

# TN-368 CTD Cast Sheet

Station Number: SSFS      CTD cast #: 061      Transect #: 18  
 Start time (UTC): 22:38      End time (UTC): 23:14      Bottom Depth: 2285  
 Start date (UTC): 2019/07/10      End date (UTC): 2019/07/10      Initials: LD

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

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

Diatom patch location!

TN-368 CTD Cast Sheet

Station Number: SSF6 CTD cast #: 062 Transect #: 19  
 Start time (UTC): 00:15 End time (UTC): 01:00 Bottom Depth: 2267  
 Start date (UTC): 2019-07-11 End date (UTC): 2019-07-11 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSI	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300		✓										
HS	2	250		✓										
HS	3	200		✓										
HS	4	150		✓										
HS	5	120		✓										
HS, WS	6	100		✓				✓				✓		
HS, WS	7	80		✓				✓				✓		
CS	8	60												
CS, HS	9	60		✓		✓							✓	✓
WS	10	60						✓				✓		
CS	11	45												
CS	12	45												
ZS, HS	13	45	✓	✓		✓							✓	✓
	14	45												
WS, HS	15	42		✓		✓		✓	✓	✓		✓	✓	✓
Chl max HS, ZS	16	30	✓	✓		✓							✓	✓
WS	17	30						✓				✓		
HS	18	20		✓		✓								
WS	19	20						✓				✓		
WS, HS	20	10		✓		✓		✓				✓		
CS	21	sfc												
CS	22	sfc												
WS	23	sfc						✓				✓		
ZS, HS	24	sfc	✓	✓		✓	✓		✓	✓			✓	✓
Sampler														

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

0  
 0  
 0  
 45/60  
 45/60  
 30/45

# PRODUCTIVITY

## TN-368 CTD Cast Sheet

Station Number: AL3 CTD cast #: 063 Transect #: 24  
 Start time (UTC): 11:00 End time (UTC): 11:20 Bottom Depth: 6123  
 Start date (UTC): 2019/07/11 End date (UTC): 2019/07/11 Initials: HD

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HD	1	113		✓										
WS HS	2	100		✓	✓			✓				✓		
WS HS	3	80		✓	✓			✓				✓		
WS HS	4	60		✓	✓			✓				✓		
	5	60												
WS HS	6	42		✓	✓	✓		✓				✓		
	7	42												
WS HS	8	29		✓	✓	✓		✓				✓	✓	✓
CS	9	29												
CS	10	29												
WS HS	11	19		✓	✓	✓		✓	✓	✓		✓	✓	✓
CS	12	19												
CS	13	19												
WS HS	14	12		✓	✓			✓				✓		
	15	12												
WS HS	16	9		✓	✓	✓		✓				✓		
	17	9												
HS	18	5		✓	✓			✓				✓		
	19	5												
	20	0												
CS	21	0												
CS	22	0												
WS HS	23	0		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
WS	24	0	✓											
	Sampler													

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

113

0  
0  
0  
0

5  
5

9  
9

12  
12

19  
19  
19

29  
29  
29

42  
42

60  
60

80 100

# TN-368 CTD Cast Sheet

Station Number: AC2      CTD cast #: 064      Transect #: 24  
 Start time (UTC): 14:07      End time (UTC): 14:21      Bottom Depth: 105  
 Start date (UTC): 2019-07-11      End date (UTC): 2019-07-11      Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	14C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
WS, HS 10mab	1	95		✓				✓				✓		
	2	95												
WS, HS	3	80		✓				✓				✓		
	4	80												
WS, HS	5	60		✓				✓				✓		
	6	60												
WS, HS	7	49		✓		✓		✓				✓		
	8	49												
WS, HS	9	32		✓		✓		✓				✓	✓	✓
	10	32												
WS, HS chlmax	11	21		✓		✓		✓	✓	✓		✓	✓	✓
	12	21												
WS, HS	13	14		✓		✓		✓				✓	✓	✓
	14	14												
WS, HS	15	10		✓		✓		✓				✓		
	16	10												
WS, HS	17	5		✓		✓		✓				✓		
	18	5												
WS, HS, ZS	19	sfc	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓
	20	sfc												
	21	sfc												
	22	sfc												
	23	sfc												
	24													
	Sampler													

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

Floating: Chl max, 10mab 05' 10' 14' 21' 32' 49' 60' 80' 95'  
05' 10' 14' 21' 32' 49' 60' 80' 95'

0

# TN-368 CTD Cast Sheet

Station Number: A18      CTD cast #: 065      Transect #: 26  
 Start time (UTC): 18:21      End time (UTC): 19:52      Bottom Depth: 2288  
 Start date (UTC): 2019-07-11      End date (UTC): 2019-07-11      Initials: ZS

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

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

BOTTLE 3 HAD A LEAK  
(SEE CAN 30 FOR  
DETAILS)

TN-368 CTD Cast Sheet

Station Number: ATK CTD cast #: 066 Transect #: 26  
 Start time (UTC): 19:40 End time (UTC): 20:15 Bottom Depth: 2122  
 Start date (UTC): 2019-07-11 End date (UTC): 2019-07-11 Initials: ZS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300 ✓		✓										
HS	2	250 ✓		✓										
HS	3	200 ✓		✓										
HS	4	150 ✓		✓										
ZS, HS	5	120 ✓	✓	✓										
ZS, HS	6	100 ✓	✓	✓										
WS	7	100 ✓						✓				✓		
ZS, HS	8	80 ✓	✓	✓										
WS	9	80 ✓						✓				✓		
HS	10	60 ✓		✓		✓								
WS, HS	11	60 ✓	✓	✓		✓		✓				✓		
ZS, HS	12	40 ✓	✓	✓										
WS	13	40 ✓						✓				✓		
HS	Chl max	28 ✓		✓		✓			✓	✓			✓	✓
WS	Chl max	28 ✓						✓				✓		
ZS, HS	16	20 ✓	✓	✓		✓								
WS	17	20 ✓						✓				✓		
HS	18	10 ✓		✓		✓								
WS	19	10 ✓						✓				✓		
	20	Sfc ✓												
	21	Sfc ✓												
	22	Sfc ✓												
WS	23	Sfc ✓						✓				✓		
ZS, HS	24	Sfc ✓	✓	✓		✓	✓		✓	✓			✓	✓
	Sampler													

28  
 Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300  
 Floating: Chl max, 10mab

# TN-368 CTD Cast Sheet

Station Number: A16      CTD cast #: 067      Transect #: 26  
 Start time (UTC): 22:09      End time (UTC): 22:42      Bottom Depth: 1823  
 Start date (UTC): 2019/07/11      End date (UTC): 2019/07/11      Initials: HO

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300		✓										
HS	2	250		✓										
HS	3	200		✓										
HS	4	150		✓										
HS	5	120		✓										
ZS	6	100												
WS, HS	7	100		✓				✓				✓		
WS, HS	8	80		✓				✓				✓		
WS, HS	9	60		✓		✓		✓	✓	✓		✓	✓	✓
ZS	10	40												
	11	40												
HS	12	40		✓										
WS	13	37						✓				✓		
HS	14	37		✓		✓			✓	✓			✓	✓
JT	15	25												
JT	16	25												
WS	17	25						✓				✓		
HS	18	25		✓		✓			✓	✓			✓	✓
WS	19	10						✓				✓		
HS	20	10		✓		✓			✓	✓			✓	✓
	21	sfc												
HS	22	sfc		✓		✓	✓		✓	✓			✓	✓
WS	23	sfc						✓				✓		
ZS	24	sfc	✓											
	Sampler													

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

25  
25

# GRAZING

## TN-368 CTD Cast Sheet

Station Number: A16 CTD cast #: 068 Transect #: 26  
Start time (UTC): 00:03 End time (UTC): 00:12 Bottom Depth: ~1824  
Start date (UTC): 2019/10<sup>7</sup>/12 End date (UTC): 2019/10<sup>7</sup>/12 Initials: HO

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
	1	25												
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	9													
	10													
	11													
	12													
	13													
	14													
	15													
	16													
	17													
	18													
	19													
	20													
	21													
	22													
	23													
	24													
	Sam pler													

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

# TN-368 CTD Cast Sheet

Station Number: A15      CTD cast #: 069      Transect #: 26  
 Start time (UTC): 00:55      End time (UTC): \_\_\_\_\_      Bottom Depth: 1126  
 Start date (UTC): 2019-07-12      End date (UTC): 2019-07-12      Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSI	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300		✓										
HS	2	250		✓										
HS	3	200		✓										
	4	200												
HS	5	150		✓										
ZS, HS	6	120	✓	✓										
	7	120												
ZS, HS	8	100	✓	✓										
WS	9	100						✓				✓		
ZS, HS	10	80	✓	✓										
WS	11	80						✓				✓		
ZS, HS	12	60	✓	✓		✓								
WS	13	60						✓				✓		
ZS, HS	14	45	✓	✓		✓			✓	✓			✓	✓
WS	15	45						✓				✓		
HS	16	30		✓		✓								
WS	17	30						✓				✓		
ZS, HS	18	20	✓	✓		✓								
WS	19	20						✓				✓		
HS	20	10		✓		✓								
WS	21	10						✓				✓		
	22	sfc												
WS	23	sfc						✓				✓		
ZS, HS	24	sfc	✓	✓		✓	✓		✓	✓			✓	✓
	Sampler													

**Sampling depths – Fixed:** Sfc, 10, 20, 30, 40, 45, 60, 80, 100, 120, 150, 200, 250, 300'  
**Floating:** Chl max, 10mab      0, 10, 20, 30, 45, 60, 80, 100, 120, 200'  
 0

subsurface patch of high chl here!

TN-368 CTD Cast Sheet

Station Number: A14 CTD cast #: 070 Transect #: 26  
 Start time (UTC): 02:03 End time (UTC): 02:47 Bottom Depth: 690  
 Start date (UTC): 2019-07-12 End date (UTC): 2019-07-12 Initials: WJ2

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300		✓										
HS	2	250		✓										
	3	200												
JT, HS	4	200		✓										
HS	5	150		✓										
HS	6	120		✓										
WS, HS	7	100		✓				✓				✓		
HS	8	80		✓										
WS	9	80						✓				✓		
HS	10	60		✓		✓							✓	✓
WS	11	60						✓				✓		
WS, HS	12	48	✓	✓		✓			✓	✓		✓	✓	✓
WS	13	48						✓						
JT	14	48												
HS	15	48												
	16	48												
	17	48												
HS	18	30		✓		✓							✓	✓
WS	19	30						✓				✓		
WS, HS	20	20		✓		✓		✓				✓	✓	
WS, HS	21	10		✓		✓		✓				✓	✓	
	22	sfc												
WS	23	sfc						✓				✓		
WS, HS	24	sfc	✓	✓		✓	✓		✓	✓			✓	✓
	Sam pler													

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

48  
30 48 60 80  
48  
48  
48



# TN-368 CTD Cast Sheet

Station Number: A12  
 Start time (UTC): 04:51  
 Start date (UTC): 2019-07-12

CTD cast #: 072  
 End time (UTC): 5:14  
 End date (UTC): 2019-07-12

Transect #: 26  
 Bottom Depth: 272  
 Initials: ZS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSI	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	262 /		✓										
HS	2	200 /		✓										
HS	3	150 /		✓										
HS	4	120 /		✓										
WS, HS	5	100 /		✓		✓								
	6	100 /												
WS, HS	7	80 /		✓		✓			✓	✓			✓	✓
	8	80 /												
WS, HS	9	60 /		✓		✓								
	10	60 /												
WS, HS	11	40 /		✓		✓			✓	✓			✓	✓
	12	40 /												
WS, HS	13	28 /		✓		✓			✓	✓			✓	✓
	14	28 /												
WS, HS	15	20 /		✓		✓			✓	✓			✓	✓
	16	20 /												
WS, HS	17	10 /		✓		✓								
ZS, WS, HS	18	10 /												
	19	Sfc /	✓	✓		✓	✓		✓	✓			✓	✓
	20	Sfc /												
	21	Sfc /												
	22	Sfc /												
	23													
	24													
	Sampler													

Sampling depths – Fixed: Sfc, 10, 20, <sup>28</sup>30, 40, 60, 80, 100, 120, 150, 200, <sup>272</sup>250, 300  
 Floating: Chl max, 10mab

# TN-368 CTD Cast Sheet

Station Number: A11      CTD cast #: 073      Transect #: 26  
 Start time (UTC): 05:58      End time (UTC): 06:15      Bottom Depth: 150  
 Start date (UTC): 2019-07-12      End date (UTC): 2019-07-12      Initials: ZS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	140 ✓		✓										
ZS, HS	2	120 ✓	✓	✓										
	3	120 ✓												
ZS, WS	4	100 ✓	✓											
HS, WS	5	100 ✓		✓										
ZS, WS	6	90 ✓	✓											
HS, WS	7	90 ✓		✓										
ZS, WS	8	60 ✓	✓											
HS, WS	9	60 ✓		✓		✓								
ZS, WS	10	40 ✓	✓											
HS, WS	11	40 ✓		✓		✓								
WS	12	25 ✓												
WS, HS	13	25 ✓		✓		✓			✓	✓			✓	✓
ZS, WS	14	20 ✓	✓											
WS, HS	15	20 ✓		✓		✓								
WS	16	10 ✓												
WS, HS	17	10 ✓		✓		✓								
ZS, WS	18	Sfc ✓	✓											
WS, HS	19	Sfc ✓		✓		✓	✓		✓	✓			✓	✓
	20	Sfc ✓												
	21	Sfc ✓												
	22	—												
	23	—												
	24	—												
	Sam pler													

Sampling depths – Fixed: Sfc, 10, 20, <sup>25</sup>30, 40, 60, 80, 100, 120, <sup>140</sup>150, 200, 250, 300  
 Floating: Chl max, 10mab

# TN-368 CTD Cast Sheet

 Station Number: A10

 CTD cast #: 074

 Transect #: 26

 Start time (UTC): 07:02

 End time (UTC): 07:19

 Bottom Depth: 134 multi beam not working

 Start date (UTC): 2019-07-12

 End date (UTC): 2019-07-12

 Initials: ZS

HS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
(10-mab)	1	124		✓										
ZS	2	100												
WS, HS	3	100		✓				✓				✓		
	4	100												
WS, HS	5	80		✓				✓				✓		
	6	80												
WS, HS	7	60		✓				✓				✓		
	8	60												
ZS	9	40												
WS, HS	10	40		✓		✓		✓				✓		
	11	40												
WS, HS	12	28		✓		✓		✓	✓	✓		✓	✓	✓
	13	28												
WS, HS	14	20		✓		✓		✓				✓	✓	✓
	15	20												
WS, HS	16	10		✓		✓		✓				✓		
	17	10												
ZS	18	Sfc	✓											
WS, HS	19	Sfc		✓		✓	✓	✓	✓	✓		✓	✓	✓
	20	Sfc												
	21	Sfc												
	22													
	23													
	24													
	Sampler													

60

✓

✓

✓

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

# TN-368 CTD Cast Sheet

Station Number: A9      CTD cast #: 075      Transect #: 26  
 Start time (UTC): 05:06      End time (UTC): 8:23      Bottom Depth: ~126  
 Start date (UTC): 2019-07-12      End date (UTC): 2019-07-12      Initials: HS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
ZS, HS	1	116	✓	✓										
ZS, WS	2	100	✓											
WS, HS	3	100		✓				✓				✓		
ZS, WS	4	80	✓											
WS, HS	5	80		✓				✓				✓		
ZS, WS	6	60	✓											
WS, HS	7	60		✓		✓		✓				✓		
ZS, WS	8	40	✓											
WS, HS	9	40		✓		✓		✓				✓		
WS	10	30												
WS, HS	11	30		✓		✓		✓	✓	✓		✓	✓	✓
ZS, WS	12	20	✓											
WS, HS	13	20		✓		✓		✓				✓		
WS	14	10												
WS, HS	15	10		✓		✓		✓				✓		
ZS, WS	16	sfc	✓											
WS, HS	17	sfc		✓		✓	✓	✓	✓	✓		✓	✓	✓
	18	sfc												
	19	sfc												
	20													
	21													
	22													
	23													
	24													
	Sampler													

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

116

# TN-368 CTD Cast Sheet

Station Number: A8      CTD cast #: 076      Transect #: 26  
 Start time (UTC): 9:14      End time (UTC): 09:32      Bottom Depth: ~117  
 Start date (UTC): 2019/08/12      End date (UTC): 2019/08/12      Initials: HO

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	107		✓										
	2	107												
WS, HS	3	100		✓				✓				✓		
	4	100												
WS, HS	5	80		✓		✓		✓				✓		
	6	80												
WS, HS	7	60		✓		✓		✓				✓		
	8	60												
WS, HS	9	40		✓		✓		✓	✓	✓		✓	✓	✓
	10	40												
WS, HS	11	27		✓		✓		✓	✓	✓		✓	✓	✓
	12	27												
WS, HS	13	20		✓		✓	✓	✓				✓		
	14	20												
WS, HS	15	10		✓		✓		✓				✓		
	16	10												
WS, WS, HS	17	Sfc	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓
	18	Sfc												
	19	Sfc												
	20	Sfc												
	21													
	22													
	23													
	24													
	Sam pler													

**Sampling depths** – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, ~~120, 150, 200, 250, 300~~  
 Floating: Chl max, 10mab  
 1078

# PRODUCTIVITY

## TN-368 CTD Cast Sheet

Station Number: A7 CTD cast #: 077 Transect #: 26  
 Start time (UTC): 10:18 End time (UTC): 10:33 Bottom Depth: ~99  
 Start date (UTC): 2019/07/12 End date (UTC): 2019/07/12 Initials: #0

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
ZS, HS 10 mab	1	89	✓	✓										
10 mab	2	89												
ZS, WS	3	80	✓											
WS, HS	4	80		✓	✓			✓				✓		
ZS, WS	5	60	✓	✓	✓			✓				✓		
ZS, WS, HS	6	45	✓	✓	✓	✓		✓				✓		
WS, HS	7	30		✓	✓	✓		✓	✓	✓		✓	✓	✓
WS, CS	8	30												
CS	9	30												
JT	10	30												
JT	11	30												
ZS, WS	12	20	✓											
WS, HS	13	20		✓	✓	✓		✓				✓	✓	✓
	14	20												
	15	20												
WS	16	12												
WS, HS	17	12		✓	✓	✓		✓				✓		
WS, HS	18	19		✓	✓	✓		✓				✓		
WS, HS	19	5		✓	✓	✓		✓				✓		
CS	20	0												
CS	21	0												
	22	0												
WS, HS	23	0		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
ZS, WS	24	0	✓											
	Sampler													

Sampling depths – Fixed: ~~5, 10, 20, 30, 40, 60, 80, 100, 120, 150, 200, 250, 300~~  
 Floating: Chl max, 10mab

0 5 9 12 20 30 45 60 80 89  
 0 5 9 12 20 30 45 60 80 89  
 30  
 20

GRAZING

### TN-368 CTD Cast Sheet

Station Number: A7 CTD cast #: 078 Transect #: 26  
Start time (UTC): 1150 End time (UTC): 1200 Bottom Depth: ~99  
Start date (UTC): 2019/07/12 End date (UTC): 2019/07/12 Initials: YX

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
	1	30												
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	9													
	10													
	11													
	12													
	13													
	14													
	15													
	16													
	17													
	18													
	19													
	20													
	21													
	22													
	23													
	24													
	Sam pler													

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

# TN-368 CTD Cast Sheet

Station Number: AB CTD cast #: 079 Transect #: 26  
 Start time (UTC): 12:50 End time (UTC): 13:04 Bottom Depth: 89  
 Start date (UTC): 2019-07-12 End date (UTC): 2019-07-12 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSI	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
WS, HS 10mab	1	79		✓	✓			✓				✓		
1	2	79												
WS, HS	3	60		✓	✓			✓				✓		
	4	60												
WS, HS	5	45		✓	✓	✓		✓				✓		
	6	45												
	7	30		✓	✓	✓		✓				✓	✓	✓
	8	30												
CS	9	30												
CS	10	30												
CS	11	20												
CS	12	20												
WS, HS	13	20		✓	✓	✓		✓	✓	✓		✓	✓	✓
	14	20												
WS, HS	15	12		✓	✓	✓		✓				✓		
	16	12												
WS, HS	17	9		✓	✓	✓		✓				✓		
	18	9												
WS, HS	19	5		✓	✓	✓		✓				✓		
	20	5												
	21	sfc												
CS	22	sfc												
CS	23	sfc												
ZS, WS, HS	24	sfc	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Sampler													

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

Floating: Chl max, 10mab 05' 9' 12' 20' 30' 45' 60' 79'

05' 9' 12' 20' 30' 45' 60' 79'

0', 20', 30'

0', 20', 30'

# TN-368 CTD Cast Sheet

Station Number: AB CTD cast #: 080 Transect #: 26  
 Start time (UTC): 13:50 End time (UTC): 14:08 Bottom Depth: 80  
 Start date (UTC): 2019-07-12 End date (UTC): 2019-07-12 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
WS 10mab	1	70		✓	✓			✓				✓		
ZS, WS	2	70	✓											
WS	3	60		✓	✓			✓				✓		
ZS	4	60	✓											
WS, HS	5	43		✓	✓	✓		✓				✓		
ZS, WS	6	43	✓											
	7	43												
WS, HS	8	29		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
WS	9	29												
WS, HS Chl max	10	19		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
ZS, WS	11	19	✓											
	12	19												
WS, HS	13	12		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	14	12												
WS, HS	15	9		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
WS	16	9												
WS	17	4		✓	✓			✓				✓		
	18	4												
ZS, WS	19	SFC	✓											
	20	SFC												
	21	SFC												
	22	SFC												
WS, HS	23	SFC		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	24	SFC												
	Sampler													

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

Floating: Chl max, 10mab 04' 9' 12' 19' 29' 43' 60' 70'

04' 9' 12' 19' 29' 43' 60' 70'

04' 19' 43'

# TN-368 CTD Cast Sheet

Station Number: A14      CTD cast #: 081      Transect #: 27  
 Start time (UTC): 19:03      End time (UTC): 19:37      Bottom Depth: 693  
 Start date (UTC): 2019-07-12      End date (UTC): 2019-07-12      Initials: ZS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSI	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300 ✓		✓										
HS	2	250 ✓		✓										
HS	3	200 ✓		✓										
HS	4	150 ✓		✓										
HS	5	120 ✓		✓										
WS, HS	6	100 ✓		✓				✓				✓		
WS, HS	7	80 ✓		✓		✓		✓				✓	✓	✓
CS	8	60 ✓												
CS, HS	9	60 ✓		✓		✓							✓	✓
WS	10	60 ✓						✓				✓		
ZS, HS (CHL MAX)	11	45 ✓	✓	✓		✓			✓	✓			✓	✓
WS	12	45 ✓						✓				✓		
CS	13	45 ✓												
CS	14	45 ✓												
JT	15	45 ✓												
	16	45 ✓												
WS	17	30 ✓						✓				✓		
ZS, HS	18	30 ✓	✓	✓		✓							✓	✓
WS, HS	19	20 ✓		✓		✓		✓				✓	✓	
WS, HS	20	10 ✓		✓		✓		✓				✓	✓	
CS	21	Sfc ✓												
CS	22	Sfc ✓												
WS	23	Sfc ✓						✓				✓		
ZS, HS	24	Sfc ✓	✓	✓		✓	✓		✓	✓			✓	✓
	Sampler													

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

# TN-368 CTD Cast Sheet

Station Number: H31      CTD cast #: 082      Transect #: 32  
 Start time (UTC): 10:10      End time (UTC): 10:44      Bottom Depth: ~1064  
 Start date (UTC): 2019-07-13      End date (UTC): 2019-07-13      Initials: HO

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300		✓										
HS	2	250		✓										
HS	3	200		✓										
HS	4	150		✓										
HS	5	134		✓										
WS, HS	6	100		✓	✓			✓				✓		
WS, HS	7	80		✓	✓	✓		✓				✓		
WS, HS	8	58		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
CS	9	58												
CS	10	58												
WS, HS	11	39		✓	✓	✓		✓				✓	✓	✓
WS chl max	12	38												
WS, HS	13	38		✓		✓	✓		✓	✓			✓	✓
CS	14	38												
CS	15	38												
WS, HS	16	25		✓	✓	✓		✓				✓	✓	✓
WS, HS	17	16		✓	✓			✓				✓		
WS, HS	18	12		✓	✓	✓		✓				✓		
WS, HS	19	6		✓	✓			✓				✓		
	20	0												
CS	21	0												
CS	22	0												
WS, HS	23	0		✓				✓						
25, HS, WS	24	0			✓	✓	✓		✓	✓		✓	✓	✓
	Sam pler													

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

0000    (6)    (2)    (16)    (25)    (39)    58    80    100  
 CM    CM    CM    CM    CM    CM    CM    CM    CM

# TN-368 CTD Cast Sheet

Station Number: A12      CTD cast #: 083      Transect #: 33  
 Start time (UTC): 13:58      End time (UTC): 14:22      Bottom Depth: 272  
 Start date (UTC): 2019-07-13      End date (UTC): 2019-07-13      Initials: W2

HS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	10mab	1		✓										
HS		2		✓										
HS		3		✓										
HS		4		✓										
HS		5		✓										
WS, HS		6		✓	✓	✓		✓				✓		
		7												
WS, HS		8		✓	✓	✓		✓				✓	✓	✓
		9												
WS, HS		10		✓	✓	✓		✓				✓		
		11												
WS, HS		12		✓	✓	✓		✓				✓		
		13												
WS, HS		14		✓	✓	✓		✓	✓	✓		✓	✓	✓
		15												
WS, HS		16		✓	✓	✓		✓				✓		
		17												
WS, HS		18		✓	✓	✓		✓				✓		
		19												
WS, HS		20		✓	✓			✓				✓		
		21												
		22												
WS, WS, HS		23		✓	✓	✓	✓	✓	✓	✓		✓	✓	
		24												
	Sampler													

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

Floating: Chl max, 10mab 0, 6', 11', 18', 25', 37', 56', 80', 100', 260'  
0, 6', 11', 18', 25', 37', 56', 80', 100'

# TN-368 CTD Cast Sheet

Station Number: AB CTD cast #: 084 Transect #: 33  
 Start time (UTC): 15:23 End time (UTC): 16:00 Bottom Depth: 477  
 Start date (UTC): 2019-07-13 End date (UTC): 2019-07-13 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSI	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300		✓										
HS	2	250		✓										
HS	3	200		✓										
HS	4	150		✓										
HS	5	120		✓										
WS,HS	6	100		✓				✓				✓		
WS,HS	7	80		✓		✓		✓				✓		
WS,HS	8	60		✓		✓		✓				✓		✓
	9	60												
WS,HS	10	45		✓		✓		✓	✓	✓		✓	✓	✓
CS	11	45												
CS	12	45												
JT	13	45												
JT	14	45												
WS,HS	15	30		✓		✓		✓				✓		
CS	16	30												
CS	17	30												
WS,HS	18	20		✓		✓		✓				✓		
	19	20												
WS,HS	20	10		✓				✓				✓		
CS	21	sfc												
CS	22	sfc												
ZS,WS,HS	23	sfc		✓		✓	✓	✓	✓	✓		✓	✓	✓
	24	sfc												
	Sampler													

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

CS 0 20 45 60  
 30 45  
 30 45  
 45  
 45

60005

### TN-368 CTD Cast Sheet

Station Number: A13 CTD cast #: 085 Transect #: 33  
Start time (UTC): 17:25 End time (UTC): 17:32 Bottom Depth: 473  
Start date (UTC): 2019-07-13 End date (UTC): 2019-07-13 Initials: ZS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSI	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
	1	45												
	2													
	3													
	4													
	5													
	6													
	7													
	8													
	9													
	10													
	11													
	12													
	13													
	14													
	15													
	16													
	17													
	18													
	19													
	20													
	21													
	22													
	23													
	24													
	Sampler													

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

Seasave software crashed at 145 m before Bottle 4 was fired. Closed the software and restarted as Cast 866. The first 3 bottles <sup>IN-368 CTD Cast Sheet</sup> was blank fired.

Station Number: A17 CTD cast #: 086 Transect #: 37  
 Start time (UTC): 03:25 End time (UTC): 24:12 Bottom Depth: 2119  
 Start date (UTC): 2019-07-14 End date (UTC): 2019-07-14 Initials: WZ

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300		✓										
HS	2	250		✓										
HS	3	200		✓										
<del>HS</del>	4	145		✓										
HS	5	120		✓										
WS, HS	6	100		✓				✓				✓		
WS	7	80						✓				✓		
HS	8	80		✓		✓							✓	✓
WS	9	60						✓				✓		
HS	10	60		✓		✓								
CS	11	60												
CS, HS	12	40		✓		✓			✓	✓			✓	✓
WS	13	40						✓				✓		
CS	14	40												
WS	15	30						✓				✓		
HS	16	30		✓		✓								
WS	17	20						✓				✓		
WS, HS	18	20		✓		✓								
WS	19	10						✓				✓		
HS	20	10		✓		✓								
CS	21	sfc												
	22	sfc												
WS	23	sfc						✓				✓		
WS, HS	24	sfc		✓		✓	✓		✓	✓			✓	✓
	Sampler													

Sampling depths – Fixed: Sfc, 10, 20, 30, 40, 60, 80, 100, 120, 145, 150, 200, 250, 300  
 Floating: Chl max, 10mab  
 0 10 20 30 40 60 80  
 0 40 60  
 0

# TN-368 CTD Cast Sheet

Station Number: A16      CTD cast #: 087      Transect #: 37  
 Start time (UTC): 05:03      End time (UTC): 5:36      Bottom Depth: 1827  
 Start date (UTC): 2019-07-14      End date (UTC): 2019-07-14      Initials: ZS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300 ✓		✓										
HS	2	250 ✓		✓										
HS	3	200 ✓		✓										
HS	4	150 ✓		✓										
HS	5	120 ✓		✓										
WS, HS	6	100 ✓		✓				✓				✓		
WS, HS	7	80 ✓		✓		✓	✓	✓	✓	✓		✓		
	8	80 ✓												
WS, HS	9	60 ✓		✓		✓	✓	✓	✓	✓		✓	✓	✓
CS	10	60 ✓												
	11	60 ✓												
WS, HS	12	42 ✓		✓		✓	✓	✓	✓	✓		✓	✓	✓
CS	13	42 ✓												
	14	42 ✓												
WS, HS	15	30 ✓		✓		✓	✓	✓	✓	✓		✓	✓	✓
	16	30 ✓												
WS, HS	17	20 ✓		✓		✓		✓				✓		
	18	20 ✓												
WS, HS	19	10 ✓		✓				✓				✓		
	20	10 ✓												
	21	Sfc ✓												
	22	Sfc ✓												
CS	23	Sfc ✓												
ZS, WS, HS	24	Sfc ✓		✓		✓	✓	✓	✓	✓		✓	✓	✓
	Sampler													

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

# TN-368 CTD Cast Sheet

Station Number: A15      CTD cast #: 088      Transect #: 37  
 Start time (UTC): 6:20      End time (UTC): 6:53      Bottom Depth: 1122  
 Start date (UTC): 2019-07-14      End date (UTC): 2019-07-14      Initials: ZS

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol.	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300 ✓		✓										
HS	2	250 ✓		✓										
HS	3	200 ✓		✓										
HS	4	150 ✓		✓										
HS	5	120 ✓		✓										
WS, HS	6	100 ✓		✓				✓				✓		
WS, HS	7	80 ✓		✓		✓		✓				✓		
WS, HS	8	55 ✓		✓		✓		✓	✓	✓		✓	✓	✓
ZS	9	55 ✓												
CS	10	55 ✓												
	11	55 ✓												
WS, HS	12	40 ✓		✓		✓		✓				✓	✓	✓
CS	13	40 ✓												
	14	40 ✓												
WS, HS	15	30 ✓		✓		✓		✓				✓		
ZS	16	30 ✓												
	17	20 ✓												
WS, HS	18	20 ✓		✓		✓		✓				✓		
WS, HS	19	10 ✓		✓				✓				✓		
	20	10 ✓												
	21	Sfc ✓												
	22	Sfc ✓												
WS, HS	23	Sfc ✓		✓		✓	✓	✓	✓	✓		✓	✓	✓
ZS, CS	24	Sfc ✓												
	Sampler													

**Sampling depths** – Fixed: Sfc, 10, 20, 30, 40, <sup>55</sup>60, 80, 100, 120, 150, 200, 250, 300  
 Floating: Chl max, 10mab

# TN-368 CTD Cast Sheet

Station Number: A14      CTD cast #: 099      Transect #: 37  
 Start time (UTC): 7:39      End time (UTC): 8:15      Bottom Depth: 692  
 Start date (UTC): 2019-07-14      End date (UTC): 2019-07-14      Initials: ES/HO

Floater ID	Bottle	Target Depth	TOI	Nuts	<sup>14</sup> C	Chl a vol	Chl b vol	BSi	HPLC ID	HPLC vol	CO <sub>2</sub>	C/N	FCM	IFCB
HS	1	300 ✓		✓										
HS	2	250 ✓		✓										
HS	3	200 ✓		✓										
HS	4	150 ✓		✓										
HS	5	120 ✓		✓										
WS, HS	6	100 ✓		✓				✓				✓		
WS, HS	7	80 ✓		✓		✓		✓				✓		
WS, HS	8	60 ✓		✓		✓		✓				✓	✓	✓
	9	60 ✓												
WS, HS	10	49 ✓		✓		✓		✓	✓	✓		✓	✓	✓
CS	11	49 ✓												
	12	49 ✓												
	13	49 ✓												
WS, HS	14	40 ✓		✓		✓		✓				✓		
CS	15	40 ✓												
	16	40 ✓												
WS, HS	17	30 ✓		✓		✓		✓				✓		
WS, HS	18	20 ✓		✓		✓		✓				✓		
	19	20 ✓												
WS, HS	20	10 ✓		✓		✓		✓				✓		
	21	Sfc ✓												
	22	Sfc ✓												
ZS, HS, WS	23	Sfc ✓		✓		✓	✓	✓	✓	✓		✓	✓	✓
CS	24	Sfc ✓												
	Sampler													

47

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

# TN-368 CTD Cast Sheet

Station Number: A3      CTD cast #: 090      Transect #: 37  
 Start time (UTC): 9:02      End time (UTC): 09:25      Bottom Depth: ~480  
 Start date (UTC): 2019/07/14      End date (UTC): 2019/07/14      Initials: Ho

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

NO BOTTLES!

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