

RB1904 CTD Cast Sheet

Station Number: A15 CTD cast #: 091 Transect #: 47
 Start time (UTC): 06:20:53 End time (UTC): 7:00:20 Bottom Depth: 1125 m
 Start date (UTC): 5/22/19 End date (UTC): 5/22/19 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
HS	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	30		✓		✓			✓	✓			✓	✓
WS	15	30						✓				✓		
HS	16	20		✓		✓								
WS	17	20						✓				✓		
HS	18	10		✓		✓								
WS	19	10						✓				✓		
HS	20	sfc	✓	✓		✓	✓		✓	✓			✓	✓
WS	21	sfc						✓				✓		
	22	sfc												
	23													
	24													
	Sam pler													

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

(new forge part on main CTD needed to be cleared before this cast)

salinity diff -0.005 @ 30
 -0.004 @ 100m

RB1904 CTD Cast Sheet

Station Number: A14 CTD cast #: 092 Transect #: 47
 Start time (UTC): 08:00 End time (UTC): 08:34 Bottom Depth: 695
 Start date (UTC): 2019-05-22 End date (UTC): 2019-05-22 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
HS	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	30		✓		✓	✓		✓	✓			✓	✓
WS	15	30						✓				✓		
HS	16	20		✓		✓	✓		✓	✓			✓	✓
WS	17	20						✓				✓		
HS	18	10		✓		✓	✓		✓	✓			✓	
WS	19	10						✓				✓		
HS	20	sfc	✓	✓		✓	✓		✓	✓			✓	✓
WS	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 sfc 10 20 30 40 60 80 100

salinity diff
 -0.004 @ 100 m
 -0.004 @ 200 m

RB1904 CTD Cast Sheet

Station Number: A13 CTD cast #: 093 Transect #: 47
 Start time (UTC): 09:21 End time (UTC): 10:05 Bottom Depth: 480
 Start date (UTC): 2019-05-22 End date (UTC): 2019-05-22 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
HS	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						slight leak off of bottom o-ring						
HS	14	30		✓		✓								
WS	15	30						✓				✓		
HS	16	19		✓		✓			✓	✓			✓	✓
WS	17	19						✓				✓		
DC	18	19												
HS	19	10		✓		✓								
WS	20	10						✓				✓		
HS	21	sfc	✓	✓		✓	✓		✓	✓			✓	✓
WS	22	sfc						✓				✓		
DC	23	sfc												
	24													
	Sampler													

Sampling depths – Fixed: Sfc, 10^v, 20^v, 30^v, 40^v, 60^v, 80^v, 100^v, 120^v, 150^v, 200^v, 250^v, 300^v
Floating: Chl max, 10mab sfc 10^v 19^v 30^v 40^v 60^v 80^v 100^v
 DC sfc 19^v 19^v

RB1904 CTD Cast Sheet

Station Number: A12 CTD cast #: 094 Transect #: 47
 Start time (UTC): 10:50 End time (UTC): 11:15 Bottom Depth: 287
 Start date (UTC): 2019-05-22 End date (UTC): 2019-05-22 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
HS	1	274		✓										
↓	2	200		✓										
↓	3	150		✓										
↓	4	120		✓										
HS, WS	5	100		✓				✓				✓		
HS, WS	6	80		✓				✓				✓		
NS/HS	7	50		✓	✓	✓		✓				✓		
WS/HS	8	34		✓	✓	✓		✓				✓		
WS/HS	9	22		✓	✓	✓		✓				✓		
DC	10	22												
DC	11	22												
	12	22												
NS/HS	13	14		✓	✓	✓		✓				✓		
	14	14												
WS/HS	15	10		✓	✓	✓		✓	✓	✓		✓	✓	✓
DC	16	10												
DC	17	10												
	18	10												
WS/HS	19	5		✓	✓	✓		✓				✓		
DC	20	5												
DC	21	5												
	22	5												
WS/HS	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 5 10 14 22 34 50 274
 DC 5 10 22
 DC 5 10 22
 0 5 10 14 22

RB1904 CTD Cast Sheet

Station Number: A11 CTD cast #: 095 Transect #: 47
Start time (UTC): 12:03 End time (UTC): _____ Bottom Depth: 150
Start date (UTC): 2019-05-22 End date (UTC): 2019-05-22 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
HS	10mab	142		✓										
HS		120		✓										
HS, WS		100		✓				✓				✓		
HS, WS		80		✓				✓				✓		
		80												
WS/HS		50		✓	✓	✓		✓				✓		
		50												
WS/HS		33		✓	✓	✓		✓				✓		
		33												
WS/HS		22		✓	✓	✓		✓				✓		
		22												
WS/HS		14		✓	✓	✓		✓				✓		
		14												
WS/HS		10		✓	✓	✓		✓	✓	✓		✓	✓	✓
		10												
WS/HS		5		✓	✓	✓		✓				✓		
		5												
WS/HS		sfc	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
		sfc												
		sfc												
	Sampler													

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

0' 5' 10' 14' 22' 33' 50' 80' 142'
0' 5' 10' 14' 22' 33' 50'
0'

RB1904 CTD Cast Sheet

Station Number: A10 CTD cast #: 096 Transect #: 47
 Start time (UTC): 132600 End time (UTC): _____ Bottom Depth: 138
 Start date (UTC): 20190522 End date (UTC): 20190522 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	SALT	
HS	1	128 ✓		✓												E1 E2 E3
HS	2	100 ✓		✓												E4 E5 E6
WS	3	100 ✓						✓				✓				E7 E8
HS	4	80 ✓		✓								✓				
WS	5	80 ✓						✓				✓				
HS	6	60 ✓		✓		✓										
WS	7	60 ✓						✓				✓				
HS	8	40 ✓		✓		✓										
WS	9	40 ✓						✓				✓				
HS	10	30 ✓		✓		✓										
WS	11	30 ✓						✓				✓				
HS	12	21 ✓		✓		✓			✓	✓			✓	✓		
WS	13	21 ✓						✓				✓				
HS	14	10 ✓		✓		✓										
WS	15	10 ✓						✓				✓				
HS	16	surf ✓	✓	✓		✓	✓		✓	✓			✓	✓		
WS	17	surf ✓						✓				✓				
	18	surf ✓														
	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 Sdt pre = -0.005. Chl max = 21.

up to surf & out. pump go off. ~ 40 up, Sdt suggests primary plumbing slow - tdt,

Sdt shows powder on until out of water.

RB1904 CTD Cast Sheet

Station Number: A09 CTD cast #: 097 Transect #: 47
 Start time (UTC): 1442 End time (UTC): 1501 Bottom Depth: ~130
 Start date (UTC): 20190522 End date (UTC): 20190522 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	119 ✓		✓										
M	2	110 ✓												
HS	3	100 ✓		✓										
WS	4	100 ✓						✓				✓		
HS	5	80 ✓		✓										
WS	6	80 ✓						✓				✓		
HS	7	60 ✓		✓		✓								
WS	8	60 ✓						✓				✓		
HS	9	40 ✓		✓		✓								
WS	10	40 ✓						✓				✓		
HS	11	27 ✓		✓		✓			✓	✓			✓	✓
WS	12	27 ✓						✓				✓		
HS	13	20 ✓		✓		✓								
WS	14	20 ✓						✓				✓		
HS	15	10 ✓		✓		✓								
WS	16	10 ✓						✓				✓		
HS	17	surf ✓	✓	✓		✓	✓		✓	✓			✓	✓
WS	18	surf ✓						✓				✓		
	19	surf ✓												
	20													
	21													
	22													
	23													
	24													
	Sampler													

SALT
 29.61
 E14
 E11
 0.125

Chl max ~26.
Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
 Floating: Chl max, 10mab *PRIOR TO CAST - CLEANED PRI PLUMBING PATH - removed & inspected primary pump, cleaned both purgeplugs (done every cast) - found krill in primary purge plug top @ hole - photo - Rostle 1100 lbs in H₂O at 3m depth - average of heave.*

RB1904 CTD Cast Sheet

Station Number: A8 CTD cast #: 098 Transect #: 47
 Start time (UTC): 154 End time (UTC): _____ Bottom Depth: ~122
 Start date (UTC): 20190522 End date (UTC): 20190522 Initials: MS

1605 come up from 112

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	112 ✓		✓										
↓	2	100 ✓		✓				✓				✓		
↓	3	80 ✓		✓		✓		✓				✓	✓	
WS, HS	4	63 ✓		✓		✓								
	5	63 ✓			✓			✓				✓		
WS, HS	6	42 ✓		✓	✓	✓		✓				✓	✓	
DC	7	42 ✓												
DC	8	42 ✓												
WS, HS	9	27 ✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
DC	10	27 ✓												
DC	11	27 ✓												
CP	12	27 ✓												
CP	13	27 ✓												
WS, HS	14	17 ✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	15	17 ✓												
WS, HS	16	13 ✓		✓	✓	✓		✓				✓		
	17	13 ✓												
DC	18	6 ✓												
DC	19	6 ✓												
WS, HS	20	6 ✓		✓	✓	✓		✓				✓		
	21	SURF ✓												
	22	SURF ✓												
	23	SURF ✓												
WS, HS, ZS	24	SURF ✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Sampler													

chl max 27 m
Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300
 Floating: Chl max, 10mab

grazing water collection

RB1904 CTD Cast Sheet

Station Number: A8 CTD cast #: 099 Transect #: 457
 Start time (UTC): 17:50:58 End time (UTC): 17:57:08 Bottom Depth: 117
 Start date (UTC): 20160522 End date (UTC): 20160522 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	27												
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	9													
	10													
	11													
	12													
	13													
	14													
	15													
	16													
	17													
	18													
	19													
	20													
	21													
	22													
	23													
	24	27												
	Sam pler													

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

by Gordon Zhang

RB1904 CTD Cast Sheet

Station Number: A7 CTD cast #: 100 Transect #: 49
 Start time (UTC): 05:23 End time (UTC): 05:40 Bottom Depth: 100
 Start date (UTC): 2019-05-23 End date (UTC): 2019-05-23 Initials: WZ

* NEW XMLCON FILE STARTING THIS STATION - VER 8.0 - NEW SECONDARY

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	92		✓										
10mab	2	92						✓				✓		
	3	80		✓										
	4	80						✓				✓		
	5	60		✓		✓								
	6	60						✓				✓		
	7	40		✓		✓								
	8	40						✓				✓		
chlmax	9	30		✓		✓			✓				✓	✓
chlmax	10	30						✓				✓		
	11	20		✓		✓								
	12	20						✓				✓		
	13	10		✓		✓								
	14	10						✓				✓		
	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

sfc 10 20 30 40 60 80 92 92

salinity difference: -0.012 psu

RB1904 CTD Cast Sheet

Station Number: A6 CTD cast #: 101 Transect #: 49
 Start time (UTC): 06:33 End time (UTC): 06:47 Bottom Depth: 89
 Start date (UTC): 2019-05-23 End date (UTC): 2019-05-23 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	78		✓										
10mab	2	78						✓				✓		
	3	60		✓		✓								
	4	60						✓				✓		
	5	40		✓		✓								
	6	40						✓				✓		
chlmax	7	25		✓		✓			✓				✓	✓
chlmax	8	25						✓				✓		
	9	20		✓		✓								
	10	20						✓				✓		
	11	10		✓		✓								
	12	10						✓				✓		
	13	sfc	✓	✓		✓	✓		✓				✓	✓
	14	sfc						✓				✓		
	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 ✓ 20 ✓ 25 ✓ 40 ✓ 60 ✓ 78 ✓
 sfc 25 ✓ 78 ✓ salinity difference: -0.012

RB1904 CTD Cast Sheet

Station Number: A5 CTD cast #: 102 Transect #: 50
 Start time (UTC): 10:22 End time (UTC): 10:35 Bottom Depth: 80
 Start date (UTC): 2019-05-23 End date (UTC): 2019-05-23 Initials: WJ

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	70						✓				✓		
10mab	2	70												
WS/HS	3	44			✓			✓				✓		
DC	4	44												
DC	5	44												
	6	44												
Chlmax WS/HS	7	29			✓			✓				✓		
DC	8	29												
DC	9	29												
	10	29												
WS/HS	11	18			✓			✓				✓		
	12	18												
WS/HS	13	13			✓			✓				✓		
	14	13												
WS/HS	15	6			✓			✓				✓		
DC	16	6												
DC	17	6												
	18	6												
WS/HS	19	Srf			✓			✓				✓		
ZS	20	Srf	✓											
	21	Srf												
	22													
	23													
	24													
	Sampler													

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

Floating: Chl max, 10mab

0 6 13 18 29 44 70
 DC 6 29 44
 DC 6 29 44
 - 0 6 13 18 29 44 70
 ZS 0

Salinity difference: -0.012

RB1904 CTD Cast Sheet

Station Number: NS4 CTD cast #: 103 Transect #: 60
 Start time (UTC): 23:20 End time (UTC): 23:55 Bottom Depth: 310
 Start date (UTC): 2019-05-23 End date (UTC): 2019-05-23 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
10mab	1	302		✓										
	2	250		✓										
	3	200		✓										
	4	150		✓										
	5	120	✓	✓										
	6	100	✓	✓										
	7	100												
	8	80	✓	✓		✓								
	9	80												
	10	60	✓	✓		✓								
	11	52		✓		✓	✓		✓				✓	✓
	12	40	✓	✓		✓							✓	
	13	40												
	14	30		✓		✓	✓		✓				✓	
	15	20												
	16	20	✓	✓		✓	✓		✓				✓	✓
JT	17	10												
JT	18	10												
	19	10												
	20	10		✓		✓	✓		✓				✓	
	21	sfc												
	22	sfc												
	23	sfc												
	24	sfc	✓	✓		✓	✓		✓				✓	✓
	Sampler													

SACT
 Bottle
 E
 E
 E
 E

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

JT sfc
 JT 10
 ZS sfc 20
 DC sfc 40 52 80 100

302

grazing water collection

RB1904 CTD Cast Sheet

Station Number: NS4 CTD cast #: 104 Transect #: 60
 Start time (UTC): 0120 End time (UTC): 0126 Bottom Depth: 30
 Start date (UTC): 20190524 End date (UTC): 20190524 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	10	/	✓										
	2	10	/	✓										
	3		/											
	4		/	✓										
	5		/											
	6		/	✓										
	7		/											
	8		/	✓		✓								
	9		/											
	10		/	✓		✓								
	11		/											
	12		/	✓		✓			✓				✓	✓
	13		/											
	14		/	✓										
	15		/											
	16		/	✓		✓								
	17		/											
	18		/	✓		✓	✓		✓				✓	✓
	19		/											
	20		/											
	21		/											
	22		/											
	23		/											
	24	10	/											
	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: NS3 CTD cast #: 105 Transect #: 62
 Start time (UTC): 0338 End time (UTC): 0400 Bottom Depth: 151
 Start date (UTC): 20190524 End date (UTC): 20190524 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	140 ✓												
	2	120 ✓												
	3	100 ✓												
	4	100 ✓												
	5	80 ✓												
	6	80 ✓												
	7	60 ✓												
	8	60 ✓												
	9	40 ✓												
	10	40 ✓												
	11	20 ✓												
	12	20 ✓												
	13	20 ✓												
	14	20 ✓												
	15	20 ✓												
	16	10 ✓												
	17	10 ✓												
	18	SURF ✓												
	19	SURF ✓												
	20	SURF ✓												
	21	SURF ✓												
	22	SURF ✓												
	23	SURF ✓												
	24	SURF ✓												
	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: NS5 CTD cast #: 107 Transect #: 62
 Start time (UTC): 0711 End time (UTC): 0742 Bottom Depth: 448
 Start date (UTC): 2019-05-24 End date (UTC): 2019-05-24 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	✓	✓										
ZS	7	100												
	8	80	✓	✓										
ZS	9	80												
	10	60	✓	✓		✓								
ZS	11	60												
	12	40	✓	✓		✓								
ZS	13	40												
	14	30		✓		✓								
	15	30												
chl max	16	20	✓	✓		✓			✓				✓	✓
ZS	17	20												
DC	18	20												
	19	20												
	20	10		✓		✓								
	21	10												
HS/ZS	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 ZS 0 20 40 60 80 100 ✓
 DC 0 20
 10 20 30

RB1904 CTD Cast Sheet

Station Number: NS6 CTD cast #: 108 Transect #: 62
 Start time (UTC): 09:00 End time (UTC): 0935 Bottom Depth: 770
 Start date (UTC): 2019-05-24 End date (UTC): 2019-05-24 Initials: WJ

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												
	8	80	✓	✓										
	9	80												
	10	60	✓	✓		✓								
	11	60												
	12	40	✓	✓		✓								
	13	40												
	14	30		✓		✓								
chlmax	15	20	✓	✓		✓			✓				✓	✓
ZS	16	20												
JT	17	20												
JT	18	20												
DC	19	20												
	20	20												
	21	10		✓		✓								
ZS	22	sfc	✓											
	23	sfc		✓		✓	✓		✓				✓	✓
DC	24	sfc												
	Sampl													

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

ZS sfc 20' 40' 60' 80' 100'
 JT 20'
 JT 20'
 DC sfc 20'
 DC 20'

RB1904 CTD Cast Sheet

grazing water collection

Station Number: NS6 CTD cast #: 109 Transect #: 62
 Start time (UTC): 10:56 End time (UTC): 11:00 Bottom Depth: 765
 Start date (UTC): 2019-05-24 End date (UTC): 2019-05-24 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	20												
	2	20												
	3													
	4													
	5													
	6													
	7													
	8													
	9													
	10													
	11													
	12													
	13													
	14													
	15													
	16													
	17													
	18													
	19													
	20													
	21													
	22													
	23	20												
	24	20												
	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: A18 CTD cast #: 110 Transect #: 64
 Start time (UTC): 1314 End time (UTC): 1351 Bottom Depth: 2285
 Start date (UTC): 20190524 End date (UTC): 20190524 Initials: MS

CAST BOTTOM 500, up to first bottle at 300

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 ✓												
	8	80 ✓												
	9	80 ✓												
	10	60 ✓												
	11	60 ✓												
	12	40 ✓												
	13	40 ✓												
	14	33 ✓												
	15	33 ✓												
	16	33 ✓												
	17	20 ✓												
	18	20 ✓												
	19	10 ✓												
	20	10 ✓												
	21	surf ✓												
	22	✓												
	23	✓												
	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: A17 CTD cast #: 111 Transect #: 64
 Start time (UTC): 1443 End time (UTC): 1523 Bottom Depth: 2120
 Start date (UTC): 20190524 End date (UTC): 20190524 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	150 ✓												
	5	120 ✓												
	6	100 ✓												
	7	100 ✓												
	8	80 ✓												
	9	80 ✓												
	10	60 ✓												
	11	60 ✓												
	12	40 ✓												
	13	40 ✓												
	14	30 ✓												
	15	30 ✓												
	16	25 ✓												
	17	25 ✓												
	18	25 ✓												
	19	10 ✓												
	20	10 ✓												
	21	surface ✓												
	22	↓												
	23	↓												
	24	↓ surface ✓												
	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: A16 CTD cast #: 112 Transect #: 64
 Start time (UTC): 1646 End time (UTC): 1728 Bottom Depth: 1825'
 Start date (UTC): 20190524 End date (UTC): 20190524 Initials: ms

CAST DEPTH 500, BOTTLES @ 300 fup.

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	80 ✓												
	8	80 ✓												
	9	60 ✓												
	10	60 ✓												
	11	40 ✓												
	12	40 ✓												
	13	30 ✓												
	14	30 ✓												
	15	25 ✓												
	16	25 ✓												
	17	25 ✓												
	18	10 ✓												
	19	10 ✓												
	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

Draw 10 @ Surf, 10 chl max

25ch Max

RB1904 CTD Cast Sheet

Station Number: A15 CTD cast #: 113 Transect #: 64
 Start time (UTC): 18:10 End time (UTC): 19:45 Bottom Depth: 1115
 Start date (UTC): 20190524 End date (UTC): 20190524 Initials: WJ

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	80												
	8	80												
	9	60												
	10	60												
	11	40												
	12	40												
Chlmax	13	33												
	14	33												
DC	15	33												
	16	20												
	17	20												
	18	10												
	19	10												
	20	sfc												
	21	sfc												
	22	sfc												
	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
 0 ✓ 10 ✓ 20 ✓ 33 ✓ 40 ✓ 60 ✓ 80 ✓
 0 ✓ 33 ✓
 0 ✓ 33 ✓

RB1904 CTD Cast Sheet

Station Number: A14 CTD cast #: 114 Transect #: 04
 Start time (UTC): 20:40 End time (UTC): 21:20 Bottom Depth: 689
 Start date (UTC): 2019-05-24 End date (UTC): 2019-05-24 Initials: WJZ

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	80												
	8	80												
	9	60												
	10	60												
	11	40												
	12	40												
	13	30												
	14	30												
Chl max	15	25												
	16	25												
	17	25												
	18	10												
	19	10												
	20	sfc												
	21	sfc												
	22	sfc												
	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

0 10 25 30 40 60 80
 0 25
 0
 0

RB1904 CTD Cast Sheet

Station Number: A13 CTD cast #: 115 Transect #: 64
 Start time (UTC): 22:19:02 End time (UTC): _____ Bottom Depth: ~45.5
 Start date (UTC): 20190524 End date (UTC): 20190524 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													
	7	80													
	8	80													
	9	60													
	10	60													
	11	45													
	12	45													
	13	30													
	14	30													
	15	20													
	16	20													
	17	10													
	18	10													
	19	10													
	20	surf													
	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

RB1904 CTD Cast Sheet

Station Number: A12 CTD cast #: 116 Transect #: 64
 Start time (UTC): 2348 End time (UTC): 0019 Bottom Depth: 268
 Start date (UTC): 20190524 End date (UTC): 20190525 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	250 ✓												
	2	200 ✓												
	3	150 ✓												
	4	120 ✓												
	5	100 ✓												
	6	80 ✓												
	7	80 ✓												
	8	60 ✓												
	9	60 ✓												
	10	40 ✓												
	11	40 ✓												
	12	30 ✓												
	13	30 ✓												
	14	20 ✓												
	15	20 ✓												
	16	13 ✓												
	17	13 ✓												
	18	chl 5												
	19	no 5												
	20	5												
	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: A11 CTD cast #: 117 Transect #: 64
 Start time (UTC): 0106 End time (UTC): 0122 Bottom Depth: 152
 Start date (UTC): 20190525 End date (UTC): 20190525 Initials: MJS

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	140 ✓												
	2	120 ✓												
	3	100 ✓												
	4	80 ✓												
	5	60 ✓												
	6	60 ✓												
	7	40 ✓												
	8	40 ✓												
	9	30 ✓												
	10	30 ✓												
	11	20 ✓												
	12	20 ✓												
	13	15 ✓												
	14	15 ✓												
	15	Surf												
	16	Surf ✓												
	17	Surf												
	18	End												
	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

RB1904 CTD Cast Sheet

Station Number: A10 CTD cast #: 118 Transect #: 64
 Start time (UTC): 0200 End time (UTC): _____ Bottom Depth: 138
 Start date (UTC): 20190525 End date (UTC): 20190525 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	128 ✓												
	2	100 ✓												
	3	80 ✓												
	4	60 ✓												
	5	60 ✓												
207	6	36 ✓												
	7	36 ✓												
	8	36 ✓												
	9	30 ✓												
	10	30 ✓												
	11	20 ✓												
	12	20 ✓												
	13	10 ✓												
0214	14	10 ✓												
	15	surf ✓												
	16	surf ✓												
	17	surf ✓												
	18	surf ✓												
	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 chl 36

The last

RB1904 CTD Cast Sheet

Station Number: A8 CTD cast #: 119 Transect #: 64
Start time (UTC): 0321 End time (UTC): _____ Bottom Depth: 12311
Start date (UTC): 20190525 End date (UTC): 20190525 Initials: ms

0325 @ 112m depth

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	112 ✓												
	2	100 ✓												
	3	80 ✓												
	4	60 ✓												
	5	60 ✓												
	6	40 ✓												
	7	40 ✓												
	8	30 ✓												
	9	30 ✓												
	10	22 ✓												
	11	22 ✓												
	12	22 ✓												
	13	10 ✓												
	14	10 ✓												
	15	surf ✓												
	16	1 ✓												
	17	1 ✓												
	18	surf ✓												
	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 *chl max 23 up 22 dm.*