													
	20													
	21													
	22													
	23													
JT	24	sfc												
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

RB1904 CTD Cast Sheet

Station Number: A12[✓] CTD cast #: 034 Transect #: 12
 Start time (UTC): 1456 End time (UTC): 1532 Bottom Depth: 276m
 Start date (UTC): 20190516 End date (UTC): 20190516 Initials: MS

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	265 ✓	✓	✓										
	2	200 ✓	✓	✓										
	3	150 ✓	✓	✓										
	4	120 ✓	✓	✓										
	5	100 ✓	✓	✓				✓				✓		
HS	6	80 ✓	✓	✓		✓		✓				✓		
WS, HS	7	68 ✓	✓	✓		✓		✓				✓		
	8	68 ✓	✓		✓									
WS, HS	9	45 ✓	✓	✓		✓		✓				✓		
CS	10	45 ✓	✓											
CS	11	45 ✓	✓											
	12	45 ✓	✓		✓									
WS, HS	13	29 ✓	✓	✓		✓		✓				✓		
CS	14	29 ✓	✓		✓									
CS	15	29 ✓	✓		✓									
	16	29 ✓	✓											
WS, HS	17	19 ✓	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓
WS, HS	18	14 ✓	✓	✓	✓	✓		✓				✓		
	19	14 ✓	✓		✓									
WS, HS	20	7 ✓	✓	✓	✓	✓		✓				✓		
WS, HS	21	surf		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	22	surf			✓									
	23	surf												
	24	surf	<i>DATA</i>											
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300

Floating: Chl max, 10mab

Re-run cast from out of water -

target to 265 very calm - little heave - wait ~ 30 sec or more.

Updated xmlcon applied -

RB1904 CTD Cast Sheet

Station Number: A18 CTD cast #: 035 Transect #: 014
 Start time (UTC): _____ End time (UTC): 201905 Bottom Depth: 2295
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: MS

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	300 ✓		✓										
	2	250 ✓		✓										
	3	200 ✓		✓										
	4	133 ✓		✓										
	5	120 ✓		✓										
WS	6	100 ✓		✓				✓				✓		
WS	7	80 ✓						✓				✓		
HS	8	80 ✓		✓		✓								
WS	9	60 ✓						✓				✓		
HS	10	60 ✓		✓		✓								
WS	11	40 ✓						✓				✓		
HS	12	40 ✓		✓		✓								
WS	13	30 ✓						✓				✓		
HS	14	30 ✓		✓		✓			✓	✓			✓	✓
WS	15	20 ✓						✓				✓		
HS	16	20 ✓		✓		✓								
WS	17	10 ✓						✓				✓		
HS	18	10 ✓		✓		✓								
WS	19	SFC						✓				✓		
HS	20	SFC		✓		✓	✓		✓	✓			✓	✓
ZS	21	SFC	✓											
	22	SFC												
	23	/												
	24	/												
	Sampler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
 Floating: Chl max, 10mab

RB1904 CTD Cast Sheet

Station Number: A17 CTD cast #: 036 Transect #: 014
 Start time (UTC): 0247 End time (UTC): 0327 Bottom Depth: 2132
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: MS

0300 CTD max depth 500m

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	300 ✓		✓										
	2	250 ✓		✓										
	3	200 ✓		✓										
	4	150 ✓		✓										
	5	120 ✓												
	6	100 ✓		✓										
WS	7	100 ✓						✓				✓		
HS	8	80 ✓		✓		✓								
WS	9	80 ✓						✓				✓		
HS	10	60 ✓		✓		✓								
WS	11	60 ✓						✓				✓		
HS	12	40 ✓		✓		✓								
WS	13	40 ✓						✓				✓		
HS	14	29 ✓		✓		✓			✓	✓			✓	✓
WS	15	29 ✓						✓				✓		
HS	16	20 ✓		✓		✓								
WS	17	20 ✓						✓				✓		
HS	18	10 ✓		✓		✓								
WS	19	10 ✓						✓				✓		
HS	20	SURF		✓		✓	✓		✓	✓			✓	✓
WS	21	SURF	✓					✓				✓		
	22	SURF												
ZS	23	SURF												
	24													
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
 Floating: Chl max, 10mab

N 23 } did not pass integrity check. bottom of killer
N 13 } @ least 2nd time on N13

RB1904 CTD Cast Sheet

Station Number: A16 CTD cast #: 037 Transect #: 14
 Start time (UTC): 4:31:59 End time (UTC): 5:09:06 Bottom Depth: ~1890
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: HS

LOWER CTD TO 500, then up to first bottle stop @ 300m.

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	300		✓										
	2	250		✓										
	3	200		✓										
	4	150		✓										
	5	120		✓										
	6	100		✓										
	7	100						✓				✓		
HS	8	80		✓		✓								
	9	80						✓				✓		
HS	10	60		✓		✓								
	11	60						✓				✓		
HS	12	40		✓		✓								
	13	40						✓				✓		
HS	14	30		✓		✓								
	15	30						✓				✓		
HS	16	20		✓		✓			✓	✓			✓	✓
	17	20	✓					✓				✓		
HS	18	10		✓										
	19	10						✓				✓		
HS	20	sfc		✓		✓	✓		✓	✓			✓	✓
	21	sfc						✓				✓		
	22	sfc												
	23	sfc												
	24	sfc												
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab *sfc 10, 20, 30, 40, 60, 80, 100, ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓*

RB1904 CTD Cast Sheet

Station Number: A15 CTD cast #: 038 Transect #: 14
 Start time (UTC): 6:07:45 End time (UTC): 6:47:35 Bottom Depth: 1130
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: HO

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	300		✓										
	2	250		✓										
	3	200		✓										
	4	150		✓										
	5	120		✓										
	6	100		✓										
WS	7	100						✓				✓		
HS	8	80		✓		✓	✓							
WS	9	80						✓				✓		
ZS	10	70	✓	✓										
HS	11	60		✓		✓	✓		✓	✓			✓	✓
WS	12	60						✓				✓		
ZS	13	48		✓		Slight dribble at of bottom o-ring.								
ZS	14	48	✓											
HS	15	40		✓		✓	✓		✓	✓			✓	✓
WS	16	40						✓				✓		
HS	17	30		✓		✓	✓		✓	✓			✓	
WS	18	30						✓				✓		
HS	19	20		✓		✓	✓		✓	✓			✓	✓
WS	20	20						✓				✓		
HS	21	10		✓		✓	✓		✓	✓				
WS	22	10						✓				✓		
HS	23	Sfc	✓	✓		✓	✓		✓	✓			✓	✓
WS	24	Sfc						✓				✓		
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

Sfc ✓
 10 ✓
 20 ✓
 30 ✓
 40 ✓
 60 ✓
 80 ✓
 100 ✓
 120 ✓
 150 ✓
 200 ✓
 250 ✓
 300 ✓
 48 ✓
 30 ✓
 40 ✓

RB1904 CTD Cast Sheet

Station Number: A14 CTD cast #: 039 Transect #: 14
 Start time (UTC): 07:45:32 End time (UTC): 08:22:25 Bottom Depth: 691
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: Ho

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	300		✓										
	2	250		✓										
	3	200		✓										
	4	150		✓										
	5	120		✓										
	6	100		✓				✓				✓		
HS	7	80		✓		✓		✓				✓		
HS	8	60		✓		✓		✓				✓		
DU	9	60												
DU	10	60												
HS	11	40		✓		✓								
	12	40						✓				✓		
	13	30												
HS	14	30		✓		✓								
	15	30						✓				✓		
HS	16	20		✓		✓		✓	✓	✓		✓	✓	✓
DU	17	20												
DU	18	20												
HS	19	10		✓		✓								
	20	10						✓				✓		
HS	21	Sfc	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓
DU	22	Sfc												
DU	23	Sfc												
HS	24	Sfc												
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

10 ✓ ✓
 20 ✓ ✓
 30 ✓ ✓
 40 ✓ ✓
 60 ✓ ✓
 80 ✓ ✓
 100 ✓ ✓
 120 ✓ ✓
 150 ✓ ✓
 200 ✓ ✓
 250 ✓ ✓
 300 ✓ ✓
 DU Sfc
 DU Sfc
 HS Sfc

RB1904 CTD Cast Sheet

Station Number: A13 CTD cast #: 040 Transect #: 14
 Start time (UTC): 09:14 End time (UTC): 09:56 Bottom Depth: 479
 Start date (UTC): 2019-05-17 End date (UTC): 2019-05-17 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
abandoned	1	250		misfired			abandoned							
	2	300		✓										
	3	250		✓										
	4	200		✓										
	5	150		✓										
	6	120		✓										
WS	7	100		✓										
HS	8	80		✓		✓								
WS	9	80												
HS	10	60		✓		✓								
WS	11	60												
HS	12	40		✓		✓								
WS	13	40												
HS	14	30		✓		✓								
WS	15	30												
HS	16	20		✓		✓			✓	✓			✓	✓
WS	17	20												
HS	18	10		✓		✓								
WS	19	10												
HS	20	sfc	✓	✓		✓	✓		✓	✓			✓	✓
DC	21	sfc												
DC	22	sfc												
WS	23	sfc												
	24													
	Sam pler													

Sampling depths – Fixed: sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab
 bco ✓ 10 ✓ 20 ✓ 30 ✓ 40 ✓ 60 ✓ 80 ✓
 dco ✓
 0 ✓

RB1904 CTD Cast Sheet

Station Number: A12 CTD cast #: 041 Transect #: 14
 Start time (UTC): 10:45 End time (UTC): 11:11 Bottom Depth: 275
 Start date (UTC): 2019-05-17 End date (UTC): 2019-05-17 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
10mab	1	265		✓										
	2	200		✓										
	3	150		✓										
	4	120		✓										
	5	100		✓	✓			✓				✓		
	6	80		✓	✓	✓		✓				✓		
WS/HS	7	57		✓	✓	✓		✓				✓		
	8	57												
WS/HS	9	38		✓	✓	✓		✓				✓		
ZS	10	38	✓											
	11	38												
WS/HS	12	25		✓	✓	✓		✓				✓		
ZS	13	25	✓											
chlmx WS/HS	14	16		✓	✓	✓		✓	✓	✓		✓	✓	✓
	15	16												
WS/HS	16	11		✓	✓	✓		✓				✓		
	17	11												
WS/HS	18	6		✓	✓	✓		✓				✓		
	19	6												
WS/HS	20	SFC		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
ZS	21	SFC	✓											
DC	22	SFC												
DC	23	SFC												
	24	SFC												
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

0 ✓ 6 11 16 25 38 57
 25 0 6 11 16 25 38 57
 DC 0 38
 DC 0
 0

265 ✓

QC

RB1904 CTD Cast Sheet

Station Number: A11 CTD cast #: 042 Transect #: H
 Start time (UTC): 1204 End time (UTC): _____ Bottom Depth: 157
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: MS

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	142 ✓		✓										
	2	120 ✓	LANYARD HANGUP NO WATER											
	3	100 ✓						✓				✓		
	4	100 ✓		✓										
	5	80 ✓						✓				✓		
HS	6	80 ✓		✓		✓								
	7	60 ✓						✓				✓		
HS	8	60 ✓		✓		✓								
	9	40 ✓						✓				✓		
HS	10	40 ✓		✓		✓								
	11	30 ✓						✓				✓		
HS	12	30 ✓		✓		✓								
	13	20 ✓						✓				✓		
HS	14	20 ✓		✓		✓								
	15	14 ✓						✓				✓		
HS	16	14 ✓		✓		✓			✓	✓			✓	✓
	17	surf ✓						✓				✓		
HS	18	surf ✓	✓	✓		✓	✓		✓	✓			✓	✓
	19	surf ✓												
	20	surf ✓												
	21													
	22													
	23													
	24													
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

RB1904 CTD Cast Sheet

Station Number: A10 CTD cast #: 043 Transect #: 14
 Start time (UTC): 1323 End time (UTC): 1343 Bottom Depth: 138
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: MS

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	127	✓	✓										
WS	2	100	✓	✓										
	3	100	✓		✓			✓				✓		
WS, HS	4	83	✓	✓	✓	✓		✓				✓		
	5	83	✓											
WS, HS	6	54	✓	✓	✓	✓		✓				✓		
	7	54	✓											
WS, HS	8	36	✓	✓	✓	✓		✓				✓		
	9	36	✓											
HS	10	30	✓	✓		✓								
	11	30	✓											
WS, HS	12	22	✓	✓	✓	✓		✓				✓		
	13	22	✓											
WS, HS	14	16	✓	✓	✓	✓		✓	✓	✓		✓	✓	✓
	15	16	✓											
WS, HS	16	8	✓	✓	✓	✓		✓				✓		
	17	8	✓											
WS, HS	18	Surf		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
ZS	19	Surf	✓											
	20	Surf												
	21	Surf												
	22	Surf												
	23	Surf												
	24	Surf												
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
 Floating: Chl max, 10mab
22 36 54 83
8 16 22 30 36 54 83 100
8 16 22 30 36 54 83 100

RB1904 CTD Cast Sheet

Station Number: A9 CTD cast #: 044 Transect #: 14
 Start time (UTC): 14 End time (UTC): 1458 Bottom Depth: 129
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: MS

@ surf 1433

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	119 ✓		✓										
WS	2	100 ✓		✓	✓			✓				✓		
WS, HS	3	80 ✓		✓	✓	✓	✓	✓				✓		
WS, HS	4	51 ✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	
	5	51 ✓												
WS, HS	6	34 ✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
CS	7	34 ✓												
CS	8	34 ✓												
WS, HS	9	22 ✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
JT	10	22 ✓												
JT	11	22 ✓												
CS	12	22 ✓												
CS	13	22 ✓												
	14	22 ✓												
HS, WS	15	15 ✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	16	15 ✓												
HS, WS	17	10 ✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	
	18	10 ✓												
	19	5 ✓			✓			✓				✓		
	20	5 ✓												
HS, WS, ZS	21	surf ✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	22	surf ✓												
	23	surf ✓												
	24	surf ✓												
	Sampler													

Slight bottom
leakage
noticed
to make
seal
leaky both
sides

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 50, 80, 100, 120, 150, 200, 250, 300
 Floating: Chl max, 10mab

After cast, removed & cleaned mechanical release Assembly, inspected & found
 no issues - reinstalled.

RB1904 CTD Cast Sheet

Station Number: A9 CTD cast #: 045 Transect #: 14
 Start time (UTC): 16:34:56 End time (UTC): 16:45 Bottom Depth: 129
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: HO

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	22												
	2	22												
	3	22												
	4	22												
	5	22												
	6	22												
	7	22												
	8	22												
	9	22												
	10	22												
	11	22												
	12	22												
	13	22												
	14	22												
	15	22												
	16	22												
	17	22												
	18	22												
	19	22												
	20	22												
	21	22												
	22	22												
	23	22												
	24	22												
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

RB1904 CTD Cast Sheet

Station Number: A8 CTD cast #: 046 Transect #: 14
 Start time (UTC): 17:44:32 End time (UTC): 18:07:21 Bottom Depth: 120
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: Ho

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
10mab	1	110												
HS 10mab	2	110		✓		✓								
WS	3	100						✓				✓		
HS	4	100		✓		✓								
WS	5	80						✓				✓		
HS	6	80		✓		✓								
WS	7	60						✓				✓		
HS	8	60		✓		✓								
WS	9	40						✓				✓		
HS	10	40		✓		✓								
WS	11	30						✓				✓		
HS	12	30		✓		✓								
WS ch1 max	13	17						✓				✓		
HS ch1 max	14	17		✓		✓			✓	✓			✓	✓
WS	15	10						✓				✓		
HS	16	10		✓		✓								
WS	17	SFC						✓				✓		
HS	18			✓		✓	✓		✓	✓			✓	✓
ZS	19		✓											
	20													
	21													
	22													
	23													
	24													
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

110 ✓
 SFC ✓
 10 ✓
 20 ✓
 30 ✓
 40 ✓
 60 ✓
 80 ✓
 100 ✓
 17 ✓
 ch1 max

RB1904 CTD Cast Sheet

Station Number: A7 CTD cast #: 047 Transect #: 14
 Start time (UTC): 19:11 End time (UTC): 19:30 Bottom Depth: 100
 Start date (UTC): 20190517 End date (UTC): 20190517 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
WS 10mab	1	92						✓				✓		
10mab	2	92		✓										
WS	3	80						✓				✓		
HS	4	80		✓		✓								
WS	5	60						✓				✓		
HS	6	60		✓		✓								
WS	7	40						✓				✓		
HS	8	40		✓		✓								
WS chl max	9	29						✓				✓		
HS chl max	10	29		✓		✓			✓	✓			✓	✓
WS	11	20						✓				✓		
HS	12	20		✓		✓								
WS	13	10						✓				✓		
HS	14	10		✓		✓								
WS	15	sfc						✓				✓		
HS	16	sfc		✓		✓			✓	✓			✓	✓
ZS	17	sfc	✓											
	18	sfc												
	19													
	20													
	21													
	22													
	23													
	24													
	Sampler													

Sampling depths – Fixed: ~~Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300~~
 Floating: Chl max, 10mab
sfc 10 20 29 40 60 80 92 92

RB1904 CTD Cast Sheet

Station Number: AB CTD cast #: 048 Transect #: 14
 Start time (UTC): 20:25 End time (UTC): 20:40 Bottom Depth: 90
 Start date (UTC): 2019-05-17 End date (UTC): 2019-05-17 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
WS 10 mab	1	80						✓				✓		
10 mab	2	80		✓										
WS	3	60						✓				✓		
HS	4	60		✓		✓								
WS	5	40						✓				✓		
HS	6	40		✓		✓								
WS	7	30						✓				✓		
HS	8	30		✓		✓								
WS chl/max	9	21						✓				✓		
HS chl/max	10	21		✓		✓			✓	✓			✓	✓
WS	11	10						✓				✓		
HS	12	10		✓		✓								
WS	13	sfc						✓				✓		
HS	14	sfc		✓		✓	✓		✓	✓			✓	✓
ZS	15	sfc	✓											
	16													
	17													
	18													
	19													
	20													
	21													
	22													
	23													
	24													
	Sampler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

sfc 10 21 30 40 60 80
 sfc 21

RB1904 CTD Cast Sheet

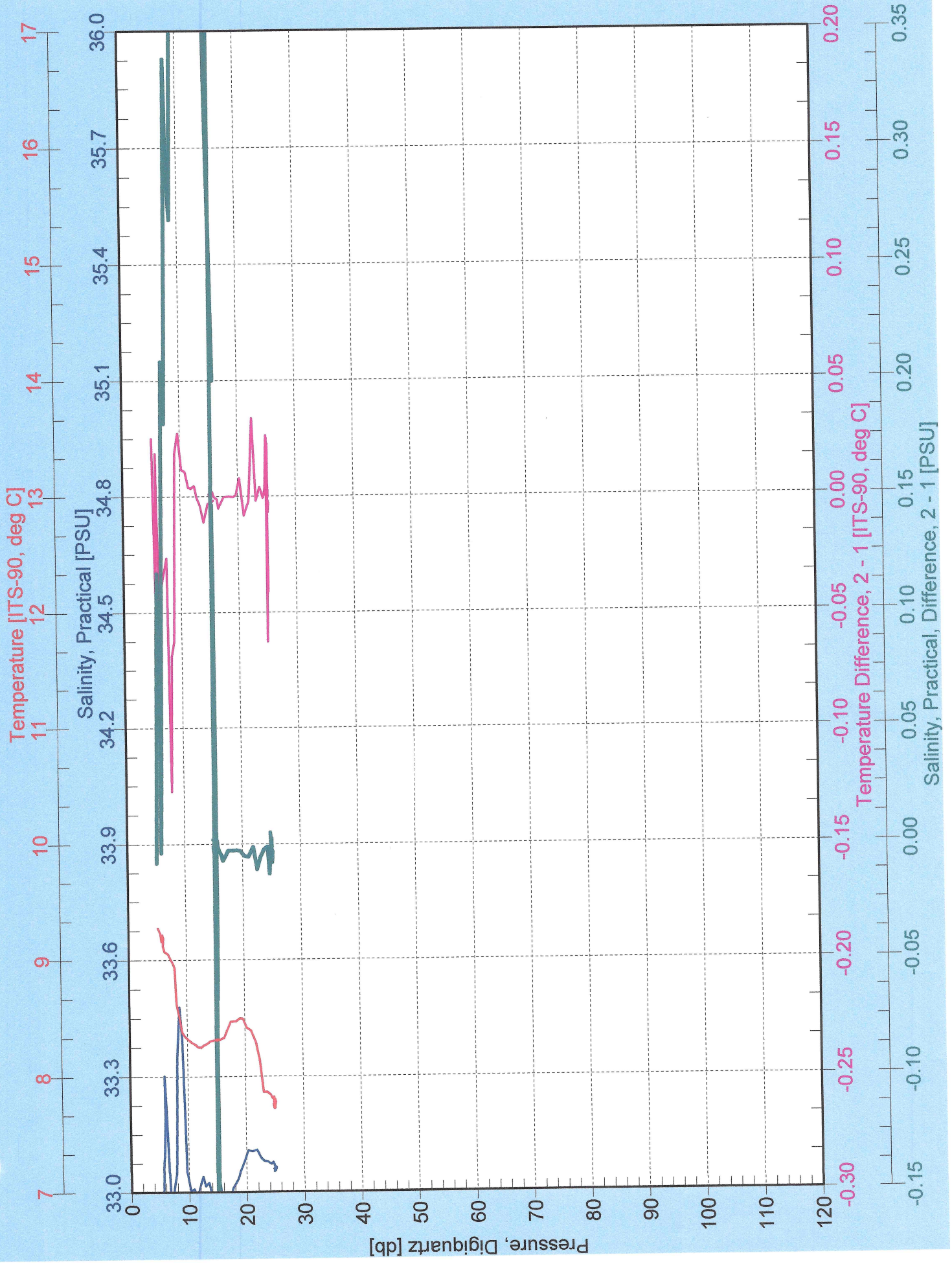
Station Number: A5 CTD cast #: 049 Transect #: 14
 Start time (UTC): 21:45 End time (UTC): 22:00 Bottom Depth: 83
 Start date (UTC): 2019-05-17 End date (UTC): 2019-05-17 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
WS 10mab	1	72						✓				✓		
	2	72		✓										
WS	3	60						✓				✓		
HS	4	80		✓		✓								
WS	5	40						✓				✓		
HS	6	40		✓		✓								
WS	7	30						✓				✓		
HS	8	30		✓		✓			✓	✓			✓	
WS chlmax	9	23						✓				✓		
HS chlmax	10	23		✓		✓			✓	✓			✓	✓
WS	11	10						✓				✓		
HS	12	10		✓		✓			✓	✓			✓	
WS	13	sfc						✓				✓		
HS	14	sfc		✓		✓			✓	✓			✓	✓
ZS	15	sfc	✓											
	16	sfc												
	17													
	18													
	19													
	20													
	21													
	22													
	23													
	24													
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

sfc ✓ 10 ✓ 20 ✓ 30 ✓ 40 ✓ 60 ✓ 72 ✓
 sfc ✓ 23 ✓ 72 ✓
 sfc ✓

RB1904-050.he Primary Sensors



RB1904 CTD Cast Sheet

Station Number: 151 CTD cast #: 050 Transect #: 16
 Start time (UTC): 0023 End time (UTC): 0041 Bottom Depth: 116
 Start date (UTC): 20190518 End date (UTC): 20190518 Initials: ms

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	106 ✓												
	2	106 ✓		✓										
	3	80 ✓												
	4	80 ✓		✓										
	5	60 ✓												
	6	60 ✓		✓										
WS	7	55 ✓						✓				✓		
HS	8	55 ✓		✓		✓								
WS	9	40 ✓						✓				✓		
HS	10	40 ✓		✓		✓								
WS	11	30 ✓						✓				✓		
HS	12	30 ✓		✓		✓								
WS	13	18 ✓						✓				✓		
HS	14	18 ✓		✓		✓			✓	✓			✓	✓
WS	15	10 ✓						✓				✓		
HS	16	10 ✓		✓		✓								
WS	17	Surf ✓						✓				✓		
HS, ZS	18	Surf ✓	✓	✓		✓	✓		✓	✓			✓	✓
DC	19	Surf ✓												
	20	Surf ✓												
	21	Surf ✓												
	22	Surf ✓												
	23	Surf ✓												
	24	Surf ✓												
	Sam pler													

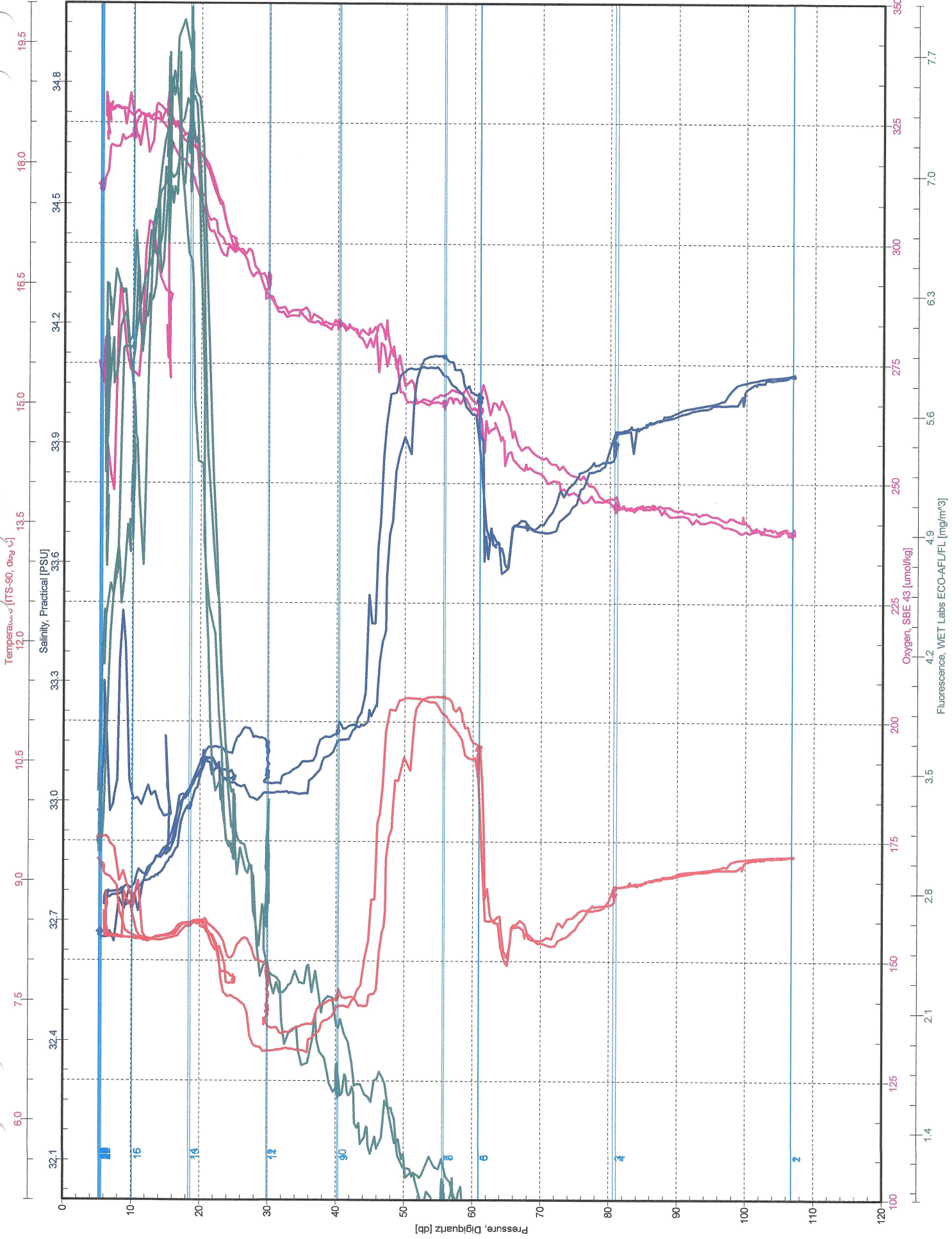
Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300

Floating: Chl max, 10mab

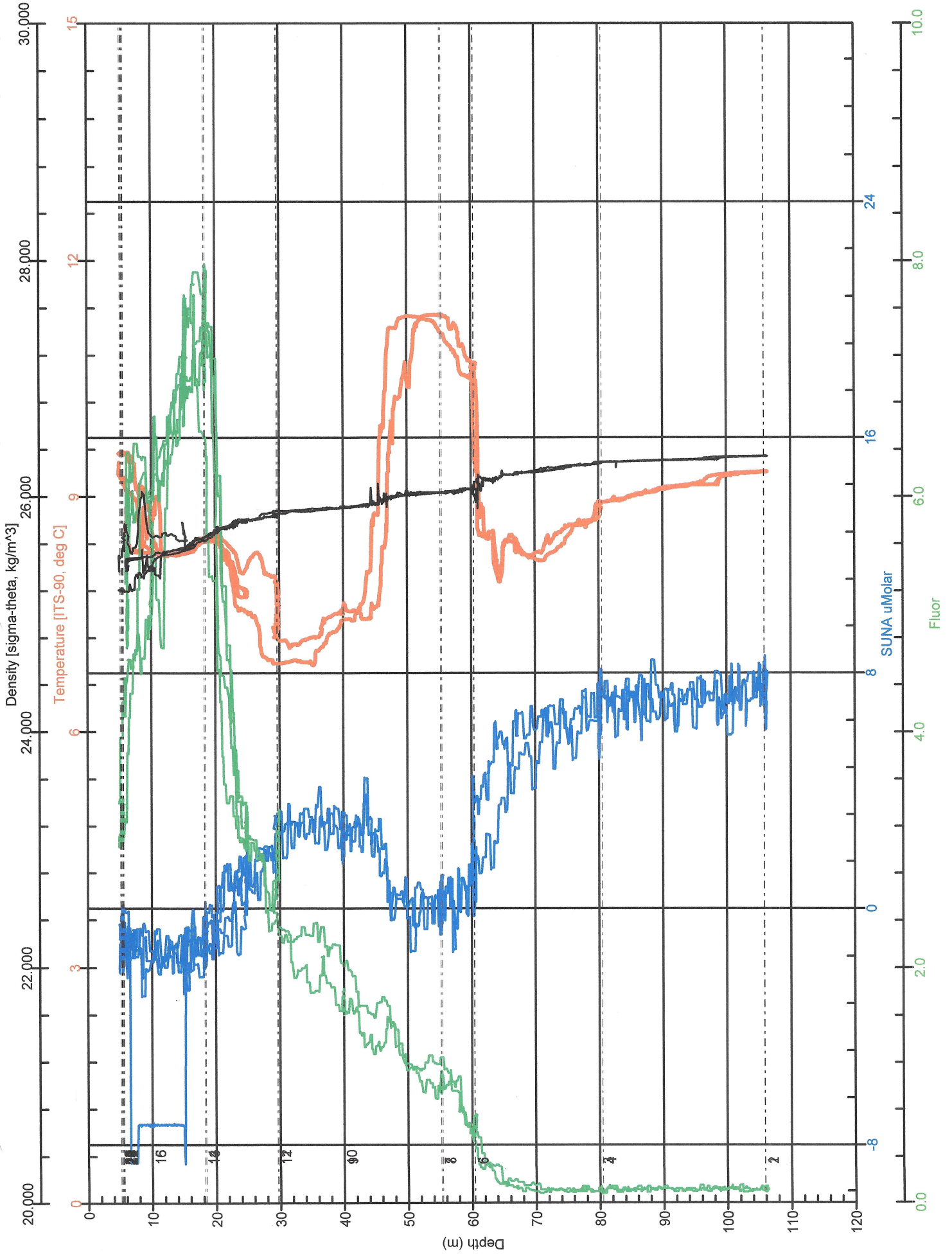
Revised - cleaned plumbing

18 30 40 60 80 106
18 106

RB1904-050.1 Prim sensors



RB1904-050.hex: N Date: np-FL vs depth



RB1904 CTD Cast Sheet

Station Number: NS2 CTD cast #: 051 Transect #: 16
 Start time (UTC): 0134 End time (UTC): _____ Bottom Depth: 132
 Start date (UTC): 20190518 End date (UTC): 20190518 Initials: MS

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	121 ✓		✓										
	2	100 ✓		✓										
	3	100 ✓												
HS	4	80 ✓		✓		✓								
	5	80 ✓												
HS	6	60 ✓		✓		✓								
WS	7	60 ✓						✓				✓		
HS	8	40 ✓		✓		✓								
WS	9	40 ✓						✓				✓		
HS	10	30 ✓		✓		✓								
WS	11	30 ✓						✓				✓		
HS	12	16 ✓		✓		✓			✓	✓			✓	✓
WS	13	16 ✓						✓				✓		
DC	14	16 ✓												
WS	15	10 ✓		✓		✓		✓				✓		
HS	16	10 ✓												
WS	17	SURF ✓		✓		✓	✓	✓	✓	✓		✓	✓	✓
HS, ZS	18	✓		✓										
DC	19	✓												
	20	✓												
	21	✓												
	22	✓												
	23	✓												
	24	surf ✓												
	Sampler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab 16m Chl MAC

RB1904 CTD Cast Sheet

Station Number: N83 CTD cast #: 052 Transect #: 16
 Start time (UTC): 0301 End time (UTC): 0331 Bottom Depth: 146
 Start date (UTC): 20190518 End date (UTC): 20190518 Initials: MS

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	13.7 ✓		✓										
	2	120 ✓		✓										
	3	100 ✓		✓										
	4	80 ✓		✓										
	5	80 ✓												
HS	6	60 ✓		✓		✓								
WS	7	60 ✓						✓				✓		
DC	8	46 ✓												
DC	9	46 ✓												
HS	10	46 ✓		✓		✓	✓		✓	✓			✓	✓
WS	11	48 ✓						✓				✓		
HS	12	31 ✓		✓		✓	✓		✓	✓			✓	✓
WS	13	31 ✓												
HS	14	20 ✓		✓		✓	✓		✓	✓			✓	✓
WS	15	20 ✓						✓				✓		
HS	16	16 ✓		✓		✓								
WS	17	16 ✓						✓				✓		
ZS, HS	18	Sfc ✓	✓	✓		✓	✓		✓	✓			✓	
WS	19							✓				✓		✓
	20													
	21													
	22													
DC	23													
DC	24													
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300

Floating: Chl max, 10mab

SUNN output dropped out at 44 dbars.

on uptrace at

RB1904 CTD Cast Sheet

Station Number: EW2 CTD cast #: 053 Transect #: 16
 Start time (UTC): 04:36:53 End time (UTC): 05:15:38 Bottom Depth: 198
 Start date (UTC): 05/18/2019 End date (UTC): 5/18/2019 Initials: HO

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
10mab	1	188		✓										
WS	10mab	2												
	3	150		✓										
WS	4	150												
	5	120		✓										
	6	100		✓										
HS	7	70		✓		✓								
WS	8	70												
HS	9	55		✓		✓								
WS	10	55						✓				✓		
HS	11	40		✓		✓								
WS	12	40						✓				✓		
HS	13	30		✓		✓								
WS	14	30						✓				✓		
HS	chl max	18		✓		✓			✓	✓			✓	✓
WS	16	18						✓				✓		
CS	17	18												
	18	18												
HS	19	10		✓		✓								
WS	20	10						✓				✓		
HS	21	sfc	✓	✓		✓	✓		✓	✓			✓	✓
WS	22	sfc						✓				✓		
CS	23	sfc												
	24	sfc												
	Sampler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab ✓ Sfc 10 20 30 40 60 70 80 100 120 150 200 250 300
 188m Sfc 20 30 40 55 70 80 100 120 150 200 250 300
 Sfc 20 30 40 55 70 80 100 120 150 200 250 300

RB1904 CTD Cast Sheet

Station Number: NS4 CTD cast #: 054 Transect #: 16
 Start time (UTC): 06:34 End time (UTC): 07:04 Bottom Depth: 317
 Start date (UTC): 2019-05-18 End date (UTC): 2019-05-18 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
10mab	1	301		✓										
	2	250		✓										
	3	200		✓										
	4	150		✓										
	5	120		✓										
WS	6	100		✓										
WS, HS	7	80		✓		✓								
HS	8	60		✓		✓			✓	✓				
WS	9	60						✓				✓		
HS	10	40		✓		✓								
WS	11	40						✓				✓		
HS	12	30		✓		✓			✓	✓			✓	
WS	13	30						✓				✓		
HS	14	20		✓		✓			✓	✓			✓	
WS	15	20						✓				✓		
HS	16	10		✓		✓			✓	✓			✓	✓
WS	17	10						✓				✓		
	18	sfc	✓	✓		✓	✓		✓	✓			✓	✓
	19	sfc						✓				✓		
	20													
	21													
	22													
	23													
	24													
	Sampl													

Sampling depths – Fixed: sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300 ✓
Floating: Chl max, 10mab sfc, 10, 20, 30, 40, 60 ✓

RB1904 CTD Cast Sheet

Station Number: NS5 CTD cast #: 055 Transect #: 16
 Start time (UTC): 08-04 End time (UTC): 08:26 Bottom Depth: 450
 Start date (UTC): 2019-05-18 End date (UTC): 2019-05-18 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	300		✓										
	2	246		✓										
	3	200		✓										
	4	150		✓										
	5	120		✓										
WS	6	100		✓										
WS	7	80												
	8	80		✓										
WS	9	60						✓				✓		
HS	10	60		✓		✓								
WS	11	40						✓				✓		
HS	12	40		✓		✓								
WS	13	30						✓				✓		
HS	14	30		✓		✓			✓	✓			✓	
WS	15	20						✓				✓		
HS	16	20		✓		✓			✓	✓			✓	✓
WS	17	10						✓				✓		
HS	18	10		✓		✓			✓	✓			✓	
WS	19	sfc						✓				✓		
HS	20	sfc	✓	✓		✓	✓		✓	✓			✓	✓
	21	sfc												
	22													
	23													
	24													
	Sampler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300 ✓
Floating: Chl max, 10mab sfc 10, 20, 30, 40, 60, 80 ✓
 sfc

RB1904 CTD Cast Sheet

Station Number: NS6A CTD cast #: 057 Transect #: 16
 Start time (UTC): 11:10 End time (UTC): 11:43 Bottom Depth: 1070
 Start date (UTC): 2019-05-18 End date (UTC): 2019-05-18 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	500		✓										
	2	300		✓										
	3	250		✓										
	4	200		✓										
	5	150		✓										
	6	120		✓										
	7	100		✓										
	8	80		✓										
	9	56		✓	✓	✓		✓				✓		
	10	56												
	11	37		✓	✓	✓		✓	✓	✓		✓	✓	
	12	37												
	13	24		✓	✓	✓		✓	✓	✓		✓	✓	✓
Chl max	14	24												
	15	24												
	16	16		✓	✓	✓		✓	✓	✓		✓	✓	
	17	16												
	18	11		✓	✓	✓		✓				✓		
	19	11												
	20	6		✓	✓	✓		✓				✓		
	21	6												
	22	sfc	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DC	23	sfc												
	24	sfc												
	Sampler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300, 600

Floating: Chl max, 10mab

0 6 11 16 24 37 56
 0 6 11 16 24 37 56
 0 24

RB1904 CTD Cast Sheet

Station Number: EW7 CTD cast #: 058 Transect #: 18
 Start time (UTC): 1353 End time (UTC): _____ Bottom Depth: 207
 Start date (UTC): 20190518 End date (UTC): 20190518 Initials: MS

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
	1	195 ✓		✓										
	2	150 ✓		✓										
	3	120 ✓		✓										
	4	100 ✓		✓								✓		
ZS	5	80 ✓	✓											
	6	80 ✓		✓								✓		
ZS	7	57 ✓	✓											
	8	57 ✓		✓		✓						✓		
ZS	9	38 ✓	✓											
	10	38 ✓		✓		✓			✓	✓		✓	✓	
	11	25 ✓												
	12	25 ✓		✓		✓			✓	✓		✓	✓	
	13	16 ✓		✓		✓			✓	✓		✓	✓	✓
	14	16 ✓												
	15	16 ✓												
ZS	16	16 ✓	✓											
	17	11 ✓		✓		✓						✓		
	18	11 ✓												
	19	6 ✓		✓		✓						✓		
	20	6 ✓												
ZS	21	Surf ✓	✓											
	22	Surf		✓		✓	✓		✓	✓		✓	✓	✓
	23	Surf												
	24	Surf												
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
Floating: Chl max, 10mab

RB1904 CTD Cast Sheet

Station Number: EW 8 CTD cast #: 059 Transect #: 18
 Start time (UTC): 15 End time (UTC): _____ Bottom Depth: 244
 Start date (UTC): 20190518 End date (UTC): 20190518 Initials: MS

Floater ID	Bottle	Target Depth	TOI	Nuts	¹⁴ C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO ₂	C/N	FCM	IFCB
HS	1	234 ✓		✓										
HS	2	200 ✓		✓										
HS	3	150 ✓		✓										
HS	4	120 ✓		✓										
HS/WS	5	100 ✓		✓										
HS	6	80 ✓		✓		✓								
WS	7	80 ✓												
HS	8	60 ✓		✓		✓								
WS	9	60 ✓												
HS	10	40 ✓		✓		✓								
WS	11	40 ✓												
HS	12	27 ✓		✓		✓			✓	✓			✓	✓
WS	13	27 ✓												
CS	14	27 ✓												
HS	15	20 ✓		✓		✓								
WS	16	20 ✓												
HS	17	10 ✓		✓		✓								
WS	18	10 ✓												
HS	19	Surf ✓		✓		✓	✓		✓	✓			✓	✓
WS	20	Surf ✓												
CS	21	Surf ✓												
	22	Surf ✓												
	23	Surf ✓												
	24	Surf ✓												
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 150, 200, 250, 300
Floating: Chl max, 10mab *Chl max 28m. SWNA output ~ zero entire cast.*

