

Cruise: OC415-1		ET-3	Leg: 1	Cast: 1	Test Cast #1	Type: CTD cast	0-700m	Station 1										
Date: 20 June 2005		Time: 1933	Lat: 40° 45.19	Long: 70° 32.77	Samplers: Megan, Christine, Kevin C, Kevin W, Donglai													
Date: 20 June 2005		Time: 1943	Lat: 40° 45.31	Long: 70° 32.83														
N #	Depth all 20m	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON % DOP	Salts	Nuts	-Bact	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla Ppg	Flow Cyt non-pig	Flow Cyt pig	S ¹⁵ N 40L	NAP
				O ₂	O ₂ , O ₂													
1	0	8.2		101			1		1		13						1	1
2	0											1	1-1	1	1	1		
3	20	8.4		102		2	2		2		12							2
4	20											2	2	2	2	2		
5	40	8.3		103		3	3 +1		3		11							3
6	40											3	3	3	3	3		
7	60	8.6		104			4		4		10							4
8	60											4	4	4	4	4		
9	70	8.8		105		5	5		5		9							5
10	70												5-2	5		5		
11	80	8.8		106		6	6		6		8							6
12	80											5	6	6	5	6		
13	90	8.9		107		7	7		7		7		7-3	7		7		7
14	100	9.1		108		8	8		8		6							8
15	100											6	8	8	6	8		
16	10	9.2		109		9	9		9		5		9	9				9
17	20	8.7		110		10	10		10		4							10
18	20											7	10	10	7	9		
19	40	8.8		111		11	11		11		3							11
20	40											8	11	11	8	10		
21	200	8.8		112		12	12		12		2	9			9			12
22	300	8.5		113		13	13		13		1	10			10			13
23	500	8.4		114		14	14		14			11						14
24	700			115		15	15		15			12						15
												* 3L						

bottle 24 leaker - top oring not sealed
 bottle 9 bottom oring leak

Test cast - all O₂ taken
 no DIC
 all TOC/TON DOP taken
 all Nuts taken
 3 POC/PON, HPLC, Chla taken
 2 Flow cyt sp taken

all S¹⁵N taken

Cruise: OC4151- (E13)		Leg: 1		Cast: CTD#2 Test cast #2		Type: CTD 0-700m Station 2												
Date: 20 June 2005		Time: 0004		Lat: 40° 8.028		Long: 70° 6.228		Samplers:										
Date: 21 June 2005		Time: 0011		Lat: 40° 8.144		Long: 70° 6.490		Joe, Andy, Josh, Tom, Ilaria										
N #	Depth all	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON +POP	Salts	Nuts	Bact	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pig	Flowcyt nm pig		
				O2 ₁	O2 ₂ , O2 ₃													
1	0	8.8		115		1	15		15		3	4-1	4-1	4-4	4	4		
2	0											4-2	4-2	4-4	4	4		
3	20																	
4	20																	
5	40						+2											
6	40																	
7	60																	
8	60																	
9	70																	
10	70																	
11	80														5	5		
12	80																	
13	90	9.3		116		2			16		2	5-2	5-7	5-5	5	5		
14	100						16											
15	100											5-15						
16	110																	
17	120																	
18	20														6	6		
19	40																	
20	140												6-11					
21	200																	
22	300																	
23	500																	
24	700	9.5		117		3	17		17		1	6-3 ²⁴	6-3	6-6	6	6		
	*											4-3L						

*not correct depths
niskin? bottom can leak

NO water in niskin 13 after HPLC samples

sampled (Niskin) samples bottle #

Cruise: 0415-1		Leg: 1		Cast: CTD #3 Test Cast #3		Type: CTD 0-700m Station 3												
Date: 21 June 2005		Time: 2019		Lat: 37° 06.07		Long: 68° 05.45		Samplers: Diana, Olga, Megan, Christine, Valery										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON (DOP)	Salts	Nuts	Bact	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pis	Flow Cyt nampis	(15N 4.0L)	
				O2	O2, O3													
1	0	28.1		118		1	18		18		3							
2	0											7-2	7-2	7-1	7	7	2 (1.8)	
3	20																	
4	20																	
5	40						(*3)											
6	40																	
7	60																	
8	60																	
9	70																	
10	70																	
11	80														8	8		
12	80																	
13	90	25.1		119		2	19		19		2		8-13	8-2				
14	100						19											
15	100											8-15						
16	110																	
17	120																	
18	120														9	9		
19	140																	
20	140												9-20	9-3				
21	200																	
22	300																	
23	500																	
24	700	25.1		120		3	20		20		1	89-24						

sample got
dropped on the
floor

Cruise: 0115-1		Leg: 1		Cast: CTD #4 (5 casts)		Type: CTD 0-700m (WP # 3024) Station 4											
Date: 23 June 2005		Time: 0016		Lat: 33° 3.692 N		Long: 66° 29.853 W		Samplers: Andy, Flarin, Tom, Sarah, Joe, Megan, Dennis									
Date: 23 June 2005		Time: 0056		Lat: 33° 3.806 N		Long: 66° 29.266 W											
N #	Depth	Niskin Temp	Helium	Oxygens		DIG/AIK	TOC/TON * DOF	Salts	Nuts	-Bact-	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow-Cyt	N+P	S ¹⁵ N
				O ₂	O ₂ , O ₂												
1	0	25.0		101		1	21		21		13-13					1	2
2	0											10-2	10-2	10-1			
3	20	23.0		102		2	22		22		12-12					2	
4	20											11-4	11-4	11-2			
5	40	21.7		103		3	23+4		23		11-11					3	
6	40										11-11	12-6	12-6	12-3			
7	60	20.3		104		4	24		24		10-10					4	
8	60											13-8	13-8	13-4			
9	70	19.8		105		5			25		9-9					5	
10	70												14-10	14-5			
11	80	19.6		106		6	25		26		8-8					6	
12	80											14-10 ^N	15-12	15-6			
13	90	19.9		107		7			27		7-7		16-13	16-7		7	
14	100			108		8	26		28		6-6					8	
15	100										6-6	15-15	17-15	17-8			
16	110	19.2		109		9			29		5-5		18-16	18-9		9	
17	120	18.1		110		10	27		30		4-4					10	
18	120											16-18	19-18	19-10			
19	140	19.2		111		11	28		31		3-3					11	
20	140											17-20	20-20	20-11			
21	200	18.9		112		12	29		32		2-2	18-21				12	
22	300			113		13	30		33		1-1	19-23				13	
23	500	16.4		114		14	31		34			20-23				14	
24	700	13.5		115			32		35			21-24				15	

bottle 22 leaking top O-ring - replaced top O-ring
 bottle 5 valve open
 bottle 11 not gas tight - replaced top O-ring
 bottle 14 not gas tight - replaced top O-ring
 sensor on 19 - very noisy - replaced after cast

Cruise: OC415-1		Leg: 1		Cast: CTD #5		C5		Type: LTD (0-700m)		(wp. 3026)		Station 5				
Date: 23 June 2005		Time: 0846		Lat: 33 03.73 N		Long: 66 04.666 W		Samplers: Diana, Olga, Valery, Christine								
Date: 23 June 2005		Time: 0949		Lat: 33 3.498 N		Long: 66 4.117 W										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Batts	Nuts	Bact N&P	FRRF	POC/PON Vol=2L	HPLC Vol=4L	Chla	Flow-Cyt	δ ¹⁵ N
				O ₂	O ₂ , O ₃											
1	0	25.0		116			33		36	1	13-26	22-2				3
2	0											22-2	21-2	21-1		
3	20	22.3		117			34		37	2	12-25					
4	20											23-4	22-4	22-2		
5	40	✓		118			35*5		38	3	11-24		23-6			Oring leaking
6	40	21.5		118								24-6	23-6	23-3		
7	60	19.9		119			36		39	4	10-23					
8	60											25-8	24-8	24-4		
9	70	19.6		120					40	5	9-22					
10	70												25-10	25-5		bit of water lost at filtration.
11	80	/		121			37		41	6	8-21			26-6		leak Oring
12	80	19.6		121								26-12	26-12	26-12		
13	90	19.6		122					42	7	7-20		27-13	27-7		
14	100	19.6		123			38		43	8	6-19					
15	100											27-15	28-15	28-8		
16	110	19.5		124					44	9	5-18		29-16	29-9		
17	120	19.2		201			39		45	10	4-17					
18	120											27-18	30-18	30-10		
19	140	19.1		202			40		46	11	3-16					
20	140											29-20	31-20	31-11	31-11	
21	200	19.0		203			41		47	12	2-15	30-21				
22	300	19.0		204			42		48	13	1-14	31*-20 (slab)				
23	500	16.6		205			43		49	14		32*-23				
24	700	13.2		206			44		50	15		33*-24				
												*3L				

Cruise: OCE 415-1		Leg: 1		Cast: ^{TD*} 6		CS		Type: CTD (0-700m) Station #6 (3028)										
Date: 22 June 05		Time: 1204		Lat: 33° 03.691 N		Long: 65° 39.967 W		Samplers: Tom, Illaria, Andy, Christina.										
Date: 23 June 05		Time: 1256		Lat: 33° 03.715 N		Long: 65° 40.344 W												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON DOP	Salts	Nuts	Bact NAP	FRRF	POC/PON		HPLC		Chla	Flow Cyt	J15N
				O2	O2, O2s							Vol= 2	Vol= 4					
1	0	25.0		.207			.45	.51	1	13	-37							
2	0											-34	2	-32	-2	32	1	
3	20	22.4		.208			.46	.52	2	12	-38							
4	20											-35	4	-33	4	33	2	
5	40	20.9		.209			.47/06	.53	3	11	-37							
6	40											-36	6	34	6	34	3	
7	60	19.8		.210			.48	.54	4	10	-36							
8	60											-37	8	35	8	35	4	
9	70	19.6		.211			.49	.55	5	9	-35							
10	70													36	10	36	5	
11	80			.212			.49	.56	6	8	-34							→ leaking
12	80	19.6		.212								-38	12	37	12	37	6	→ SAMPLED FROM NISKIN (11)
13	90	19.5		.213				.57	7	7	-33			38	13	38	7	
14	100	19.4		.214			.50	.58	8	6	-32							
15	100											-39	15	39	15	39	8	
16	110	19.2		.215				.59	9	5	-33			40	16	40	9	
17	120	19.1		.216			.51	.60	10	4	-30							
18	120											-40	18	41	18	41	10	
19	140	19.0		.217			.52	.61	11	3	-27							
20	140											-41	20	42	20	42	11	
21	200	18.7		.218			.53	.62	12	2	-28			-42	21			
22	300			.219			.54	.63	13	1	-27			-43	22			niskin not fired
23	500	15.9		.220			.55	.64	14					-44	23			
24	700	13.0		.221			.56	.65	15					-45	24			
							15											
							12											
								15										
									13									
										12								
											11							

Cruise: OCE 415-1		Leg: 1		Cast: CTD# 7		C5		Type: CTD (0-700m) (w.p. 3030) Station # 7													
Date: 23 June 05		Time: 1516		Lat: 33° 03.710 N		Long: 65° 14.952 W		Samplers: Christine, Kevin C., Kevin W, Douglas, Megan													
Date: 23 June 2005		Time: 1551		Lat: 33° 03.775 N		Long: 65° 14.987 W															
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Diet	FRRF	POC/PON	HPLC	Chla	Flow Cyt	SISN					
				O2 ₁	O2 ₂ O2 ₃																
1	0	25.4		-222			-57		-66	1	13	3									
2	0																				
3	20	23.2		-224			-58		-67	2	12	52	46	2	43	2	43	1		7	
4	20												47	4	44	4	44	2			
5	40	22.4		-223			-59		-68	3	11	51									
6	40												48	6	45	5	45	3			
7	60	21.3		-21			-60		-69	4	10	50									
8	60												49	8	46	8	46	4			
9	70	broken		-22																	bottom seal leak
10	70	20.8		22					70	5	9	48		47	10	47	5				
11	80	20.4		-23			-61		-71	6	8	47									
12	80												50	12	48	10	48	6			
13	90	20.2		-24					-72	7	7	46		49	13	49	7				
14	100	20.0		-25			62		-73	8	6	45		*							
15	100												51	15	50	15	50	8			
16	110	19.9		-26					-74	9	5	44		51	16	51	9				
17	120	19.7		-28			63		-75	10	4	43									
18	120												52	18	52	18	52	10			
19	140	19.7		-29			64		-76	11	3	42									
20	140												53	20	53	20	53	11			
21	200	19.4		-30			65	DD1	-77	12	2	41	54	21							
22	300			-31			66	DD1	-78	13	1	40	55	22							22 Didn't fire
23	500	18.6		-32			67	DD2	-79	14			56	23							
24	700	14.8		-33			68	DD3	-80	15			57	24	2.5L						
				15			12+1	3	15	15	13		12		11		11				

Nickin N bottom O ring leak

Cruise: OC415-1		Leg: 1		Cast: CTD #9		C5-Center		Type: CTD (0-700 m)		Station #9 (w.p. 2968)						
Date: 24 June 2005		Time: 0133		Lat: 32° 52.676 N		Long: 65° 52.110		Samplers: Kevin W, Kevin C, Donglai, Josh, Ilaria, Megan								
Date: 24 June 2005		Time: 0208		Lat: 32° 52.558		Long: 65° 52.936										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON +DOP	Salts	Nuts	Bact	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow-Cyt	SN'S
				O ₂	O ₂ , O ₃											
1	0	25.0		101	116,117	15	69		81	1	13					8
2	0											58-2	54-2	54-1		
3	20	22.1		102		16	70		82	2	12					
4	20											59-4	55-4	55-2		
5	40	21.0		103		17	71*8		83	3	11					
6	40											60-6	56-6	56-3		
7	60	19.5		104		18	72		84	4	10					
8	60											61-8	57-8	57-4		
*9	70	19.3		105		19			85	5	9					
10	70												58-10	58-5		
*11	80	17.2		106		20	73		86	6	8	62-12	59-12	59-6		
12	80	17.2		106		20	73		86	6	8	62-12	59-12	59-6		
13	90	17.0		107		21			87	7	7		60-13	60-7		
14	100	17.0		108		22	74		88	8	6					
15	100											63-15	61-15	61-8		
16	110	18.9		109		23			89	9	5		62-16	62-9		
17	120	18.9		110		24	75		90	10	4					
18	120											64-18	63-18			
19	140	18.7		111		25	76		91	11	3			63-10		
20	140											65-20	64-20			
21	200	18.4		112		26	77		92	12	2	66-21		64-11		
22	300	17.8		113		27	78		93	13	1 54	67-22				
23	500	14.8		114		28	79		94	14		68*-23				
24	700	11.2		115			80		95	15		69*-24				
												*3L				

McNeil/
Horne
Surface O₂
samples

118 }
119 } temp
120 } 26.0

Niskin 9 bottom cap leak
11 not gas tight-top O-ring
22 bottom cap leak

Cruise: 00415-1		Leg: 1		Cast: CTD # 10			Type: CTD A4 center station 10 (w.p. 2379)									
Date: 25 June 2005		Time: 0658		Lat: 31° 5.047		Long: 165° 39.800		Samplers: Christina, Megan, Kevin C, Kevin W, Douglas, Dawn, Wiley, Olga								
Date: 25 June 2005		Time: 0750		Lat: 31° 5.202		Long: 165° 40.024										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON x 200	Salts	Nuts	Bact N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt	SN ¹⁵
				O ₂	O ₂ , O ₃											
1	0	26.5		101		29	81	96	1	13						9
2	0	25.3									70-2	65-2	65-1			dropped POC filter
3	20	24.0		102		30	82	97	2	12						
4	20										71-4	66-4	66-2			dropped POC filter
5	40	21.7		103		31	83 *9	98	3	11						
6	40										72-6	67-6	67-3			
7	60	21.0		104		32	84	99	4	10						
8	60										73-8	68-8	68-4			
9	70	20.5	leak bottom cap	105		33		100	5							
10	70	20.5		105		33		100	5	19		69-10	69-5			
11	80	20.5		106		34	85	101	6	8						
12	80										74-12	70-12	70-6			
13	90	20.4		107		35		102	7	7		71-13	71-7			
14	100	20.2		108		36	86	103	8	6						
15	100										75-15	72-15	72-8			
16	110	20.2		109		37		104	9	5		73-16	73-9			
17	120	20.2		110		38	87	105	10	4						
18	120										76-18	74-18	74-10			
19	140	20.1		111		39	88	106	11	3						
20	140	20.0									77-20	75-20	75-11			
21	200	2.0.0		112		40	89	107	12	2	78-21					
22	300			113		41	90	108	13		79*-22					
23	500	19.1		114		42	91	109	14		80*-23					
24	700	17.2		115			92	110	15		81*-24					
											*3L					

bottle 22 didn't fire

bottle 9 bottom cap leaked.

Cruise: OCS 415-1		Leg: 1		Cast: CTD 11 (2377)		Type: CTD (0-700m) station 11										
Date: 25 June 2005		Time: 10:00 11:00		Lat: 31° 4.948		Long: 166° 4.723		Samplers: Christine, Elaine, Tom, Andy								
Date: 25 June 2005		Time: 11:00		Lat: 31° 5.424		Long: 166° 4.808										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Bact N&P	FRRF	POC/PON	HPLC	Chla	Flow Cyt	SIN
				O ₂	O ₂ , O ₂		*POC					Vol= 2L	Vol= 4L			
1	0	25.9		-116		-	93		-111	-1	91					8
2	0											82-2	76-2	76-2		
3	20	24.2		-117		-	94		-112	-2	90					
4	20											83-4	77-4	77-4		
5	40	21.6		-118		-*	95 18		-113	-3	89					
6	40											84-6	78-6	78-6		
7	60	21.2		-119		-	96		-114	-4	88					
8	60											85-8	79-8	79-8		
9	70	20.9	ask bob	-120					-115	-5	87					
10	70	20.9		-120					-115	5	87		80-10	80-10		
11	80	20.6		-121		-	97		-116	-6	86					
12	80											86-12	81-12	81-12		
13	90	20.5		-122					-117	-7	85		82-13	82-13		
14	100	20.4		-123		-	98		-118	-8	84					
15	100											87-15	83-15	83-15		
16	110	20.3		-124					-119	9	83		84-16	84-16		
17	120	20.2		-201		-	99		-120	10	82					
18	120											88-18	85-18	85-18		
19	140	19.9		-202		-	100		-121	11	81					
20	140											89-20	86*-20	86-20		one liter poc only
21	200	19.9		-203		-	101		-122	12	-80	90-21				
22	300	18.6		-204			102		-123	13	79	91-22				didn't close
23	500	18.6		-205		-	103		-124	14		92-23				
24	700	16.8		-206		-	104		-125	15		93-24				
												*3L				

9 bottom cap back
92 didn't trigger

HPLC 86
put in with rest
of cast is blank
filter. 86 is the
actual sample
but was done
2 hours later
than all
the this cast

Cruise: 00415-1		Leg:		Cast: CTD# 12		A4		Type: CTD (0-700m)		(w.p. 2375)		Station 12				
Date: 25 June 2005		Time: 1316		Lat: 31° 04.990		Long: 66° 29.711		Samplers: Christinae, Ilain, Tom, Andy								
Date: 25 June 2005		Time: 1353		Lat: 31° 05.660		Long: 66° 29.213										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact	FRRF	POC/PON	HPLC	Chla	Flow Cyt	JISN
				O ₂	O ₂ , O ₂											
1	0	26.4		-207			-105		-126	1	104					-
2	0											94-2	87-2	87-2		7
3	20	25		-208			-106		-127	2	105					
4	20											95-4	88-4	88-4		HPLC 88 niskin 4 filters ripped
5	40	23.5		-209			107+11		-128	3	109					
6	40											96-6	89-6	89-6		
7	60	22.3		-210			108		-129	4	107					
8	60											97-8	90-8	90-8		
9	80	21.5		-211					-130	5	100					
10	80												91-10	91-10		
11	80	21.2		-212			109		-131	6	99					
12	80											98-12	92-12	92-12		
13	90	21.0		-213					-132	7	98			93-13	93-13	
14	100	21.0		-214			110		-133	8	97					
15	100											99-15	94-15	94-15		
16	110	20.8		-215					-134	9	96			95-16	95-16	
17	120	21.0		-217			111		-135	10	96					
18	120											100-18	96-18	96-18		
19	140	20.6	20.6	-216			-112		-136	11	94					
20	140											101-20	97-20	97-20		
21	200	20.9		-218			113		-137	12	93			102-21		
22	200			-219			114		-138	13	92			*103-22		
23	500	19.7		-220			115		-139	14	.			*104-23		
24	700	17.6		-221			-116		-140	15	.			*105-24		
																*32

22
Not fired.

Cruise: OC 415-1			Leg: 1	Cast: GD13	A4	Type: CTD (0-700m)	(w.p. 2381) Station 13									
Date: 25 June 2005			Time: 2013	Lat: 31° 04.740	Long: 65° 14.773	Samplers: Diana, Olga, Christine, Valery, Megan										
Date: 25 June 2005			Time: 2101	Lat: 31° 04.141	Long: 65° 14.986											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON *DOP	Salts	Nuts	Bact NAP	FRRF	POC/PON Vol= 2l	HPLC Vol= 4l	Chla	Flow Cyt	δN ¹⁵
				O ₂	O ₂ , O ₃											
1	0	26.2		-222			-117		-141	1	117			9.8		
2	0	25.7										106-2	98-2	98-2		*11
3	20	19.9		-223			-118		-142	2	116					
4	20											107-4	99-4	99-4		
5	40	22.5		-224			-119*12		-143	3	115					
6	40											108-6	100-6	100-6		
7	60	21.8		-41			-120		-144	4	114					
8	60											109-8	101-8	101-8		
9	70	20.8		-42					-145	5	113					
10	70												102-10	102-10		
11	80	20.5		-43			-121		-146	6	112					
12	80											110-12	103-12	103-12		
13	90	20.3		-44					-147	7	111			104-13	104-13	
14	100	20.3		-45			-122		-148	8	110					
15	100											111-15	105-15	105-15		
16	110	20.2		-46					-149	9	109			106-16	106-16	
17	120	20.1		-47			-123		-150	10	108					
18	120	2										112-18	107-18	107-18		
19	140	20.0		-48			-124		-151	11	107					
20	140											113-20	108-20	108-20		
21	200	19.8		-49			-125	DB4	-152	12	106			114*-21		
22	300	19.5		-51			-126	DB5	-153	13	105			115*-22		
23	500	19.0		-52			-127	DB6	-154	14				116*-23		
24	700	16.8		-53			-128	DB7	-155	15				117*-24		
														*3L		

Cruise: 004154		Leg: 1		Cast: CTD # 15		Type: A4 CTD (0-700m) station 15 (w.p. 2383)											
Date: 25 June 2005		Time: 2359		Lat: 31° 4.726		Long: 64° 49.952		Samplers: Ilaia, Tom, Megan, Kevin W, Sarah, Douglas									
Date: 26 June 2006		Time: 0035		Lat: 31° 4.410		Long: 64° 50.225											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON *DOP	Salts	Nuts	Bact N&P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow-Cyt	SA ¹⁵	
				O ₂	O ₂ , O ₃												
1	0	25.4		-54			-129		-156	1	130						
2	0											118-2	109-2	109-1		8	
3	20	22.9		-55			-130		-157	2	129						
4	20											119-4	110-4	110-2			
5	40	22.4		-56			-131*13		-158	3	128						
6	40											120-6	111-6	111-3			
7	60	21.3		-57			-132		-159	4	127						
8	60											121-8	112-8	112-4			
9	80	21.0		-58					-160	5	126						
10	80												113-10	113-5			
11	80	21.1		-60			-133		-161	6	125						
12	80											122-12	114-12	114-6			
13	90	20.9		-21					-162	7	124		115-13	115-7			
14	100	20.6		-22			-134		-163	8	123						
15	100											123-15	116-15	116-8			
16	110	20.5		-23					-164	9	122		117-16	117-9			
17	120	20.3		-24			-135		-165	10	121						
18	120											124-18	118-18	118-10			
19	140	20.0		-26			-136		-166	11	120						
20	140											125-20	119-20	119-11			
21	200	19.7		-28			-137		-167	12	119	126-21					
22	300	19.4		-29			-138		-168	13	118	*127-22					
23	500	18.5		-30			-139		-169	14		*128-23					
24	700	15.9		-31			-140		-170	15		*129-24					
												*3L					

W
ll

niskin #1 - small bottom cap leak

Cruise: OC415-1		Leg: 1		Cast: CTD # 17 (0-700m)		Type: Station 17 C3 carbon (w.p. 1618)										
Date: 28 June 2005		Time: 10:10		Lat: 28° 44.374		Long: 64° 24.946		Samplers: Christie Olga Valery Diana								
Date: 28 June 2005		Time: 11:05		Lat: 28° 45.158		Long: 64° 24.881										
N #	Depth	Nskin Temp	Helium	Oxygens		Chl/ATK	TOC/TON	Salts	Nuts	Bact NaP	FRRF	POC/PON Vol=2L	HPLC Vol=4L	Chla	Flow Cyt	S N ¹⁵
				O ₂	O ₂ , O ₂											
1	0	26.6		109		58	149		179	1	151					7
2	0											138-2	128-2	128-2		
3	20	24.9		110*		59	150		180	2	150					
4	20											139-4	129-4	129-4		
5	40	22.8		110*		60	151*15		181	3	149					
6	40											140-6	130-6	130-6		
7	60	21.3		111 112		61	152		182	4	148					
8	60											141-8	131-8	131-8		
9	70	21.0		112 113		62			183	5	147					
10	70												132-10	132-10		
11	80	20.8		113 114		63	153		184	6	146					
12	80											142-12	133-12	133-12		
13	90	20.6		114 115		64			185	7	145			134-13	134-13	
14	100	20.6		115 116		65	154		186	8	144					
15	100											143-15	135-15	135-15		
16	110	20.3		116 117		66			187	9	143			136-16	136-16	
17	120	19.9		118		67	155		188	10	142					
18	120											144-18	137-18	137-18		
19	140	19.6		119		68	156		189	11	141					
20	140											145-20	138-20	138-20		
21	200			120		69	157		190	12	140	146-21				
22	300	18.6		121 121		70	158		191	13	139	147*-22				
23	500	16.5		122 122		71	159		192	14		148*-23				
24	700	13.3		123 123		72	160		193	15		149*-24				
												*3L				

Filters were too soaked, starting to rip. (too long in filter holder?!)

Cruise: DC415-1		Leg:		Cast: C18 (0-700m)		Type: Eddy C3 w/ 618										
Date: 28 June 2005		Time: 9:25 ³²¹		Lat: 28° 44.66938		Long: 64° 49.894		Samplers: Christine Tom Ibarra, Andy								
Date: 28 June 2005		Time: 1358		Lat: 28° 45.378		Long: 64° 49.832										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON #DOF	Salts	Nuts	Bact NAP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt	δ ¹⁵ N
				O ₂	O ₂ , O ₂											
1	0	26.8		-124			-161		-194	1	164					
2	0											150-2	139-2	139-2		x8
3	20	26.8		-201			-162		-195	2	163					
4	20											151-4	140-4	140-4		
5	40	22.9		-202			-163*16		-196	3	162					
6	40											152-6	141-6	141-6		
7	60	22.1		-203			-164		-197	4	161					
8	60											153-8	142-8	142-8		
9	70	21.8		-204					-198	5	160					
10	70												143-10	143-10		
11	80	21.6		-205			-165		-199	6	159					
12	80											154-12	144-12	144-12		
13	90	21.1		-206					-200	7	158			145-13	145-13	
14	100	20.9		-207			-166		-201	8	157					
15	100											155-15	146-15	146-15		
16	110	20.7		-208					-202	9	156			147-16	147-16	
17	120	20.7		-209			-167		-203	10	155					
18	120											156-18	148-18	148-18		
19	140	20.3		-210			-168		-204	11	154					
20	140											157-20	149-20	149-20		
21	200	19.9		-211			-169		-205	12	153	158-21				
22	300	bottom set 12.2m		-212			-170		-206	13	152	*159-22				
23	500	17.2		-213			-171		-207	14		*160-23				
24	700	14.2		-214			-172		-208	15		*161-24				
												*36				

Cruise: 005415-1		Leg: 1		Cast: CTD#19		Type: Eddy C3 19 (w.p. 1610)												
Date: 28 June 2005		Time: 2023		Lat: 28° 44.504		Long: 166° 04.568		Samplers:										
Date: 28 June 2005		Time: 2110		Lat: 28° 49.818		Long: 166° 04.868		Diana, Valery, Olga, Megan, Kevin C, Christina										
N #	Depth	Niskin Temp	Heilum	Oxygens		DIC/Aik	TOC/TON * DO P	Salts	Nuts	Bact N & P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chia	Flow Cyt	$\delta^{15}N$		
				O ₂	O ₂ , O ₂													
1	0	27.0	26.6	-215			-173	-209	1	177								X9
2	0											162-2	150-2	150-2				
3	20	24.3		-216			-174	-210	2	176								
4	20											163-4	151-4	151-4				
5	40	22.6		-217			-175 *17	-211	3	175								
6	40											164-6	152-6	152-6				
7	60	21.6		-218			-176	-212	4	174								
8	60											165-8	153-8	153-8				
9	70	21.3		-219				-213	5	173								
10	70												154-10	154-10				
11	80	20.9		-220			-177	-214	6	172								
12	80											166-12	155-12	155-12				
13	90	20.7		-221				-215	7	171				156-13	156-13			
14	100	20.5		-222			-178	-216	8	170								
15	100											167-15	157-15	157-15				
16	110	20.5		-223				-217	9	169				158-16	158-16			
17	120	20.2		-224			-179	-218	10	168								
18	120								#			168-18	158-18	159-18				
19	140	20.1		-1			-180	-219	11	167								
20	140											169-20	160-20	160-20				
21	200	19.5		-2			-181	DB8 -220	12	166		170-21						
22	300	18.9		-3			-182	-DB9 -221	13	165		*171-22						
23	500	17.3		-4			-183	-DB10 -222	14			*172-23						
24	700	15.3		-5			-184	-DB11 -223	15			*173-24						
												*3L						

Cruise: OC 415-1		Leg: 1		Cast: CTD # 20 Eddy C3		Type: CTD (0-700 m) station 20 (w.p. 1612)										
Date: 28 June 2005		Time: 2340		Lat: 28° 44.36		Long: 65° 39.76		Samplers: Flavia, Tom, Douglas, Josh, Megan								
Date: 29 June 2005		Time: 0020		Lat: 28° 44.712		Long: 65° 38.926										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Bact NAP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow-Cyt	SN ¹⁵
				O ₂	O ₂ , O ₃											
1	0	26.4		6			185		224	1	190	174-2				7
2	0											174-2	161-2	161-2		
3	20	25.8		7			186		225	2	187	175-4	162-4	162-4		
4	20															
5	40	22.3		8			187*18		226	3	188					
6	40											176-6	163-6	163-6		
7	60	21.2		7 broken			188		227	4	187					
8	60											177-8	164-8	164-8		
9	70	20.9		10					228	5	186					
10	70												165-10	165-10		
11	80	20.5		11			189		229	6	185					
12	80											178-12	166-12	166-12		
13	90	20.2		12					230	7	184		167-13	167-13		
14	100	20.1		13			190		231	8	183			168-15		
15	100											179-15	168-15	168-15	WATER FINISHED	
16	110	20.0		14					232	9	182		169-16	169-16		
17	120	19.8		15			191		233	10	181					
18	120											180-18	176-18	170-18		
19	140	19.7		16			192		234	11	180					
20	140											181-20	171-20	171-20		
21	200	19.3		17			193		235	12	179	182-21				
22	300	19.1		18			194		236	13	178	183*23				
23	500	16.9		19			195		237	14		184*23				
24	700	13.4		20			196		238	15		185*21				
												*3L				

Cruise: OC415-1		Leg: 1		Cast: CTD # 22 (0-700m)		Type: Station 22 C3 center									
Date: 29 June 2005		Time: 0627		Lat: 28° 43.998		Long: 65° 15.356		Samplers:							
Date: 29 June 2005		Time: 0716		Lat: 28° 43.416		Long: 65° 15.851		Kevin W, Kevin C, Donjai, Megan							
N #	Depth	Niskin Temp	Helium	Oxygens	DIC/Aik	TOC/TON	Salts	Nuts	Bact N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow-Cyt	SN ¹⁵
				O ₂ , O ₂ , O ₂											
1	0		26.2	21	51.40	51	197	239	1	203	180				11
2	0										186 -2	172 -2	172 -2		
3	20		26.2	22		52	198	240	2	202	187				
4	20										187 -4	173 -4	173 -4		
5	40		23.0	23		53	199.99	241	3	201	188				
6	40										188 -6	174 -6	174 -6		
7	60		20.8	24		54	200	242	4	200	189				
8	60										189 -8	175 -8	175 -8		
9	70		20.6	26		55		243	5	199					
10	70											176 -10	176 -10		
11	80		20.2	28		56	201	244	6	198					
12	80										190 -12	177 -12	177 -12		
13	90	200		29		57		245	7	197		178 -13	178 -13		
14	100	19.9		30		58	202	246	8	196					
15	100										191 -15	179 -15	179 -15		
16	110	19.7		31		59		247	9	195		180 -16	180 -16		
17	120	19.6		32		60	203	248	10	194					
18	120										192 -18	181 -18	181 -18		
19	140	19.3		33		61	204	249	11	193					
20	140										193 -20	182 -20	182 -20		
21	200	19.0		34		62	205	250	12	192	194 -21				
22	300	18.5		35		63	206	251	13	191	195* -22				
23	500	16.2		37		64	207	252	14		196* -23				
24	700	12.7		38		65	208	253	15		197* -24				
											*3L				

41 }
 42 } 26.8°C
 43 }

44 22.80 Diam
 Niskin 22 bottom cap leak
 23

Cruise: 06415-1			Leg: /		Cast: CTD #23 (0-700m)		Type: Station 23 (BATS)									
Date: 30 June 2005			Time: 0442		Lat: 31° 39.987		Long: 64° 10.133		Samplers: Kevin G, Kevin W, Donglai, Mega-							
Date: 30 June 2005			Time: 0529		Lat: 31° 39.966		Long: 64° 10.506									
N #	Depth	Niskin Temp	Helium	Oxygens		DIE/Atk	TOC/TON	Salts	Nuts	Beet-N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Elew-Cyt	SN'S
				O2 ₁	O2 ₂ , O2 ₃											
1	0	26.2		101	116, 117		209		254	1	216					7
2	0											198-2	183-2	183-2		
3	20	24.8		102			210		255	2	215					
4	20											199-4	184-4	184-4		
5	40	22.0		103			211*20		256*	3	214					
6	40											200-6	185-6	185-6		
7	60	21.1		104			212		257	4	213					
8	60											201-8	186-8	186-8		
9	70	20.8		105					258	5	212					
10	70												187-10	187-10		
11	80	20.5		106			213		259	6	211					
12	80											202-12	188-12	188-12		
13	70	20.3		107					260	7	210		189-13	189-13		
14	100	20.0		108			214		261	8	209					
15	100											203-15	190-15	190-15		
16	110	19.9		109					262	9	208		191-16	191-16		
17	120	19.8		110			215		263	10	207					
18	120											204-18	192-18	192-18		
19	140	19.5		111			216		264	11	206					
20	140											205-20	193-20	193-20		
21	200	19.2		112			217	DD 12	265	12	205	206-21				
22	200	19.6		113			218	DD 13	266	13	204	207*-22				
23	500	16.6		114			219	DD 14	267	14		208*-23				
24	700	13.8		115			220	DD 15	268	15		209*-24				
												* 3L				

Medi/V
Helm
118 } 25.9°C
119 }
120 }

bottom cap leak bottles 22, 23, 3

Cruise: 0C415-1		Fr3		Leg: 1		Cast: CTD #24 (0-700 m)		Type: A5 Center Station 24								
Date: 1 July 2005		Time: 0857		Lat: 32° 42.217		Long: 62° 44.948		Samplers: Olga, Valery Diansa, Christine								
Date: 1 July 2005		Time: 0857		Lat: 32° 42.192		Long: 62° 45.072										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/AIK	TOC/TON	Salts	Nuts	Bact NHP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	FlowCyt	SN ¹⁵
				O ₂	O ₂ , O ₂											
1	0	24.6		121		65	221		269	1	229					8
2	0															
3	20			122		66	222		270	2	228	210-2	194-2	194-2		
4	20	22.6	bottom cap leak	122		66	222					211-4	195-4	195-4		
5	40	20.3		123		67	223 *21		271	3	227					
6	40											212-6	196-6	196-6		
7	60	19.8		124		68	224		272	4	226					
8	60											213-8	197-8	197-8		
9	70	19.6		201		69			273	5	225					
10	70												198-10	198-10		
11	80	19.6		202	"	70	225		274	6	224					
12	80											214-12	199-12	199-12		
13	90	19.6		203		71			275	7	223		200-13	200-13		
14	100	19.6		204		72	226		276	8	222					
15	100											215-15	201-15	201-15		
16	110	19.5		205		73			277	9	221		202-16	202-16		
17	120	19.6		206		74	227		278	10	220					
18	120											216-18	203-18	203-18		
19	140	19.4		207		75	228		279	11	219					
20	140											217-20	204-20	204-20		
21	200	19.3		208		76	229		280	12	218	218-21				
22	300	18.7		209		77	230		281	13	217	219*-22				
23	500	17.7		210		78	231		282	14		220*-23				
24	700	17.4		211			232		283	15		221*-24				
												43L				

3 bottom cap leak
2 // //

Cruise: 00415-1		Leg:		Cast: STD# 25 (0-700m)		Type: A5 (WP 2922) Station 25										
Date: 1 July 2005		Time: 7:00 AM 11:03 AM		Lat: 32° 42.165		Long: 63° 10.111		Samplers: Ikaris, Tom, Andy, Diana, Christine								
Date: 1 July 2005		Time: 11:50		Lat: 32° 42.437		Long: 63° 10.315										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/AIK	TOC/TON *DOP	Salts	Nuts	Bact N&P	FRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt	δ ¹⁵ N
				O ₂	O ₂ , O ₂											
1	0	25.2		-212			-233		-284	1	242					*9
2	0											222-2	205-2	205-2		
3	20	23.2		-213			-234		-285	2	242					
4	20											223-4	206-4	206-4		
5	40	23.2		-214			235*22		-286	3	240					
6	40											224-6	207-6	207-6		
7	60	20.2		-1			-236		-287	4	239					
8	60											225-8	208-8	208-8		
9	70	20.2		-2					-288	5	238					
10	70												209-10	209-10		
11	80	19.9		-3			-237		-289	6	237					
12	80											226-12	210-12	210-12		
13	90	20.2		-4					-290	7	236			211-13	211-13	
14	100	20.2		-5			-238		-291	8	235					
15	100											227-15	212-15	212-15		
16	110	20.0		-6					-292	9	234			213-16	213-16	
17	120	20.1		-7			-239		-293	10	233					
18	120											228-18	214-18	214-18		
19	140	20.3		-8			-240		-294	11	232					
20	140											229-20	215-20	215-20		
21	200	19.8		-10			-241		-295	12	232	230-21				
22	300	below cap 18.2		-11			-242		-296	13	230	*231-22				
23	500	18.3		-12			-243		-297	14		*232-23				
24	700	17.8		-13			-244		-298	15		*233-24				
												*32				

22 below cap

Cruise: 00415-1		Leg:		Cast: CTD 26 (0-700m)		Type: AS (wp 2920) station 26										
Date: 1 July 2005		Time: 1355 1431		Lat: 32 42.834 42.334		Long: 63 35.25094		Samplers: Ilaria, Tom, Andy, Christine.								
Date: 1 July 2005		Time: 1431		Lat: 32° 42.836		Long: 63° 35.285										
N #	Depth	Niskin Temp	Heilum	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact NAP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt	d'W
				O ₂	O ₂ , O ₂											
1	0	25.3		-14			-245		-299	1	255					* E
2	0											-234.2	216 - 2	216 - 2		
3	20	23.5		-15			-246		-300	2	254					
4	20											235 4	217 4	217-4		
5	40	21.8		-16			-247 *23		-301	3	253					
6	40											236 6	218 6	218-6		
7	60	20.8		-17			-248		-302	4	252					
8	60											237 8	219 8	219-8		
9	70	20.3		-18					-303	5	251					
10	70											* 220 10	220-10			
11	80	20.4		-19			-249		-304	6	250					
12	80											238 12	221 12	221-12		
13	90	20.8		-20					-305	7	249		222 13	222-13		
14	100	20.2		-21			-250		-306	8	248					
15	100											239 15	223 15	223-15		
16	110	20.2		-22					-307	9	247		224 16	224-16		
17	120	19.9		-23			-251		-308	10	246					
18	120											240 18	225 18	225-18		
19	140	19.8		-24			-252		-309	11	245					
20	140											241 20	226 20	226-20		
21	200	19.9		-26			-253		-310	12	244	242 21				
22	200	19.1		-28			-254		-311	13	243	243* 22				
23	500	18.7		-29			-255		-312	14		244* 23				
24	700	17.2		-30			-256		-313	15		245* 24				
												* 30				

21) slight bottom cap leak
22)

Cruise: OC 415-1		Leg: 1		Cast: CTD*27 (0-1500m)		Type: A5 Center Deep Cast. station 27											
Date: 1 July 2005		Time: 18:55		Lat: 32° 42.236		Long: 62° 45.252		Samplers: Dana, Kevin C, Olga, Kelly, Megan									
Date: 1 July 2005		Time: 20:17		Lat: 32° 42.194		Long: 62° 46.076											
N #	Depth	Niskin Temp	Helium	Oxygens		TRITIUM	TEOPON	Salts	Nuts	Bact	DNA	POC/PON Vol=	HPLC Vol=	Chla	Flow Cyt	AL J15N	
				O2 ₁	O2 ₂												
1	0	24.8	107	31		1			314								
2	50	24.7		32					315		✓						21
3	100	20.0	188	33		2			316		✓						22
4	150	19.7		34					317		✓						23
5	200	19.4	111	35		3			318								24
6	250	18.8	184	37					319								25
7	300	19.2	118	38		4			320								26
8	350	18.6		39					321								27
9	400	19.0	122	40		5			322								28
10	450	18.4		41					323								29
11	500	18.2	125	42		6			324								30
12	550	17.8		43					325								31
13	600	17.8		44					326								32
14	650	18.0		45					327								33
15	700	18.0	130	46		7			328								34
16	750	17.3		47					329								35
17	800	17.0		48					330								36
18	900	15.8		49					331								37
19	1000	14.9	135	51		8			332		✓						38
20	1100	12.2		52					333								39
21	1200	11.5		53					334								40
22	1300	10.0		54					335								41
23	1400	9.2		55					336								42
24	1500	11.4	138	56		9			337		✓						43
									Box DD								

Niskin 1, 3, 2, 12 bottom cap v-k
G

Cruise: 00415-1		Leg: 1		Cast: STD 98 (0-700 m)		Type: A5 station 28 (w.p. 2926)																									
Date: 1 July 2005		Time: 2230		Lat: 32° 42.134		Long: 62° 20.185																									
Date: 1 July 2005		Time: 2314		Lat: 32° 41.857		Long: 62° 20.502																									
N #		Depth		Niskin Temp		Helium		Oxygens		DIC/AIK		TOC/TON		Salts		Nuts		Bact N&P		FRRF		POC/PON Vol= 2L		HPLC Vol= 4L		Chla		Flow Cyt		Σ N ₆₅	
								O ₂		O ₂ , O ₃																					
1	0	25.4		-57																											
2	0																														
3	20	23.2		-58																											
4	20																														
5	40	21.8		-60																											
6	40																														
7	60	20.8		-61																											
8	60																														
9	70	20.4		-62																											
10	70																														
11	80	20.1		-63																											
12	80																														
13	90	20.1		-64																											
14	100	20.0		-65																											
15	100																														
16	110	19.8		-66																											
17	120	19.7		-67																											
18	120																														
19	140	19.8		-68																											
20	140																														
21	200	19.7		-69																											
22	300	19.3		-70/74																											
23	500	18.9		-72																											
24	700	16.6		-73																											

Niskin 1, 3, 6 bottom cap leak

Cruise: 0C415-1		Leg:		Cast: CTD # 29 30 (0-700m)		Type: AS station 30												
Date: 2 July 2005		Time: 0803		Lat: 32° 42.160		Long: 61° 55.188		Samplers: Christine, Donghai, Valery, Olga										
Date: 2 July 2005		Time: 0847		Lat: 32° 42.078		Long: 61° 55.578												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Bact N&P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt	8N ¹⁵		
				O ₂	O ₂ , O ₂													
1	0	25.2		101			269		353	1	281	258-2						
2	0											258-2	238-2	238-2				
3	20	23.3		102			270		354	2	280							
4	20											259-4	239-4	239-4	Chla	not quite solid filtered.		
5	40	21.6		103			271*25		355	3	279							
6	40											260-6	240-6	240-6				
7	60	20.7		104			272		356	4	278							
8	60											261-8	241-8	241-8				
9	70	20.3		105					357	5	277							
10	70												242-10	242-10				
11	80	20.1		106			273		358	6	276							
12	80											262-12	243-12	243-12				
13	90	19.9		107					359	7	275			244-13	244-13			
14	100	19.9		108			274		360	8	274							
15	100											263-15	245-15	245-15				
16	110	19.9		109					361	9	273			246-16	246-16			
17	120	19.8		110			275		362	10	272							
18	120			110								264-18	247-18	247-18				
19	140	19.6		111			276		363	11	271							
20	140											265-20	248-20	248-20				
21	200	19.3		112			277		364	12	270	266-21						
22	300	19.2		113			278		365	13	269	267*-22						
23	500	18.8		114			279		366	14		268*-23						
24	700	16.8		115			280		367	15		269*-24						
												*2L						

116 22.9°C
Diana's

Cruise: OC 415-1				Leg:		Cast: ⁷⁰ 31 (0-700m)		Type: A4 (w.p 2317) Eddy Center											
Date: 4 July 2005				Time: 0516		Lat: 30° 54.055		Long: 166° 17.294		Samplers: Kevin C, Kevin W, Donglai, Megan, Tom, Diana									
Date: 4 July 2005				Time: 0604		Lat: 30° 54.347		Long: 166° 17.158											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON <small>25 sample 2000</small>	Salts	Nuts	Bact N&P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt Pig	Flow Cyt Sub NP	DN's		
				O2	O2 O2 Tritium														
1	0	26.0	107	101	10	79	281		368	1	294							7*	
2	0											270-2	249-2	247-2	19P	19 NP			
3	20	24.8	108	102		80	292		369	2	293								
4	20											271-4	250-4	250-4	20P	20 NP			
5	40	21.4	111	103	11	81	293+26		370	3	292								
6	40											272-6	251-6	251-6	- 21 P	21 NP			
7	60	20.8	118	104		82	294		371	4	291								
8	60											273-8	252-8	252-8	- 22 P	22 NP			
9	70	20.6	122	105		83			372	5	290								
10	70												253-10	253-10	- 23 P				
11	80	20.6	125	106		84	295		373	6	289								
12	80											274-12	254-12	254-12	- 24 P	23 NP			
13	90	20.5	130	107		85			374	7	288			255-13	255-13	- 25 P			
14	100	20.5	135	108	12	86	286		375	8	287								
15	100											275-15	256-15	256-15	- 26 P	24 NP			
16	110	21.2	138	109		87			376	9	286			257-16	257-16				
17	120	21.5	139	110		88	287		377	10	285								
18	120	21.5										276-18	258-18	258-18	- 27 P	25 NP			
19	140	21.5	143	111	1	89	288		378	11	284								
20	140											277-20	259-20	259-20	- 28 P	26 NP			
21	200	20.6	145	112	2	90	289	DD 22	379	12	283	278-21					27 NP		
22	300	20.3	148	113	3	91	290	DD 23	380	13	282	279-22					28 NP		
23	500	19.9	154	114	4	92	291	DD 24	381	14		280-23							
24	700	18.7	183	115	5	93	292	DD 25	382	15		281-24							
							A+b					*3L							

Cruise: OCS 415-1		Leg:		Cast: 32		Type: A4		WP 2396									
Date: 4 July 2005		Time: in 0852		Lat: 31 04 16 874		Long: 66 17.153		Samplers: Olga Valery Diana Christina									
Date: 4 July 2005		Time: out 0850		Lat: 31 05.126		Long: 66° 16.895											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON *DOP	Salts	Nuts	Bact NAP	FRRF	POC/PON Vol=2L	HPLC Vol=4L	Chla	Flow Cyt P	Flow Cyt NP	SSN
				O2	O2, O2												
1	0	26.0		-116		-94	-293	-383	-1	307							*8
2	0											-282-2	260-2	260.2	-29P	29 NP	
3	20	23.4		-117		-95	-294	-394	-2	306					←		
4	20											283-4	260-4	261.4	-30P	30 NP	
5	40	21.2		-118		-96	295*27	-385	-3	305					"		
6	40											284-6	262-6	262.6	-31P	31 NP	
7	60	20.5		-119		-97	-296	-386	-4	304					"		
8	60											285-8	263-8	263.8	-32P	32 NP	
9	70	20.1		-120		-98		-387	-5	303					.		
10	70												264-10	264.10	-33P		
11	80	19.9		-121		-99	-297	-388	-6	302							
12	80											286-12	265-12	265.12	-34P	33 NP	
13	90	19.9		-122		-100		-389	-7	301			266-13	266.13	-35P		
14	100	19.8		-123		-101	-298	-390	-8	300							
15	100											287-15	267-15	267.15	-36P	34 NP	
16	110	19.7		-124		-102		-391	-9	299			268-16	268.16			
17	120	19.7		-201		-103	-299	-392	-10	298							
18	120											288-18	269-18	269.18	-37P	35 NP	
19	130	19.6		-202		-104	-300	-393	-11	297							
20	140											289-20	270-20	270.20	-38P	36 NP	
21	200	19.5		-203		-105	-301	-394	-12	296		290-21				37 NP	
22	300	19.2		-204		-106	-302	-395	-13	295		*291-22				38 NP	
23	500	18.7		-205		-107	-303	-396	-14			*292-23					
24	700	16.8		-206			-304	-397	-15			*293-24					
												*32					

105 broken

Cruise: DCE 415-1		Leg: 3		Cast: 33		Type: A4		Samplers: Christine Olga, Valery Diana.									
Date: 4 July 2004		Time: 1017		Lat: 31° 04.040		Long: 66° 4.683											
Date: 4 July 2004		Time: 1103		Lat: 31° 04.844		Long: 66° 4.518											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Bact MRP	FRRF	POC/PON	HPLC	Chla	Flow Cyt	Fluor	JISD
				O ₂	O ₂ , O ₂							Vol=	Vol=	P	NP		
1	0	26.1		- 207		- 108	- 305	1398	1	- 320							*9
2	0											284 -2	271 -2	271 -2	39 P	39 NP	
3	20	23.0		- 208		- 109	- 306	2399	2	- 319							
4	20											295 -4	272 -4	272 -4	- 40 P	- 40 NP	
5	40	20.9		- 209		- 110	- 307 *28	400	3	- 318							
6	40											291 -6	273 -6	273 -6	- 41 P	- 41 NP	
7	60	20.2		- 210		- 111	- 308	401	4	- 317							
8	60											297 -8	274 -8	274 -6	- 42 P	- 42 NP	
9	70	20.0		- 211		- 112	- 309	402	5	- 316							
10	70												275 -10	275 -10	- 43 P		
11	80	19.9		- 212		- 113	- 310	403	6	- 315							
12	80											298 -12	276 -12	276 -12	- 44 P	- 43 NP	
13	90	19.8		- 213		- 114	- 311	404	7	- 314			277 -13	277 -13	- 45 P		
14	100	20.0		- 214		- 115	- 312	405	8	- 313							
15	100											299 -15	278 -15	278 15	- 46 P	- 44 NP	
16	110	19.9		- 215		- 116	- 313	406	9	- 312			279 -16	279 16			
17	120	19.8		- 216		- 117	- 314	407	10	- 311							
18	120											300 -18	280 -18	280 18	- 47 P	- 45 NP	
19	140	19.8		- 217		- 118	- 315	408	11	- 310							
20	140											301 -20	281 -20	281 -20	- 48 P	- 46 NP	
21	200	19.5		- 218		- 119	- 316	409	12	- 309		302 -21				- 47 NP	
22	300	19.0		- 219		- 120	- 317	410	13	- 308		303 -22				- 48 NP	
23	500	18.6		- 220		- 121	- 318	411	14			304 -23					
24	700	15.8		- 221			- 319	412	15			305 -24					

Cruise: OCE 415-1		Leg:		Cast: 34		Type: A4		Samplers: Tom Ilaris, Andy, Christine									
Date: 4 July 2005		Time: 1237		Lat: 30° 53.7		Long: 166° 05.0											
Date: 4 July 2005		Time: 1313		Lat: 30° 53.75		Long: 166° 04.78											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact Nal	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt P	FlowCyt NP	SFSN
				O2 ₁	O2 ₂ , O2 ₃												
1	0	26.2		-222		.122	-320		-413	1	-323						*8
2	0											306-2	282-2	282-2	.49 P	.49 NP	
3	20	23.9		-223		-123	-321		-414	2	-330						
4	20											307-4	283-4	283-4	.50 P	.50 NP	
5	40	21.7		-224		-124	-322		-415	3	-331						
6	40											308-6	284-6	284-6	.51 P	.51 NP	
7	60	20.7		-1		-125	-322		-416	4	-330						
8	60											309-8	285-8	285-8	.52 P	.52 NP	
9	70	20.3		-2		-126			-417	5	-329						
10	70												286-10	286-10	-53 P	NP	
11	80	20.2		-3		-127	-324		-418	6	-328						
12	80											310-12	287-12	287-12	-54 P	53 NP	
13	90	20.2		-4		-128			-419	7	-327			288-13	288-13	-55 P	55
14	100	20.3		-5		.129	-325		-420	8	-326						
15	100											311-15	289-15	289-15	-56 P	54 NP	
16	110	20.3		-6		-130			-421	9	-325			290-16	290-16		
17	120	20.5		-7		-131	-328		-422	10	-324						
18	120											312-18	291-18	291-18	-57 P	55 NP	
19	140	20.5		-8		-132	-324		-423	11	-329						
20	140	20.5										313-20	292-20	292-20	58 P	-56 NP	
21	200			-10		-133	-328		-424	12	-320	314-21				-57 NP	
22	300	19.8		-11		-134	-329		-425	13	-321	* 315-22				-58 NP	
23	500	19.1		-12		-135	-320		-426	14		* 316-23					
24	700	16.7		-13			-324		-427	15		* 317-24					
												*38					

12-LOAKWS
From Bottom

Cruise: OCE 415-1		Leg:		Castr. # 25 (0-700 m)		Type: WP 2258 A4											
Date: 4 July 2005		Time: 1805		Lat: 30° 43.25		Long: 66° 17.33		Samplers: Kevin, Donglai, Megan, Christine.									
Date: 4 July 2005		Time: 1849		Lat: 30° 43.68		Long: 66° 17.56											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	FRRF	POC/PON		HPLC	Chla	Flow Cyt P	Flow Cyt NP	JIS N
				O2	O2, O2						Vol= 2L	Vol= 4L					
1	0	20.7		-14		-136	-332		428	1	-346						* 7
2	0											318 2	293-2	293-2	-59 P	-59 NP	
3	20	24.9		-15		-137	-333		429	2	-345	Filter (100)					
4	20											319 4	294-4	294-4	-60 P	-60 NP	
5	40	21.5		-16		-138	334#30		430	3	-344						
6	40											320 6	295-6	295-6	-61 P	-61 NP	
7	60	20.7		-17		-139	-335		431	4	-343						
8	60											321-8	296-8	296-8	-62 P	-62 NP	
9	70	20.6		-18		-140			432	5	-342						
10	70												297-10	297-10	-63 P		
11	80	20.6		-19		-141	-336		433	6	-341						
12	80											322-12	298-12	298-12	-64 P	-63 NP	
13	90	20.6		-20		-142			434	7	-340		299-13	299-13	-65 P		
14	100	20.5		-21		-143	-337		435	8	-339						
15	100											323-15	300-15	300-15	-66 P	-64 NP	
16	110	20.5		-22		-144			436	9	-338		301-16	301-16			
17	120	20.5		-23		-145	-338		437	10	-337						
18	120											324-18	302-16	302-18	-67 P	-65 NP	
19	140	20.1		-24		-146	-339		438	11	-336						
20	140											325-20	303-20	303-20	-68 P	-66 NP	
21	200	20.0		-26		-147	-340		439	12	-335	326-21				-67 NP	
22	300	19.6		-28		-148	-341		440	13	-334	* 327-22				-68 NP	
23	500	19.0		-29		-149	-342		441	14		* 328-23					
24	700	17.4		-30			-343		442	15		* 329-24					
												31					

Cruise: 00415-1		Leg:		Cast: ^{STB} 36 (0-700 m)		Type: A4		(wp 2257)										
Date: 4 July 2005		Time: 2001		Lat: 30° 43.31		Long: 166° 29.77		Samplers: Diana, Olga, Valery, Megan, Sarah, Douglas										
Date: 4 July 2005		Time: 2044		Lat: 30° 43.73		Long: 166° 29.62												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Dist N&P	FRF	POC/PON Vol= 2l	HPLC Vol= 4l	Chla	Flow Cyt P	Flow Cyt NP	SISN	
				O ₂	O ₂ , O ₂													
1	0	27.0		- 31		- 150	- 344		- 443	1	- 359							B *
2	0											330 2	304-2	304-2	69 P	69 NP		
3	20	25.8		- 32		- 151	- 345		- 444	2	- 358							
4	20											331 4	305-4	305-4	70 P	70 NP		
5	40	22.2		- 33		- 152	- 346 * 31		- 445	3	- 357							
6	40											332 6	306-6	306-6	71 P	71 NP		
7	60	21.2		- 34		- 153	- 347		- 446	4	- 356							
8	60											333 8	307-8	307-8	72 P	72 NP		
9	70	20.7		- 35		- 154			- 447	5	- 355							
10	70												308-10	308-10	73 P			
11	80	20.5		- 37		- 155	- 348		- 448	6	- 354							
12	80											334 12	309-12	309-12	74 P	74 NP		
13	90	20.3		- 38		- 156			- 449	7	- 353		310-13	310-13	75 P			
14	100	20.3		- 39		- 157	- 349		- 450	8	- 352							
15	100											335 15	311-15	311-15	76 P	76 NP		
16	110	20.3		- 40		- 158			- 451	9	- 351		312-16	312-16				
17	120	20.2		- 41		- 159	- 350		- 452	10	- 350							
18	120											336 18	313-18	313-18	77 P	77 NP		
19	140	20.2		- 42		- 160	- 351		- 453	11	- 349							
20	140											337 20	314-20	314-20	78 P	78 NP		
21	200	19.8		- 43		- 161	- 352		- 454	12	- 348	338 21				77 NP		
22	300	19.6		- 44		- 162	- 353		- 455	13	- 347	* 339 22				78 NP		
23	500	18.8		- 45		- 163	- 354		- 456	14		* 340 23						
24	700	16.9		- 46			- 355		- 457	15		* 341 24						

Cruise: DC415-1		Leg:		Cast: CTD # 37 (0-700m)		Type: A4 CTD (w.p. 2316)												
Date: 4 July 2005		Time: 2201		Lat: 30° 54.13		Long: 66° 29.83		Samplers:										
Date: 4 July 2005		Time: 2243		Lat: 30° 54.52		Long: 66° 29.41		Diana, Valery, Olga, Kevin W, Megan										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Bact N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt P	flowCyt NP	SWS	
				O2 ₁	O2 ₂ , O2 ₃													
1	0	26.6		47		164	356		458	1	372							9
2	0											342 -2	315 -2	315 -2	79 P	79 NP		
3	20	24.5		48		165	357		459	2	371							
4	20											343 -4	316 -4	316 -4	80 P	80 NP		
5	40	21.1		49		166	358*32		460	3	370							
6	40											344 -6	317 -6	317 -6	81 P	81 NP		
7	60	20.0		51		167	359		461	4	369							
8	60											345 -8	318 -8	318 -8	82 P	82 NP		
9	70	19.8		52		168			462	5	368							
10	70												319 -10	319 -10	83 P			
11	80	19.7		53		169	360		463	6	367							
12	80											346 -12	320 -12	320 -12	84 P	83 NP		
13	90	19.8		54		170			464	7	366			321 -13	321 -13	85 P		
14	100	19.6		55		171	361		465	8	365							
15	100											347 -15	322 -15	322 -15	86 P	84 NP		
16	110	19.5		56		172			466	9	364			323 -16	323 -16			
17	120	19.5		57		173	362		467	10	363							
18	120											348 -18	324 -18	324 -18	87 P	85 NP		
19	140	19.8		58		174	363		468	11	362							
20	140											349 -20	325 -20	325 -20	88 P	86 NP		
21	200	21.2		60		175	364		469	12	361	350 -21				87 NP		
22	300	19.3		63		176	365		470	13	360	351* -22				88 NP		
23	500	18.3		61		177	366		471	14		352* -23						
24	700	16.8		62			367		472	15		353* -24						
												*3L						

Cruise: 0C415-1		Leg:		Cast: CTD #38 (0-700 m)		Type: A-1 CTD (w.p. 2375)												
Date: 4 July 2005		Time: 2358		Lat: 31° 4.815		Long: 66° 29.849		Samplers:										
Date: 5 July 2005		Time: 0034		Lat: 31° 4.994		Long: 66° 29.304		Flaxa, Tom, Josh, Kevin W, Megan										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact- NAP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chia	Flow Cyt P	Flow cyt NP	SNIS	
				O2	O2, O2													
1	0	25.7		64		178	368		473	1	385	"						8 → some of bottle 1
2	0											354-2	326-2	326-2	89 P	89 NP		
3	20	23.5		65		179	369		474	2	384							
4	20											355-4	327-4	327-4	90 P	90 NP		
5	40	21.5		66		180	370+33		475	3	383							
6	40											356-6	328-6	328-6	91 P	91 NP		
7	60	20.5		67		181	371		476	4	382							
8	60											357-8	329-8	329-8	92 P	92 NP		
9	70	20.3		68		182			477	5	381							
10	70											358	330-10	330-10	93 P			
11	80	20.1		69		183	372		478	6	380							
12	80											358-12	331-12	331-12	94 P	93 NP		
13	90	19.8		72		184			479	7	379	359	332-13	332-13	95 P			
14	100	19.7		73		185	373		480	8	378							
15	100											359-15	333-15	333-15	96 P	94 NP		
16	110	19.5		74		186			481	9	377	360	334-16	334-16				
17	120	19.5		75		187	374		482	10	376							
18	120											360-18	335-18	335-18	97 P	95 NP		
19	140	19.4		76		188	375		483	11	375							
20	140											361-20	336-20	336-20	98 P	96 NP		
21	200	19.2		77		189	376		484	12	374	362-21				97 NP		
22	300	19.0		78		190	377		485	13	373	363-22				98 NP		
23	500	18.5		79		191	378		486	14		364-23						
24	700	16.4		80			379		487	15		365-24						
												366-24						

Cruise: 0C415-1			Leg:		Cast: CTD #39 (0-700m)		Type: A4 (w.p 2259) station 39										
Date: 5 July 2005			Time: 0552		Lat: 30° 43.184		Long: 60° 4.836		Samplers:								
Date: 5 July 2005			Time: 0638		Lat: 30° 42.991		Long: 60 4.591		Donghai, Keumw, Megan, Kevin C.								
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Bact NP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pig	Flow Cyt non pig	Σ N15
				O2	O2, O2												
1	0	26.2		101		192	380		488	1	398						x 8
2	0											366-2	337-2	337-2	99 P	99 NP	
3	20	25.1		102		193	381		489	2	397						
4	20											367-4	338-4	338-4	100 P	100 NP	
5	40	21.9		103		194	382+34		490	3	396						
6	40											368-6	337-6	339-6	101 P	101 NP	
7	60	20.8		104		195	383		491	4	395						
8	60											369-8	340-8	340-8	102 P	102 NP	
9	70	20.4		105		196			492	5	394						
10	70												341-10	341-10	103 P		
11	80	20.0		106		197	384		493	6	393						
12	80											370-12	342-12	342-12	104 P	103 NP	
13	90	19.8		107		198			494	7	392		343-13	343-13	105 P		
14	100	19.6		108		199	385		495	8	391						
15	100											371-15	344-15	344-15	106 P	104 NP	
16	110	19.4		109		200			496	9	390		345-16	345-16			
17	120	19.4		110		201	386		497	10	389						
18	120											372-18	346-18	346-18	107 P	105 NP	
19	140	19.2		111		202	387		498	11	388						
20	140											373-20	347-20	347-20	108 P	106 NP	
21	200	19.1		112		203	388		499	12	387	374-21				107 NP	
22	300	18.8		113		204	389		500	13	386	375-22				108 NP	
23	500	18.2		114		205	390		501	14		376-23					
24	700			115		206	391		502	15		377-24					

Niskin 24 - not so tight spigot but no samples taken
 12 - bottom cap leak.
 3 - slight bottom cap leak
 2 - slight bottom cap leak.

Cruise: 00415-1		Leg:		Cast: CTD # 40 (0-700m)		Type: A4 station 40 (w.p. 2085)												
Date: 5 July 2005		Time: 1053		Lat: 30° 10.807		Long: 65° 27.391		Samplers: Tom, Andy, J. Paris, Kenia, Diana, Olga, Valery, Christine										
Date: 5 July 2005		Time: 1138		Lat: 30° 10.884		Long: 65° 27.206												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact-N&P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pig	Flowcyt non pig	SUS	
				O2	O2 O2													
1	0	25.7	107	116	X 6	206	372		503	1	411							x 7
2	0				6							378 -2	348 -2	348 -2	109 p	109 NP		
3	20	23.5		117		207	393		504	2	410							
4	20											379 -4	349 -4	349 -4	110 p	110 NP		
5	40	22.4	108	118		208	394*35		505	3	409							
6	40											380 -6	350 -6	350 -6	111 p	111 NP		
7	60	20.6		119		209	395		506	4	408							
8	60											381 -8	351 -8	351 -8	112 p	112 NP		
9	70	20.2		120		210			507	5	407							
10	70												352 -10	352 -10	113 p	1		
11	80	17.9	111	121		211	396		508	6	406							
12	80											382 -12	353 -12	353 -12	114 p	113 NP		
13	90	20.0		122		212			509	7	405		354 -13	354 -13	115 p			
14	100	19.7		123		213	397		510	8	404							
15	100											383 -15	355 -15	355 -15	116 p	114 NP		
16	110	20.0	118	124		214			511	9	403		356 -16	356 -16				
17	120	19.8	122	201		215	398		512	10	402							
18	120											384 -18	357 -18	357 -18	117 p	115 NP		
19	140	19.9	125	202	7	216	399		513	11	401							
20	140											385 -20	358 -20	358 -20	118 p	116 NP		
21	200	18.4	130	203	8	217	400		514	12	400	386 -21				117 NP		
22	300	19.0	135	204	9	218	401		515	13	399	387 -22				118 NP		
23	500	17.4		205		219	402		516	14		388 -23						
24	700	14.6		206			403		517	15		389 -24						

Slight bottom cap leak

Cruise: OCE415-1		Leg:		Cast: CTD# 41 (0-700m)		Type: A4 (WP 220#)		Station 41									
Date: 5 July 2005		Time: 1457		Lat: 30° 32.42		Long: 65° 52.44		Samplers: Christine, Tom, Iliaria, Andy, Megan, Douglas, Kevin, Diana									
Date: 5 July 2005		Time: 1530		Lat: 30° 32.45		Long: 65° 52.39											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact N&P	FRF	POC/PON Vol= 2l	HPLC Vol= 4l	Chla	Flow Cyt P	Flow Cyt NP	δ ¹⁵ N
				O ₂	O ₂ -O ₂ Trifs												
1	0	25.2	138	-207	-207	-220	404		518	1	424						*7
2	0											390-2	359-2	359-2	119 P	119 NP	
3	20	24.8		-208		-221	405		519	2	423						
4	20											391-4	360-4	360-4	120 P	120 NP	
5	40	21.8	139	-209		-222	406*36		520	3	422						
6	40											392-6	361-6	361-6	121 P	121 NP	
7	60	20.9		-210		-223	407		521	4	421						
8	60											393-8	362-8	362-8	122 P	122 NP	
9	70	20.6		-211		-224	408		522	5	420						
10	70												363-10	363-10	123 P		
11	80	20.6	143	-212		-225	408		523	6	419						
12	80											394-12	364-12	364-12	124 P	123 NP	
13	90	20.3		-213		-226	409		524	7	418		365-13	365-13	125 P		
14	100	20.0		-214		-227	409		525	8	417						
15	100											395-15	366-15	366-15	126 P	124 NP	
16	110	20.1	145	-215		-228	410		526	9	416		367-16	367-16			Vol chla 132ml. not 500ml.
17	120	19.5	148	-216		-229	410		527	10	415						
18	120											396-18	368-18	368-18	127 P	125 NP	
19	140	17.2	154	-217	.11	-230	411		528	11	414						
20	140											397-20	369-20	369-20	128 P	126 NP	Bad filtration of 369
21	200	18.5	183	-218	.12	-231	412		529	12	413	398-21				127 NP	
22	300	17.2	196	-219	.10	-232	413		530	13	412	399-22				128 NP	
23	500	17.9		-220		233	414 414		531	14		400-23					
24	700	15.7		-221			415		532	15		401-24					

Cruise: OC415-1		Leg: 1		Cast: CTD #42 (0-700m)		Type: A4 Station 42 (wsp. 2433)												
Date: 5 July 2005		Time: 2144		Lat: 31° 15.58		Long: 66° 42.27		Samplers: Kevin C, O'g, Diann, DeLany, Meyer										
Date: 5 July 2005		Time: 2226		Lat: 31° 15.52		Long: 66° 41.71												
N #	Depth	Nskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pig	Flow cyt nonpig	S _N 15	
				O ₂	O₂ Trits													
1	0	25.8	107	222	2	234	416		533	1	437							*8
2	0											402 -2	370 -2	370 -2	129 P	129 NP		
3	20	24.2		223		235	417		534	2	436							
4	20											403 -4	371 -4	371 -4	130 P	130 NP		
5	40	22.5	108	224		236	418.37		535	3	435							
6	40											404 -6	372 -6	372 -6	131 P	131 NP		
7	60	20.5		1		237	419		536	4	434							
8	60											405 -8	373 -8	373 -8	132 P	132 NP		
9	70	19.9		2		238			537	5	433							
10	70												374 -10	374 -10	133 P	1		
11	80	20.8	111	3		239	420		538	6	432							
12	80											406 -12	375 -12	375 -12	134 P	133 NP		
13	90			4		240			539	7	431			376 -13	376 -13	135 P		
14	100	20.3	118	5		241	421		540	8	430							
15	100											407 -15	377 -15	377 -15	136 P	134 NP		
16	110	19.1	118	6		242			541	9	429			378 -16	378 -16			
17	120	20.6	122	7		243	422		542	10	428							
18	120											408 -18	379 -18	379 -18	137 P	135 NP		
19	140	19.9	125	8	43	244	423		543	11	427							
20	140											409 -20	380 -20	380 -20	138 P	136 NP		
21	200	19.0	130	10	4	245	424	DD 26	544	12	426	410 -21					137 NP	
22	300	18.5	135	11	5	246	425	DD 27	545	13	425	411 -22					138 NP	
23	500	17.6		12		247	426	DD 28	546	14		412 -23						
24	700	15.6		13		248	427	CC 1	547	15		413 -24						
												*3L						

Cruise: OC415-1		Leg:		Cast: CTD #44 (0-700m)		Type: A4 station 44 (w.p. 2549)												
Date: 6 July 2005		Time: 0535		Lat: 31° 37.499		Long: 67° 7.312		Samplers:										
Date: 6 July 2005		Time: 0618		Lat: 31° 37.684		Long: 67° 7.454		Kevin C, Keon W, Douglas, Megan, Joel										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pig	Flow Cyt non pig	FN15	
				O2	O2-O2T													
					Trits													
1	0	26.4	138	14	6	248	428		548	1	450							* 9
2	0											414-2	381-2	381-2	139 P	139 NP		
3	20	25.3		15		249	429		549	2	449							
4	20											415-4	382-4	382-4	140 P	140 NP		
5	40	20.6	139	16		250	430 438		550	3	448							
6	40											416-6	383-6	383-6	141 P	141 NP		
7	60	21.3		17		251	431		551	4	447							
8	60											417-8	384-8	384-8	142 P	142 NP		
9	70	20.8		18		252			552	5	446							
10	70												385-10	385-10	143 P			
11	80	20.5	143	19		253	432		553	6	445							
12	80											418-12	386-12	386-12	144 P	143 NP		
13	90	20.2		20		254			554	7	444		387-13	387-13	145 P			
14	100	19.8	145	21		255	433		555	8	443							
15	100											419-15	388-15	388-15	146 P	144 NP		
16	110	19.9		22		256			556	9	442		389-16	389-16				
17	120	19.6	148	23		257	434		557	10	441							
18	120											420-18	390-18	390-18	147 P	145 NP		
19	140	19.7	154	24	7	258	435		558	11	440							
20	140											421-20	391-20	391-20	148 P	146 NP		
21	200	18.5	183	26	8	259	436		559	12	439	422-21				147 NP		
22	300	19.8	196	27	9	260	437		560	13	438	423-22				148 NP		
23	500	18.1		29		261	438		561	14		424-23						
24	700	15.4		30			439		562	15		425-24						
												*3L						

* Niskin #21 Leaking From Bottom

Cruise: OC 415-1			Leg: 1		Cast: CTD #45			Type: A4 station 45 (w.p. 2553)											
Date: 6 July 2005			Time: 1034		Lat: 31° 37.321		Long: 66° 17.334		Samplers: Christine, Olga, Vexley, Diana, Ilaria, Tom.										
Date: 6 July 2005			Time: 1119		Lat: 31° 37.331		Long: 66° 17.011												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact NTP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt Pig	Flow Cyt non pig	SN ¹⁵	DNA/ RNA	
				O ₂	O ₂ , O ₂														
1	0	26.4		31		262	440		563	1	463							x 9	
2	0	?										426-2	392-2	392-2	149 P	149 NP			
3	20	25.9		32		263	441		564	2	462								
4	20											427-4	393-4	393-4	150 P	150 NP			
5	40	22.8		33		264	442+39		565	3	461								
6	40											428-6	394-6	394-6	151 P	151 NP			↓ ³ 4L
7	60	21.9		34		265	443		566	4	460								
8	60											429-8	395-8	395-8	152 P	152 NP			
9	70	21.6		35		266			567	5	459								
10	70												396-10	396-10	153 P				
11	80	21.2		37		267	444		568	6	458								
12	80											430-12	397-12	397-12	154 P	153 NP			
13	90	20.9		38		268			569	7	457		398-13	398-13	155 P				
14	100	20.6		39		269	445		570	8	456								
15	100											431-15	399-15	399-15	156 P	154 NP			
16	110	20.5		40		270			571	9	455		400-16	400-16					
17	120	20.3		41		271	446		572	10	454								
18	120											432-18	401-18	401-18	157 P	155 NP			
19	140	20.2		42		272	447		573	11	453								
20	140											433-20	402-20	402-20	158 P	156 NP			
21	200	20.1		43		273	448		574	12	452	434-21				157 NP			
22	200	19.5		44		274	449		575	13	451	435-22				158 NP			
23	500	19.0		45		275	450		576	14		436-23							
24	700	15.3		46			451		577	15		437-24							

21 bottom cap leak
24 slight bottom cap leak.

Cruise: OCE 415-1		Leg:		Cast: CTD 46		Type: A4 (W 2276) 2435												
Date: 6 July 2005		Time: 1359		Lat: 31° 15.72		Long: 166° 17.17		Samplers: Christine, Tom, Ilaria, Andy										
Date: (6) July 2005		Time: 1437		Lat: 31° 15.77		Long: 166° 16.75												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact N&P	FRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chia	Flow Cyt P	Flow Cyt NP	JON	AWA
				O2	O2, O2													
1	0	28.3		101		276	-452		578	1	-476							
2	0											438-2	403-2	403-2	159 P	159 NP		
3	20	25.7		102		277	-453		579	2	-475							
4	20											439-4	404-4	404-4	160 P	160 NP		
5	40	26.1		103		278	-454*		580	3	-474							
6	40											440-6	405-6	405-6	161 P	161 NP		(3L)
7	60	22.8		104		279	455		581	4	-473							
8	60											441-8	406-8	406-8	162 P	162 NP		
9	70	22.7		105		280			582	5	-472							
10	70												407-10	407-10	163 P			
11	80	22.7		106		281	-456		583	6	-471							
12	80											442-12	408-12	408-12	164 P	163 NP		
13	90	23.0		107		282			584	7	-470		409-13	409-13	165 P			
14	100	23.9		108		283	-457		585	8	-469	443-15	(410-15)	410-15	166 P	164 NP		3L for pig/AAC
15	100											443-15	410-15	410-15	166 P	164 NP		
16	110	23.6		109		284			586	9	-468		411-16	411-16	166 P			
17	120	23.5		110		285	-458		587	10	-467							
18	120	23.5										444-18	412-18	412-18	167 P	165 NP		
19	140	23.5		111		286	-459		588	11	-466							
20	140											445-20	413-20	413-20	168 P	166 NP		
21	200	22.4		112		287	-460		589	12	465	446-21				167 NP		
22	300	21.1		113		288	-461	447-22	590	13	-464	447-22				168 NP		
23	500	21.4		114		289	-462	448-23	591	14		448-23						
24	700	18.0		115			-463	449-24	592	15		449-24						

21 bottom cap leak

Cruise: 006416-1		Leg:		Cast: CTD 47		Type: A4 WP 2376 2376												
Date: 6 July 2005		Time: 1602		Lat: 31° 04.879		Long: 166 17.233		Samplers: Christine Magazu, Kevin W, Douglas										
Date: 6 July 2005		Time: 1656		Lat: 31° 04.94		Long: 166 16.78												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bset NAP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt P	Fluor Cyt NP	JUN	DWA
				O2 ₁	O2 ₂ O2 ₃													
1	0	27.3		-116		-290	-464		593	1	489							* 8.
2	0											450-2	414-2	414-2	169 P	169 NP		
3	20	25.2		-117		-291	-465		594	2	488							
4	20											451-4	415-4	415-4	170 P	170 NP		
5	40	23.3		-118		-292	-466*41		595	3	487							
6	40											452-6	416-6	416-6	171 P	171 NP		3L
7	60	21.7		-119		-293	-467		596	4	486							
8	60											453-8	417-8	417-8	172 P	172 NP		
9	70	21.3		-120		-294			597	5	485							
10	70												418-10	418-10	173 P			
11	80	20.0		-121		-295	-468		598	6	484							
12	80											454-12	419-12	419-12	174 P	173 NP		
13	90	20.9		-122		-296			599	7	483		420-13	420-13	175 P			
14	100	20.8		-123		-297	-469		600	8	482							
15	100											455-15	421-15	421-15	176 P	174 NP		
16	110	20.8		-124		-298			601	9	481		422-16	422-16				
17	120	20.6		-124		-299	-470		602	10	480							
18	120											456-18	423-18	423-18	177 P	175 NP		
19	140	20.4		-48		-300	-471		603	11	479							
20	140											457-20	424-20	424-20	178 P	176 NP		
21	200	20.5		-49		-301	-472		604	12	-478	458-21				177 NP		
22	500	20.2		-51		-302	-473 CC 2		605	13	-477	459-22				178 NP		
23	500	19.4		-52		-303	-474 CC 3		606	14		460-23						
24	700	17.5		-53			-475 CC 4		607	15		461-24						

Cruise: 00415-1		Leg:		Cast: 48		Type: Ac		WP 2317 2317											
Date: 6 July 2005		Time: 821		Lat: 30° 54.04		Long: 166° 17.25		Samplers: Christine, Megan, Kevin W, Douglas											
Date: 6 July 2005		Time: 1913		Lat: 30° 53.88		Long: 166° 16.98													
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON x100P	Salts	Nuts	Bact N&P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt ?	Flow Cyt NP	FISH	DNA/RNA	
				O ₂	O ₂ , O ₂														
1	0	27.3		-54		304	-476		-608	1	-501								
2	0											462-2	425-2	425-2	-179 P	-179 NP			
3	20	24.8		-55		-305	-477		-609	2	-500								
4	20											463-4	426-4	426-4	-180 P	-180 NP			
5	40	21.0		-56		-306	478 x 42		-610	3	-499								
6	40											464-6	427-6	427-6	-181 P	-181 NP			↓ 3L
7	60	20.4		-57		-307	-479		-611	4	-498								
8	60											465-8	428-8	428-8	-182 P	-182 NP			
9	70	20.3		-58		-308			-612	5	-497								
10	70												429-10	429-10	-183 P				
11	80	20.4		-60		-309	-480		-613	6	-496								
12	80											466-12*	430-12	430-12	-184 P	-184 NP			
13	90			-61		-310			-614	7	-495		431-13	431-13	-185 P				
14	100	20.5		-62		-311	-481		-615	8	-494								
15	100											467-15	432-15	432-15	-186 P	-186 NP			
16	110	20.5		-63		-312			-616	9			433-16	433-16					
17	120	20.3		-64		-313	-482		-617	10	-493								
18	120											468-18	434-18	434-18	-187 P	-187 NP			
19	140	20.9		-65		-314	-483		-618	11	-492								
20	140	20.2										469-20	435-20	435-20	-188 P	-188 NP			
21	200	19.9		-66		-315	-484		-619	12	-491	470-21							-187 NP
22	300	19.6		-67		-316	-485		-620	13	-490	*471-22							-188 NP
23	500	19.0		-68		-317	-486		-621	14		*472-23							
24	700	17.0		-69			-487		-622	15		*473-24							
												*3L							

didn't close -

*466 torn filter

Cruise: OC415-1		Leg:		Cast: CTD #49 (0-700 m)		Type: A4 Station 49 (w.p. 2199 2258)													
Date: 6 July 2005		Time: 2026		Lat: 30° 43.04		Long: 66° 17.285		Samplers: Diana, Olga, Valery, Megan, Ilana, Christine, Joe											
Date: 6 July 2005		Time: 2114		Lat: 30° 42.95		Long: 66° 17.412													
N #	Depth	Nskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	NITS ⁺ N+P	Seet Nuts	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pigmented	FlowCyt nonpigment	SIS	DNA	
				O ₂	O ₂ , O ₂														
1	0	26.9		72		318	488		1	623	514								
2	0											474-2	436-2	436-2	189 P	189 NP			
3	20	24.9		73		319	489		2	624	513								
4	20											475-4	437-4	437-4	190 P	190 NP			
5	40	21.7		74		320	490*48		3	625	512								
6	40											476-6	438-6	438-6	191 P	191 NP			↑ 3C
7	60	20.6		75		321	491		4	626	511								
8	60											477-8	439-8	439-8	192 P	192 NP			
9	70	20.1		76		322			5	627	510								
10	70												440-10	440-10	193 P				
11	80	20.0		77		323	492		6	628	509								
12	80											478-12	441-12	441-12	194 P	194 NP			
13	90	20.0		78		324			7	629	508		442-13	442-13	195 P				
14	100	20.0		79		325	493		8	630	507								
15	100											479-15	443-15	443-15	196 P	196 NP			
16	110	20.2		80		326			9	631	506	#	444-16	444-16					
17	120	20.1		81		327	494		10	632	505								
18	120											480-18	445-18	445-18	197 P	197 NP			
19	130	20.2		82		328	495		11	633	504								
20	140											481-20	446-20	446-20	198 P	198 NP			
21	200	19.8		83		329	496		12	634	503	482-21				199 NP			
22	300	19.4		201		330	497		13	635	502	483-22				198 NP			
23	500	19.2		202		331	498		14	636		484-23							
24	700	16.9		203			499		15	637		485-24							
												*3L							

Cruise: 00415-1			Leg:	Cast: 1050 (0-700)	Type: A4 Station 50 (2199 w.p.)													
Date: 6 July 2005			Time: 2222	Lat: 30° 32.405	Long: 60° 17.342	Samplers: Ilaia, Diana, Tom, Olga, Valery, Megan												
Date: 6 July 2005			Time: 2307	Lat: 30° 32.316	Long: 60° 17.342													
N #	Depth	Nskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Rect NAP	FRRF	POC/PON Vol= 21	HPLC Vol=	Chia	Flow Cyt P	Flow Cyt NP	δ ¹⁵ N	DNA
				O ₂	O ₂ , O ₂													
1	0	26.6		-204		-332	-500		638	1	-527							
2	0											490-2	447-2	447-2	199-2	199-2		
3	20	24.8		-205		-333	-501		639	2	-526							
4	20											497-4	448-4	448-4	200-4	200-4		
5	40	22.0		-206		-334	-502		640	3	-525							
6	40											486-6	449-6	449-6	201-6	201-6		
7	60	21.0		-207		-335	-503		641	4	-524							
8	60											487-8	450-8	450-8	202-8	202-8		
9	70	20.7		-208		-336	-504		642	5	-523							
10	70												451-10	451-10	203-10			
11	80	20.4		-209		-337	-505		643	6	-522							
12	80											490-12	452-12	452-12	204-12	203-12		
13	90	20.4		-210		-338	-500		644	7	-521		453-13	453-13	205-13			
14	100	20.5		-211		-339	-507		645	8	-520							
15	100											491-15	454-15	454-15	204-15	204-15		
16	110	20.2		-212		-340	-506		646	9	-519		455-16	455-16				
17	120	20.0		-213		-341	-506		647	10	-518							
18	120											492-18	456-18	456-18	207-18	205-18		
19	140	20.0		-214		-342	-507		648	11	-517							
20	140											493-20	457-20	457-20	208-20	206-20		
21	200	19.5		-215		-343	-511		649	12	-516		494-21			207-21		
22	300	19.2		-216		-344	-512		650	13	-515		495-22			208-22		
23	500	19.0		-217		-345	-513		651	14	-514		496-23					
24	700	16.4		-218		-346	-514		652	15	-513		497-24					

Niskin 14 Leaking from bottom

Cruise: OC415-1		Leg:		Cast: CTD #51 (0-700m)		Type: A4 (w.p. 2081)		Samplers: Kevin W. Kevin C. Donahue, Megan									
Date: 7 July 2005		Time: 0530		Lat: 30° 10.797		Long: 66° 17.453											
Date: 7 July 2005		Time: 0619		Lat: 30° 10.618		Long: 66° 17.796											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Baet N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt Pigment	Flow Cyt non pig	SN ¹⁵
				O ₂	O ₂ , O ₂												
1	0	26.8		.101		346	612 512	653	1	570							x Z
2	0											498-2	458-2	458-2	209 P	209 NP	
3	20	24.9		.102		347	613 513	654	2	569							
4	20											499-4	459-4	459-4	210 P	210 NP	
5	40	22.6		.103		348	614 45514	655	3	568							
6	40											500-6	460-6	460-6	211 P	211 NP	
7	60	21.6		.104		349	615 515	656	4	567							
8	60											501-8	461-8	461-8	212 P	212 NP	
9	70	21.1		.105		350		657	5	566							
10	70												462-10	462-10	213 P		
11	80	20.9		.106		351	616 516	658	6	565							
12	80											502-12	463-12	463-12	214 P	213 NP	
13	90	20.7		.107		352		659	7	564			464-13	464-13	215 P		
14	100	20.4		.108		353	617 517	660	8	563							
15	100											503-15	465-15	465-15	216 P	214 NP	
16	110	20.1		.109		354		661	9	562			466-16	466-16			
17	120	20.3		.110		355	618 518	662	10	561							
18	120											504-18	467-18	467-18	217 P	215 NP	
19	140	19.9		.111		356	619 519	663	11	560							
20	140											505-20	468-20	468-20	218 P	216 NP	
21	200	19.6		.112		357	620 520	664	12	529	506-21					217 NP	
22	300	19.3		.113		358	621 521	665	13	528	507-22					218 NP	
23	500	19.7		.114		359	622 522	666	14		508-23						
24	700	15.7		.115			623 523	667	15		509-24						
												43L					

↑
FRAP
NUMBERS
WRONG.

Cruise: OCE 415-1			Leg:		Cast: 52		Type: (wp 2077)											
Date: 7 July 2005			Time: 1026		Lat: 30° 10.833		Long: 67° 7.292		Samplers: Christine Olga Diana, Volery Tom Amy Ihsia-									
Date: 7 July 2005			Time: 1113		Lat: 30° 11.314		Long: 67° 7.669											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/AIK	TOC/TON	Salts	Nuts	Bact NDP	FRRF	POC/PON Vol= 9L	HPLC Vol= 4L	Chla	Flow Cyt P	Flow Cyt NP	Σ 15N	
				O ₂	O ₂ , O ₃													
1	0	26.6		-116		-360	524		668	1	-583						*B	
2	0											510-2	469-2	469-2	219 P	219 NP		
3	20	24.4		117		-361	525		669	2	-582							
4	20											511-4	470-4	470-4	220 P	220 NP		
5	40	21.8		-118		-362	526		670	3	-581							
6	40											512-6	471-6	471-6	221 P	221 NP		
7	60	21.0		-119		-363	527		671	4	-580							
8	60											513-8	472-8	472-8	222 P	222 NP		
9	80	20.7		-120		-364			672	5	-579							
10	80											473-10	473-10	223 P				
11	80	20.5		-121		-365	528		673	6	-578							
12	80											514-12	474-12	474-12	224 P	223 NP		
13	90	20.3		-122		-366			674	7	-577		475-13	475-13	225 P			
14	100	20.2		-123		-367	529		675	8	-576							
15	100											515-15	476-15	476-15	226 P	224 NP		
16	110	20.1		-124		-368			676	9	-575		477-16	477-16				
17	120	19.9		-201		-369	530		677	10	-574							
18	120											516-18	478-18	478-18	227 P	225 NP		
19	140	19.8		-202		-370	531		678	11	-573							
20	140											517-20	479-20	479-20	228 P	226 NP		
21	200	19.2		-203		-371	532		679	12	-572	518-21				227 NP		
22	300	19.0		-204		-372	533		680	13	-571	519-22				228 NP		
23	500	17.6		-205		-373	534		681	14		520-23						
24	700	15.2		-206			535		682	15		521-24						

Cruise: OCE 415-1		Leg:		Cast: 53		Type: (up 2197)													
Date: 7 July 2005		Time: 1412		Lat: 30° 32.53		Long: 66° 42.47		Samplers: Christine, Tom, Ilario, Andy, Kevin W, Keith.											
Date: 7 July 2005		Time: 1448		Lat: 30° 33.07		Long: 66° 42.46													
N #	Depth	Niskin Temp	Heftom, Niskin Temp A	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact NaP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt P	Flow Cyt NP	δ ¹⁵ N	Diana	
				O ₂	O ₂ , O ₂														
1	0	→	27.1	-207	-374	-536			683	1	-596								* 0
2	0											522	-2	480	-2	480	-2	-229	P 229 NP
3	20		26.5	-208	-375	-537			-684	2	-595								
4	20											523	-4	481	-4	480	-4	-230	P 230 NP
5	40		23.2	-209	-376	-538	177		-685	3	-594								
6	40											524	-6	482	-6	482	-6	-231	P 231 NP
7	60		21.8	-210	-377	-539			-686	4	-593								
8	60											525	-8	483	-8	483	-8	-232	P 232 NP
9	70		21.5	-211	-378				-687	5	-592								
10	70													484	-10	484	-10	-233	P
11	80		21.2	-212	-379	-540			-688	6	-591								
12	80											526	-12	485	-12	485	-12	-234	P 233 NP
13	90		21.1	-213	-380				-689	7	-590			486	-13	486	-13	-235	P 2
14	100		20.8	-214	-381	-541			-690	8	-589								
15	100											527	-15	487	-15	487	-15	-236	P 234 NP
16	110	20.7	20.7	-1	-382				-691	9	-588			488	-16	488	-16		
17	120	20.6	20.6	-2	-383	-542			-692	10	-587								fan out of water not 500ml Vol=350ml for chla
18	120											528	-18	489	-18	489	-18	-237	P -235 NP
19	140	20.7	20.7	-3	-384	-543			-693	11	-586								
20	140											529	-20	490	-20	490	-20	-238	P -236 NP
21	200	20.4	20.4	-4	-385	-544			-694	12	-585								237 NP
22	300	20.1	20.1	-5	-386	-545			-695	13	-584			531	-22				-238 NP
23	500	19.7	19.7	-6	-387	-546			-696	14				532	-23				
24	700				-547				-697	15				533	-24				

1 bottom vial leak
 23 " " "
 77 " " "

No gas tight samples taken except gases.

Cruise: OCE 415-1		Leg: 4	Cast: CTD # 54	(0-700m)	Type: WP 2257	A4													
Date: 7 July 2005		Time: 1636	Lat: 36° 43.277	Long: 166° 29.67	Samplers: Kevin Kevin, Douglas, Christine														
Date: 7 July 2005		Time: 1721	Lat: 36° 43.637	Long: 166° 29.25															
N #	Depth	Niskin Temp	Hellum	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	B _{act} N&P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt P	Flow Cyt NP	Σ N	phytoplankton	
				O ₂	O ₂ , O ₂														
1	0	27.2		-7		-388	-548		-698	1	-609								
2	0											534-2	491-2	491-2	239-P	239-NP			
3	20	23.6		-8		-389	-549		-699	2	-608								
4	20											535-4	492-4	492-4	240-P	240-NP			
5	40	21.6		-10		-390	-550 *48		-700	3	-607								
6	40											536-6	493-6	493-6	241-P	241-NP			
7	60	20.6		-11		-391	-551		-701	4	-606								
8	60											537-8	494-8	494-8	242-P	242-NP			
9	70	20.3		-12		-392			-702	5	-605								
10	70												495-10	495-10	243-P				
11	80	20.2		-13		-393	-552		-703	6	-604								
12	80											538-12	496-12	496-12	244-P	243-NP			
13	80	20.1		-14		-394			-704	7	-603								#45
14	100	17.7		-15		-395	-553		-705	8	-602								
15	100											539-15	498-15	498-15	246-P	244-NP			
16	110	17.8		-16		-396			-706	9	-601								#46
17	120	17.7		-17		-397	-554		-707	10	-600								
18	120											540-18	500-18	500-18	247-P	245-NP			
19	140	17.5		-18		-398	-555		-708	11	-599								
20	140											541-20	501-20	501-20	248-P	246-NP			
21	200	17.5		-19		-399	-556		-709	12	-598	542-21							247-NP
22	300	17.3		-20		-400	-557		-710	13	-597	*543-22							248-NP
23	500	18.6		-21		-401	-558		-711	14		*544-23							
24	700	16.7		-22		-402	-559		-712	15		*545-24							
												*3d							

Cruise: OCE 415.1		Leg:		Cast: ^{FTD} 55 Co-700m		Type: Station 55 WP 2317 A4 Center												
Date: 7 July 2005		Time: 1907		Lat: 30° 53.98		Long: 166° 17.13		Samplers:										
Date: 7 July 2005		Time: 1954		Lat: 30° 53.698		Long: 166° 16.619		Diana, Olga, Valery, Megan, Kevin.										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/AIK	TOC/TON	Salts	Nuts	But NAP	FRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt P	FlowCyt NP	δ ¹⁵ N	Phytoplankton
				O ₂	O ₂ , O ₂													
1	0	27.0		-23		-402	-560		713	1	-622							*7
2	0											546-2	502-2	502-2	249 P	249 NP		
3	20	23.1		-24		-403	-561		714	2	-621							
4	20											547-4	503-4	503-4	250 P	250 NP		
5	40	20.8		-26		-404	-562*4.9		715	3	-620							
6	40			"						"		548-6	504-6	504-6	251 P	251 NP		#501 47
7	60	20.2		-28		-405	-563		716	4	-619							
8	60											549-8	505-8	505-8	252 P	252 NP		
9	70	19.9		-29		-406			717	5	-618							
10	70												506-10	506-10	253 P			
11	80	19.9		-30		-407	-564		718	6	-617							
12	80											550-12	507-12	507-12	254 P	253 NP		
13	90	19.9		-31		-408			719	7	-616		508-13	508-13	255 P			
14	100	19.9		-32		-409	-565		720	8	-615							#502 49
15	100											551-15	509-15	509-15	256 P	254 NP		
16	110	20.0		-33		-410			721	9	-614		510-16	510-16				
17	120	19.9		-34		-411	-566		722	10	-613							
18	120											552-18	511-18	511-18	257 P	255 NP		
19	140	20.0		-35		-412	-567		not taken 723	11	-612							
20	140											553-20	512-20	512-20	258 P	256 NP		
21	200	19.7		-37		-413	-568	CC 5	724	12	-611	554-21				257 NP		
22	300	19.5		-38		-414	-569	CC 6	725	13	-610	*555-22				258 NP		
23	500	18.7		-39		-415	-570	CC 7	726	14		*556-23						
24	700	16.4		-40			-571	CC 8	727	15		*557-24						
												*3L						

Cruise: DC415-1			Leg:		Cast: CTD # 56 (0-700m)		Type: A4 Station 56 (W.p. 2377)												
Date: 7 July 2005			Time: 2207		Lat: 31° 04.78		Long: 06° 04.82		Samplers: Drann, Olga, Valery, Mega - J. Sanchez, Kevin W.										
Date: 7 July 2005			Time: 2250		Lat: 31° 04.167		Long: 06° 04.586												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact NP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pigmented	Flow cyt non-pigmented	SN ¹⁵	Phytoplankton	
				O ₂	O ₂ , O ₂														
1	0	27.4		41		416	865 72		728	1	635								
2	0											558 -2	513 -2	513 -2	259 P	259 NP			x 8
3	20	25.2		42		417	573		729	2	634								
4	20											559 -4	514 -4	514 -4	260 P	260 NP			
5	40	22.5		43		418	574 750		730	3	633								
6	40											560 -6	515 -6	515 -6	261 P	261 NP			
7	60	21.3		44		419	575		731	4	632								
8	60											561 -8	516 -8	516 -8	262 P	262 NP			
9	70	20.8		45		420			732	5	631								
10	70												517 -10	517 -10	263 P				
11	80	20.6		46		421	576		733	6	630								
12	80											562 -12	518 -12	518 -12	264 P	263 NP			
13	90	20.3		47		422			734	7	629		519 -13	519 -13	265 P				
14	100	20.0		48		423	577		735	8	628								
15	100											563 -15	520 -15	520 -15	266 P	264 NP			
16	110	20.0		49		424			736	9	627		521 -16	521 -16					49
17	120	20.0		51		425	578		737	10	626								
18	120											564 -18	522 -18	522 -18	267 P	265 NP			
19	140	20.2		52		426	579		738	11	625								
20	140											565 -20	523 -20	523 -20	268 P	266 NP			
21	200	19.6		53		427	580		739	12	624		566 -21			267 NP			
22	300	19.3		54		428	581		740	13	623		567 -22			268 NP			
23	500	18.5		55		429	582		741	14			568 -23						
24	700	16.4		56		430	583		742	15			569 -24						

Cruise: OC415-1			Leg:		Cast: CTD #57 (0-700m)			Type: A4 Station 57		w.p. 2437								
Date: 8 July 2005			Time: 0031		Lat: 31° 15.597		Long: 65° 52.433		Samplers: Ilanin, Tom, Josh, Mary									
Date: 8 July 2005			Time: 0104		Lat: 31° 15.252		Long: 65° 52.380											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Bact N+P	FRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pigment	Flow cyt nonpig.	SNI's	phytoplankton
				O ₂	O ₂ , O ₃													
1	0	26.8		57		430	584	743	1	648								
2	0											(570-2)	(524-2)	(524-2)	(269 P)	(269 NP)		* P. DEY
3	20	26.2		58		431	585	744	2	647								
4	20																	
5	40	22.9		60		432	586 * 51	745	3	646								#51
6	40																	
7	60	21.5		61		433	587	746	4	645								
8	60																	
9	70	21.3		62		434		747	5	644								
10	70																	
11	80	20.9		63		435	588	748	6	643								
12	80																	
13	90	20.6		64		436		749	7	642								
14	100	20.0		65		437	589	750	8	641								
15	100																	
16	110	20.1		66		438		751	9	640								#SD
17	120	20.0		67		439	590	752	10	639								
18	120																	
19	140	19.8		68		440	591	753	11	638								
20	140																	
21	200	19.5		69		441	592	754	12	637								
22	300	19.3		72		442	593	755	13	636								
23	500	18.1		73		443	594	756	14									
24	700	15.6		74			595	757	15									

24 net gas light
 2 didn't fix beyond caught on sprigot
 14 Leaked from Bottom

3L bottle I HPLC

Cruise: OC415-1		Leg: 1		Cast: CTD #58 (0-700m)		Type: A4 station 58 - w.p. 2439												
Date: 8 July 2005		Time: 0315		Lat: 31° 15.660		Long: 65° 27.516		Samplers:										
Date: 8 July 2005		Time: 0350		Lat: 31° 15.434		Long: 65° 27.444		Douglas, Kevin C, Kevin W, Magnan										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Beet-NIP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pycnal	Flow Cyt non-py.	SN ¹⁵	phytoplankton
				O ₂	O ₂ , O ₂													
1	0	27.0		101		444	596		758	1	661						x 8	
2	0											582-2	535-2	535-2	279 P	279 NP		
3	20	23.3		102		445	597		759	2	660							
4	20											593-4	536-4	536-4	280 P	280 NP		
5	40	21.8		103		446	598.52		760	3	659							
6	40											584-6	537-6	537-6	281 P	281 NP		
7	60	20.9		104		447	599		761	4	658							
8	60											585-8	538-8	538-8	282 P	282 NP		
9	70	20.7		105		448			762	5	657							
10	70												539-10	539-10	283 P			
11	80	20.6		106		449	600		763	6	656	586-12	540-12	540-12	284 P	283 NP		
12	80												541-13	541-13	285 P			
13	96	20.5		107		450			764	7	655							
14	100	20.2		108		451	601		765	8	654							
15	100											587-15	542-15	542-15	286 P	284 NP		
16	120	20.0		109		452			766	9	657		543-16	543-16				≠
17	120	19.7		110		453	602		767	10	652							
18	120											588-18	544-18	544-18	287 P	285 NP		
19	140	19.6		111		454	603		768	11	651							
20	140											589-20	545-20	545-20	288 P	286 NP		
21	200	19.3		112		455	604		769	12	650	590-21				287 NP		
22	300	19.6		113		456	605		770	13	649	591-22				289 NP		
23	500	17.8		114		457	606		771	14		592-23						
24	700	14.7		115			607		772	15		593-24						

1 (leaky) from bottom
14 "
17 "

Cruise: DC415-1			Leg:		Cast: CTD # 59 (0-700m)		Type: A4 station 59 w.p. 2321												
Date: 8 July 2005			Time: 0657		Lat: 30° 53.950		Long: 65° 27.408		Samplers: Kevin C, Kevin W, Douglas, Megan										
Date: 8 July 2005			Time: 0639		Lat: 30° 53.207		Long: 65° 27.379												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	-Bact N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pigment	Flow Cyt non pig.	SUNIS	DNA RNA	
				O2 ₁	O2 ₂ , O2 ₃														
1	0	26.9		116		458	608		773	1	674							7	
2	0											594-2	546-2	546-2	289 P	289 NP			
3	20	24.9		117		459	609		774	2	673								
4	20											555-4	547-4	547-4	290 P	290 NP			
5	40	22.4		118		460	610 x53		775	3	672								↕ 3L
6	40											596-6	548-6	548-6	291 P	291 NP			
7	60	20.4		119		461	611		776	4	671								
8	60											597-8	549-8	549-8	292 P	292 NP			
9	70	20.6		120		462			777	5	670								
10	70												550-10	550-10	293 P				
11	80	20.3		121		463	612		778	6	669								
12	80											598-12	551-12	551-12	294 P	293 NP			
13	90	20.2		122		464			779	7	668			552-13	552-13	295 P			
14	100	20.1		123		465	613		780	8	667								
15	100											599-15	553-15	553-15	296 P	294 NP			
16	110	20.1		124		466			781	9	666			554-16	554-16	297 P			
17	120	20.1		201		467	614		782	10	665								
18	120											600-18	555-18	555-18	297 P	295 NP			
19	140	19.8		202		468	615		783	11	664								
20	140											601-20	556-20	556-20	298 P	296 NP			
21	200	19.2		203		469	616		784	12	663	602-21							297 NP
22	300	19.2		204		470	617		785	13	662	603-22							298 NP
23	500	18.0		205		471	618		786	14		604-23							
24	700	15.0		206			619		787	15		605-24							

Niskin 23 leaking from bottom cap
 17 leaking from bottom cap
 14 leaking from bottom cap.

Cruise: DCE 415-1			Leg:		Cast: 60		Type: (wp 2320)												
Date: 8 July 2005			Time: 0849		Lat: 30° 54.039		Long: 65° 52.282		Samplers: Olga, Valley Diatom Cluster										
Date: 8 July 2005			Time: 0736		Lat: 30° 53.842		Long: 65° 52.511												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	P&T N&P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt P	Flow Cyt NP	Σ ¹⁵ N	DNA	
				O ₂	O ₂ , O ₂														
1	0	26.8		-207		472	620 620		788	1	688 688								
2	0																		
3	20	24.3		-208		473	621 621		789	2	689 689	606 -2	557 -2	557 -2	299 P	299 NP			
4	20																		
5	40	22.6		-209		474	622 *54		790	3	690 690	607 -4	558 -4	558 -4	300 P	300 NP			
6	40																		
7	60	21.2		-210		475	623		791	4	691 691	608 -6	559 -6	559 -6	301 P	301 NP			
8	60																		
9	70	20.9		-211		476	.		792	5	692 692								
10	70												561 -10	561 -10	303 P				
11	80	20.6		-212		477	-624		793	6	693 693								
12	80																		
13	90	20.4		-213		478			794	7	694 694	610 -12	562 -12	562 -12	304 P	303 NP			
14	100	20.2		-214		479	625		795	8	695 695		563 -13	563 -13	305 P				
15	100																		
16	110	20.0		-215		480			796	9	696 696	611 -15	564 -15	564 -15	306 P	304 NP			
17	120	19.8		-216		481	626		797	10	697 697		565 -16	565 -16					
18	120																		
19	140	19.8		-217		482	627		798	11	698 698	612 -18	566 -18	566 -18	307 P	305 NP			
20	140																		
21	200	19.4		-218		483	628		799	12	699 699	613 -20	567 -20	567 -20	308 P	306 NP			
22	300	19.1		-219		484	629		800	13	700 700	614 -21				307 NP			
23	500	18.2		-220		485	630		801	14	701 701	*615 -22				308 NP			
24	700	15.8		-221		486	631		802	15	702 702	*616 -23							
												3L							

Cruise: OCE 415-1		Leg:		Cast: 61 (G-700m)		Type: A4		w.p.2318									
Date: 8 July 2005		Time: 1057		Lat: 30° 54.065		Long: 66° 4.858		Samplers: Andy, Tom, Maria, Christine									
Date: 8 July 2005		Time: 1144		Lat: 30° 53.930		Long: 66° 5.084											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact N&P	FRRF	POC/PON	HPLC	Chla	Flow Cyt	Flow Cyt	δ ¹⁵ N
				O ₂	O ₂ , O ₂							Vol= 2L	Vol= 4L	P	NP		
							xpt										
1	0	27.4		-222		-486	-632	-803	1	671							7*
2	0											618 -2	568 -2	568 -2	309 P	309 NP	
3	20	23.4		-923		-487	-633*	-804	2	670							
4	20											619 -4	569 -4	569 -4	310 P	310 NP	
5	40	22.1		-224		-488	-634*	-805	3	669							
6	40											620 -6	570 -6	570 -6	311 P	311 NP	
7	60	21.2		-1		-489	-635	-806	4	668							
8	60											621 -8	571 -8	571 -8	312 P	312 NP	
9	70	21.0		-2		-490		-807	5	667							
10	70												572 -10	572 -10	313 P		
11	80	20.8		-3		-491	-636	-808	6	666							
12	80											622 -12	573 -12	573 -12	314 P	313 NP	
13	50	20.6		-4		-492		-809	7	665			574 -13	574 -13	315 P		
14	100	20.8		-5		-493	-637	-810	8	664							
15	100											623 -15	575 -15	575 -15	316 P	314 NP	
16	110	20.9		-6		-494		-811	9	663			576 -16	576 -16			
17	120	20.6		-7		-495	-638	-812	10	662							
18	120											624 -18	577 -18	577 -18	317 P	315 NP	
19	140	20.5		-8		-496	-639	-813	11	-661							
20	140											625 -20	578 -20	578 -20	318 P	316 NP	
21	200	20.0		-10		-497	-640	-814	12	-660		626 -21				317 NP	
22	300	19.8		-11		-498	-641	-815	13	-659		*627-22				318 NP	
23	500	19.3		-11		-499	-642	-816	14			*628-23					
24	700	16.5		-13		-500	-643	-817	15			*629-24					
												*30					

14 bottom cap leak
23 slug in "

Cruise: OCE 415-1		Leg:		Cast: 62 63		0.700m		Type: intercomparison cast with WB (WP 2317)									
Date: 8 July 2005		Time: 1815		Lat: 30° 54.498		Long: 066° 17.437		Samplers: Christine, Kevin, Kevin, Douglas:									
Date: 8 July 2005		Time: 1850		Lat: 30° 57.232		Long: 066° 17.015											
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact N&P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt P	Flow Cyt NP	δ ¹⁵ N
				O ₂	O ₂ , O ₃												
							4000										
1	0	27.5		- 15		- 500	- 644		- 818	1	684						7*
2	0											630 -2	579 -2	579 -2	319 P	319 NP	
3	20	24.0		- 16		- 501	- 645		- 819	2	683						
4	20											631 -4	580 -4	580 -4	320 P	320 NP	
5	40	21.1		- 17		- 502	- 646*36		- 820	3	682						
6	40											632 -6	581 -6	581 -6	321 P	321 NP	
7	60	20.8		- 18		- 503	- 647		- 821	4	681						
8	60											633 -8	582 -8	582 -8	322 P	322 NP	
9	70	20.5		- 19		- 504			- 822	5	680						
10	70												583 -10	583 -10	323 P		
11	80	20.4		- 20		- 505	- 648		- 823	6	679						
12	80											634 -12	584 -12	584 -12	324 P	323 NP	
13	90	20.4		- 21		- 506			- 824	7	678		585 -13	585 -13	325 P		
14	100	20.3		- 22		- 507	- 649	CC 9	- 825	8	677						
15	100											635 -15	586 -15	586 -15	326 P	324 NP	
16	110	20.2		- 23		- 508		CC 10	826	9	676		587 -16	587 -16			
17	120	20.2		- 24		- 509	- 650	CC 11	827	10	675						
18	120											636 -18	588 -18	588 -18	327 P	325 NP	
19	140	20.0		- 25		- 510	- 651	CC 12	828	11	674						
20	140											637 -20	589 -20	589 -20	328 P	326 NP	
21	200	19.9		- 26		- 511	- 652	CC 13	829	12	- 673	638 -21				327 NP	
22	300	19.5		- 29		- 512	- 653	CC 14	830	13	- 672	639 -22				328 NP	
23	500	19.0		- 30		- 513	- 654	CC 15	831	14		640 -23					
24	700	17.4		- 31			- 655	CC 16	832	15		641 -24					

Cruise: OC415-1		Leg:		Cast: CTD # 64 (0700m)		Type: A4 Station 64 W.P. 2316													
Date: 8 July 2005		Time: 2109		Lat: 30° 54.097		Long: 106° 29.701		Samplers: Olga, Valery, Diann, Megan											
Date: 8 July 2005		Time: 2100		Lat: 30° 54.217		Long: 106° 29.278													
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact Ndp	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pigment	Flowcyt nompig	EN ¹⁵	Nucleoplankton	
				O ₂	O ₂ , O ₂														
1	0	27.0		32		514	656		833	1	697							X8	
2	0											642-2	590-2	590-2	329-2	329-NP			
3	20	23.8		33		515	657		834	2	696								
4	20											643-4	591-4	591-4	330-4	330-NP			
5	40	21.5		34		516	658 x57		835	3	695								
6	40											644-6	592-6	592-6	331-6	331-NP			
7	60	20.5		35		517	659		836	4	694								
8	60											645-8	593-8	593-8	332-8	332-NP			
9	70	20.3		37		518			837	5	693								
10	70												594-10	594-10	333-10				
11	80	20.1		38		519	660		838	6	692								
12	80											646-12	595-12	595-12	334-12	333-NP			
13	90	19.9		39		520			839	7	691			596-13	596-13	335-13			64
14	100	19.8		40		521	661		840	8	690								
15	100											647-15	597-15	597-15	336-15	334-NP			
16	110	19.9		41		522			841	9	689			598-16	598-16				
17	120	19.8		42		523	662		842	10	688								
18	120											648-18	599-18	599-18	337-18	335-NP			
19	140	19.8		43		524	663		843	11	687								
20	140											649-20	600-20	600-20	338-20	336-NP			
21	200	19.6		44		525	664		844	12	686	650-21				337-NP			
22	300	19.3		45		526	665		845	13	685	651-22				338-NP			
23	500	19.2		46		527	666		846	14		652-23							
24	700	17.5		47			667		847	15		653-24							
												*3L							

Cruise: DC415-1		Leg:		Cast: CTD #65 (0-700 m)		Type: A4 Station 65 (w. p. 2315)												
Date: 8 July 2005		Time: 2218		Lat: 30° 54.049		Long: 126° 42.21		Samplers: Diarr, Olym, Volery, Mes., Tan, Iltan,										
Date: 8 July 2005		Time: 2302		Lat: 30° 53.995		Long: 126° 41.74												
N #	Depth	Nskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Bact N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt p.g.merit	Flow Cyt non-pig	SNIS	
				O ₂	O ₂ , O ₂													
1	0	27.5		48		578	668		848	1	710							X 2711
2	0	27.5										654-2	601-2	601-2	339 P	339 NP		
3	20	24.9		49		529	669		849	2	709							
4	20											655-4	602-4	602-4	340 P	340 NP		
5	40	22.2		51		530	670x58		850	3	708							
6	40											656-6	603-6	603-6	341 P	341 NP		
7	60	21.0		52		531	670		851	4	707							
8	60											657-8	604-8	604-8	342 P	342 NP		
9	70	20.8		53		532			852	5	706							
10	70												605-10	605-10	343 P			
11	80	20.6		54		533	672		853	6	705							
12	80											658-12	606-12	606-12	344 P	343 NP		
13	90	20.3		55		534			854	7	704		607-13	607-13	345 P			
14	100	20.2		56		535	673		855	8	703							
15	100											659-15	608-15	608-15	346 P	344 NP		
16	110	20.1		57		536			856	9	702		609-16	609-16				
17	120	20.0		58		537	674		857	10	701							
18	120											660-18	610-18	610-18	347 P	345 NP		
19	140	19.9		60		538	675		858	11	700							
20	140											661-20	611-20	611-20	348 P	346 NP		
21	200			61		539	676		859	12	699	662-21				347 NP		
22	300	19.5		62		540	677		860	13	698	663-22				348 NP		
23	500	19.2		63		541	678		861	14		664-23						
24	700	17.1		64			679		862	15		665-24						

Cruise: DC415-1		Leg: 1		Cast: CTD # 68 68 (0-700m)		Type: A4		w.p. 2313										
Date: 9 July 2005		Time: 0926		Lat: 30° 54.074		Long: 67° 7.292		Samplers:										
Date: 9 July 2005		Time: 1012		Lat: 30° 54.870		Long: 67° 7.673		Christian, Di... olga, Uelmy										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/AIK	TOC/TON	Salts	Nuts	Bact NHP	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chia	Flow Cyt pyrostat	Flow Cyt non-pyro	SNIS	
				O2	O2, O2													
1	0	27.0		65		542	680		863	1	723							X.9
2	0											6060-2	612-2	612-2	349 P	349 NP		
3	20	24.6		66 67		543	681		864	2	722	6067-4	613-4	613-4	350 P	350 NP		
4	20																	
5	40	22.8		67		544	682*59		865	3	721							
6	40											6068-6	614-6	614-6	351 P	351 NP		
7	60	21.6		68		545	683		866	4	720							
8	60																	
9	70	21.0		69		546			867	5	719							
10	70												616-10	616-10	353 P			
11	80	20.6		72		547	684		868	6	718							
12	80											6070-12	617-12	617-12	354 P	353 NP		
13	90	20.6		73		548			869	7	717		618-13	618-13	355 P			
14	100	20.4		74		549	685		870	8	716							
15	60											6071-15	619-15	619-15	356 P	354 NP		
16	110	20.2		75		550			871	9	715		620-16	620-16				
17	120	20.2		76		551	686		872	10	714							
18	120											6072-18	621-18	621-18	357 P	355 NP		
19	140	20.0		77		552	687		873	11	713							
20	140											6073-20	622-20	622-20	358 P	356 NP		
21	200	19.7		78		553	688		874	12	712	6074-21						357 NP
22	300	19.3		79		554	689		875	13	711	6075-22						358 NP
23	500	18.5		80		555	690		876	14		6076-23						
24	700	15.9		81			691		877	15		6077-24						
												*36						

83 Dioms incubation.

Cruise: DC415-1		Leg: 1		Cast: CTD # 70 70 (0-700)		Type: C5 center		w.p.: 5141										
Date: 10 July 2005		Time: 1204		Lat: 33° 25.242		Long: 66° 42.270		Samplers:										
Date: 10 July 2005		Time: 1256		Lat: 33° 25.4		Long: 66° 42.4		Kevin C, Andy, Tom, Ilana, Christine										
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Alk	TOC/TON	Salts	Nuts	Bact N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow Cyt pigmented	Flow Cyt nonpig	SWIS	
				O2	Tritium O2-O2													
1	0	27.6	107	101	10	556	692		878	1	736							X 7
2	0											678-2	623-2	623-2	359 P	359 NP		
3	20	24.4		102		557	693		879	2	735							
4	20											679-4	624-4	624-4	360 P	360 NP		
5	40	22.7	108	103		558	694 *60		880	3	734	652 680-6	625-6	625-6	361 P	361 NP		1.5 L only for Arc
6	40																	
7	60	21.4		104		559	695		881	4	733							
8	60											681-8	626-8	626-8	362 P	362 NP		
9	70	21.2		105		560			882	5	732							
10	70												627-10	627-10	363 P			
11	80	20.7	111	106		561	696		883	6	731							
12	80											682-12	628-12	628-12	364 P	364 NP		
13	90	19.7		107		562			884	7	730		629-13	629-13	365 P			
14	100	19.8	118	108		563	697		885	8	729							
15	100											683-15	630-15	630-15	366 P	364 NP		
16	110	19.7		109		564			886	9	728		631-16	631-16				
17	120	19.9	122	110		565	698		887	10	727							
18	120											684-18	632-18	632-18	367 P	365 NP		
19	140	19.5	125	111	11	566	699		888	11	726							
20	140											685-20	633-20	633-20	368 P	366 NP		
21	200	15.6	130	112	12	567	700	CC 17	889	12	725	686-21				367 NP		
22	300	12.2	135	113	1	568	701	CC 18	890	13	724	*687-22				368 NP		
23	500	12.5		114		569	702	CC 19	891	14		*688-23						
24	700	12.7		115			703	CC 20	892	15		*689-24						
												X 31						

23 not gas tight.

Cruise: OC415-1			Leg:		Cast: CTD #71 (0-700m)		Type: C5		w.p. 3142						
Date: 10 July 2005			Time: 1409		Lat: 33° 25.421		Long: 66° 29.78		Samplers: Tom, Maria Andy, Sarah, Kevin, Christine						
Date: 10 July 2005			Time: 1443		Lat: 33° 25.658		Long: 66° 29.945								
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact- N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow-Cyt 8N ¹⁵
				O ₂	Tritium O ₂ , O ₂										
1	0	27.6	138	116	8	569	704		893	1	749				X9
2	0				8							690-2	634-2	634-2	
3	20	25.5		117		570	705		894	2	748				
4	20											691-4	635-4	635-4	
5	40	22.9	139	118		578	706 706		895	3	747				
6	40											692-6	636-6	636-6	
7	60	22.1		119		579	707		896	4	746				
8	60											693-8	637-8	637-8	filter dropped
9	70	20.9		120		578			897	5	745				
10	70											6	638-10	638-10	
11	80	20.7	143	121		577	708		898	6	744				
12	80											694-12	639-12	639-12	
13	90	20.4		122		575			899	7	743		640-13	640-13	
14	100	20.0	145	123		576	709		900	8	742				
15	100											695-15	641-15	641-15	
16	110	20.0		124		577			901	9	741		642-16	642-16	
17	120	19.6	148	201		578	710		902	10	740				
18	120											696-18	643-18	643-18	
19	140	20.0	154	202	3	579	711		903	11	739				
20	140											697-20	644-20	644-20	
21	200	19.6	183	203	4	580	712		904	12	738	698-21			
22	300	19.6	196	204	5	581	713		905	13	737	699-22			
23	500	17.82		205		582	714		906	14		700-23			
24	700	15.3		206			715		907	15		701-24			
												X3L			

23 Slight bottom cap (each -
one of the nutrients not filtered (filter holder empty))

Cruise: OCE 415-1		Leg: 72		Cast: 92		Type: (wp 3144) CS												
Date: 10 July 2005		Time: 1706		Lat: 33° 25.346		Long: 66° 04.836		Samplers: Keenan, Kevin, Douglas, Christine, Megan										
Date: 10 July 2005		Time: 1746		Lat: 33° 25.567		Long: 66° 05.056												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bast NDP	FRRF	POC/PON Vol=	HPLC Vol=	Chla	Flow-Syt 615N			
				O2	O2, O2, Tr. Ts													
1	0	27.3	107	207	6	583	716		908	1	762							
2	0											702-2	645-2	645-2				
3	20	25.7		208		584	717		909	2	761							
4	20											703-4	646-4	646-4				
5	40	22.6	108	209		585	718 *61		910	3	760							
6	60											704-6	647-6	647-6				
7	60	21.3		210		586	719		911	4	759							
8	60											705-8	648-8	648-8				
9	80	21.0		211		587	720		912	5	758							
10	80												649-10	649-10				
11	80	20.3	111	212		588	720		913	6	757							
12	85											706-12	650-12	650-12				
13	90	19.9		213		589	721		914	7	756		651-13	651-13				
14	100	20.0	118	214		590	721		915	8	755							
15	100											707-15	652-15	652-15				
16	110	19.7		215		591			916	9	754		653-16	653-16				
17	120	19.6	122	216		592	722		917	10	753							
18	120											708-18	654-18	654-18				
19	140	19.6	125	217	7	593	723		918	11	752							
20	140											709-20	655-20	655-20				
21	200	19.8	130	218	8	594	724		919	12	751	710-21						
22	300	19.8	135	219	9	595	725		920	13	750	711-22						
23	500	17.9		220		596	726		921	14		712-23						
24	700	14.9		221			727		922	15		713-24						

Cruise: OC415-1			Leg:	Cast: CTD #73 (0-700m)	Type: C5 Station 73 (w.p. 708 ⁷⁰⁸) (possible center?)												
Date: 10 July 2005			Time: 2114	Lat: 33° 14.58	Long: 166° 42.228	Samplers: Diann, Olga, Valery, Megan, Dennis, Douglas											
Date: 16 July 2005			Time: 2155	Lat: 33° 14.76	Long: 166° 41.99												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/AIK	TOC/TON	Salts	Nuts	500 NQR	FRF	POC/PON Vol=	HPLC Vol=	Chla	Flow Cyt & N15	Flow Cyt pigmented	Flow Cyt non-pigm.
				O2 ₁	O2 ₂ , O2 ₃												
1	0	27.0		222		597	728		923	1	774				X	X	
2	0											714-2	656-2	656-2		369 P	369 NP
3	20	24.5		223		598	729		924	2	773	715-4	657-4	657-4		370 P	370 NP
4	20																
5	40	22.2		224		599	730 ⁷³²		925	3	772						
6	40											716-6	658-6	658-6		371 P	371 NP
7	60	21.3		1		600	731		926	4	771						
8	60											X717-8	659-8	659-8		372 P	372 NP
9	70	20.9		2		601			927	5	770						
10	70												660-10	660-10		373 P	
11	80	20.2		3		602	732		928	6	769						
12	80											718-12	661-12	661-12		374 P	374 NP
13	90	19.8		4		603			929	7	768		662-13	662-13		375 P	
14	100	19.6		5		604	733		930	8	767						
15	100											719-15	663-15	663-15		376 P	377 NP
16	110	19.2		6		605			931	9	766		664-16	664-16			
17	120	19.1		7		606	734		932	10	765						
18	120											720-18	665-18	665-18		377 P	378 NP
19	140	18.8		8		607	735		933	11	764						
20	140											721-20	666-20	666-20		378 P	379 NP
21	200	18.3		10		608	736		934	12	763	722-21					379 NP
22	300	17.5		11		609	737		935	13	762	723-22					378 NP
23	500	15.7		12		610	738		936	14		724-23					
24	700	12.9		13			739		937	15		725-24					

X2 filters

Cruise: OC415-1		Leg:		Cast: CTD #74		Type: C5		Station 74 (w.p. 3140)							
Date: 10 July 2005		Time: 2331		Lat: 33° 25.367		Long: 66° 54.804		Samplers:							
Date: 11 July 2005		Time: 0007		Lat: 33° 25.460		Long: 66° 54.716		Tom, Josh, Ilaria, Megan							
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Bact N8P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow-Cyt SN ¹⁵
				O2 ₁	O2 ₂ , O2 ₃										
1	0	27.6		14		611	740	938	1	787					X 8
2	0											726-2	667-2	667-2	
3	20	29.2		15		612	741	939	2	786					
4	20											727-4	668-4	668-4	
5	40	22.1		16		613	742*63	940	3	785					
6	40											728-6	669-6	669-6	
7	60	20.8		17		614	743	941	4	784					
8	60											729-8	670-8	670-8	
9	70	20.3		18		615		942	5	783					
10	70												671-10	671-10	
11	80	19.6		19		616	744	943	6	782					
12	80											730-12	672-12	672-12	
13	90	19.0		20		617		944	7	781			673-13	673-13	
14	100	18.9		21		618	745	945	8	780					
15	100											731-15	674-15	674-15	
16	110	18.8		22		619		946	9	779			675-16	675-16	
17	120	18.7		23		620	746	947	10	778					
18	120											732-18	676-18	676-18	
19	140	18.8		24		621	747	948	11	777					
20	140											733-20	677-20	677-20	
21	200	18.5		26		622	748	949	12	776		734-21			
22	300	17.5		28		623	749	950	13	775		*735-22			
23	500	15.6		29		624	750	951	14			*736-23			
24	700	11.9		30			251	952	15			*737-24			
												X3L			

Niskin 12 leaking from bottom cap

Cruise: 0C415-1		Leg: 1		Cast: CTD # 76				Type: C5 w.p. 3138										
Date: 11 July 2005		Time: 0802		Lat: 33° 25.356		Long: 67° 19.790		Samplers: Kevin W., Olga, Valery, Christine										
Date: 11 July 2005		Time: 0847		Lat: 33° 25.280		Long: 67° 20.371												
N #	Depth	Niskin Temp	Helium	Oxygens		DIC/Aik	TOC/TON	Salts	Nuts	Beet N+P	FRRF	POC/PON Vol= 2L	HPLC Vol= 4L	Chla	Flow cyt § N ¹⁵			
				O2 ₁	O2 ₂ , O2 ₃													
1	0	27.1		31		625	752		953	1	800				X v11			
2	0											738 -2	678 -2	678 -2				
3	20	23.5		32		626	753		954	2	799							
4	20											739 -4	679 -4	679 -4				
5	40	21.7		33		627	754 v11		955	3	798							
6	40											740 -6	680 -6	680 -6				
7	60	19.8		34		628	755		956	4	797							
8	60											741 -8	681 -8	681 -8				
9	70	19.4		35		629			957	5	796							
10	70												682 -10	682 -10				
11	80	19.3		37		630	756		958	6	795							
12	80											742 -12	683 -12	683 -12				
13	90	19.2		38		631			959	7	794		684 -13	684 -13				
14	100	19.1		39		632	757		960	8	793							
15	100											743 -15	685 -15	685 -15				
16	110	18.9		40		633			961	9	792		686 -16	686 -16				
17	120	18.9		41		634	758		962	10	791							
18	120											744 -18	687 -18	687 -18				
19	140	18.8		42		635	759		963	11	790							
20	140											745 -20	688 -20	688 -20				
21	200	18.8		43		636	760	CC 21	964	12	789	746 -21						
22	300	18.8		44		637	761	CC 22	965	13	788	*747 -22						
23	500	15.6		45		638	762	CC 23	966	14		*748 -23						
24	700	12.5		46			763	CC 24	967	15		*749 -24						
												*32						

Cruise: OC415-1		Leg:		Cast: CTD # 78 (0-700m)		Type: A4 center											
Date: 14 July 2005		Time: 1144		Lat: 30° 43.200		Long: 66° 42.544		Samplers: Christine, Susan, Tom, Blaine									
Date: 14 July 2005		Time: 1221		Lat: 30° 43.597		Long: 66° 42.509											
N #	Depth	Niskln Temp	Hellum	Oxygens		-DIC/ALK	TOC/TON *DOP	Salts	Nuts	Baet N+P	FRRF	POC/PON Vol=2L	HPLC Vol=4L	Chla	Flow Cyt	FW ¹⁵	
				O ₂	O ₂ , O ₂												
1	0	27.8		101		637	764		968	1	813						X 9
2	0											750-2	689-2	689-2			
3	20	22.6		102		640	765		969	2	812						
4	20											751-4	690-4	690-4			
5	40	20.8		103		641	766 *65		970	3	811						
6	40											752-6	691-6	691-6			
7	60	20.1		104		642	767		971	4	810						
8	60											753-8	692-8	692-8			
9	70	19.8		105		643			972	5	809						
10	70												693-10	693-10			
11	80	19.8		106		644	768		973	6	808						
12	80											754-12	694-12	694-12			
13	90	19.8		107		645			974	7	807		695-13	695-13			
14	100	19.7		108		646	769		975	8	806						
15	100											755-15	696-15	696-15			
16	110	19.5		109		647			976	9	805		697-16	697-16			
17	120	19.5		110		648	770		977	10	804						
18	120											756-18	698-18	698-18			
19	140	19.5		111		649	771		978	11	803						
20	140											757-20	699-20	699-20			
21	200	19.4		112		650	772	CC 25	979	12	802	758-21					
22	300	19.0		113		651	773	CC 26	980	13	801	*759-22					
23	500	18.4		114		652	774	CC 27	981	14		*760-23					
24	700	16.5		115			775	CC 28	982	15		*761-24					
												*3L					

Cruise: OC415-1		Leg: 1		Cast: CTD #80		Type: A-1 - off center fluoro. 9 nm NW EC.												
Date: 14 July 2005		Time: 1542		Lat: 30° 48.96		Long: 66° 48.47		Samplers: Christina, Megan, Jiana, Diana, Quin, Tom										
Date: 12 July 2005		Time: 1623		Lat: 30° 49.57		Long: 66° 47.95												
N #	Depth	Nskin Temp	Helium	Oxygens		DIC/AIK	TOC/TON	Salts	Nuts Ginn	Bact	FRF	POC/PON	HPLC	Chla	Flow Cyt			
				O ₂	O ₂ , O ₃							Vol=	Vol=					
1	0	28.3		x 219	220 221				1				x 700 -1	700 -1				
2	20								2				x 701 -2	701 -2				
3	40								3									
4	50								4				x 702 -4	702 -4				
5	60								5									
6	70								6				x 703 -6	703 -6				
7	75								7									
8	80	20.4		x 222	223 224				8				x 704 -8	704 -8				
9	85								9									
10	90								10				x 705 -10	705 -10				
11	95								11									
12	100								12				x 706 -12	706 -12				
13	105								13									
14	110								14				x 707 -14	707 -14				
15	115								15									
16	120								16				x 708 -16	708 -16				
17	130								17									
18	140								18				x 709 -18	709 -18				
19	150								19									
20	160								20									
21	170								21									
22	180								22									
23	190								23									
24	200								24				x 710 -24	710 -24				

289 new #16
#17
#18