

OCEAN SCIENCES STRICKLAND EVENT LOG

VESSEL: Strickland

Collected By: Ben

Date: June 13 2012

Consecutive Stn #: 5

Station Name: S3

Notes: (temperature, wind, barometer, weather, sea-state, etc)

10°C, 5-15 knots, sunny w/ clouds, ripples to small waves.

EVENT NUMBER	EVENT TYPE	TIME	LAT.	LONG.	BOTTOM DEPTH (m)	CAST DEPTH (m)	NOTES (e.g. CTD file names, bottle depths, flow meter readings, etc)
20	CTD	8:24	N48°35.539	W123°29.991	226	215	2012-0613-S3 135 7040
21	bottles	8:43	48 35.402	123 29.975	226	210	100-120-125-130-140-170-200 out 110 90 85 80 75 70 40 0 bag 100, 120, 125, 130, 135, 140, 170, 200
22	Tow	9:20	48 35.466	123 29.991	225	100-50	Start 04618 bag End 04939 missing some.
23	Tow	9:34	48 35.492	123 29.971	225	50-0	st. 04939 End. 05290
24	CTD Bottles	10:00	48 35.524	123° 29.880	225	80	80 70 65 40 20 0 out 0 10 25 40 60 80 Depths

OCEAN SCIENCES STRICKLAND EVENT LOG

VESSEL: Strickland

Date: June 13, 2012

Consecutive Stn #: 26

Station Name: 3.5

Collected By: Jessica Tang

Notes: (temperature, wind, barometer, weather, sea-state, etc) Sea Surface Temp: 12.7
Temp: 16°C
wind: 5 knots @ 8 knots.
weather: 80% cloud cover
sea state: small 2-3cm high ripples
visibility: 20 miles
barometer: 30.11

EVENT NUMBER	EVENT TYPE	TIME	LAT.	LONG.	BOTTOM DEPTH (m)	CAST DEPTH (m)	NOTES (e.g. CTD file names, bottle depths, flow meter readings, etc)
25	CTD	11:03	48° 36.828'	123° 29.955'	221m	210m	20120613_53.5 lowered @ 1 m/s
26	Niskin	11:40	48° 36.845'	123° 29.938'	221m	205m → 110m	bottle 1 = 205 ³⁰ 5 = 140 ¹⁰ 21 2 = 175 ¹⁵ 45 6 = 130 ¹⁰ 25 3 = 160 ¹⁰ 45 7 = 120 ¹⁰ 45 4 = 150 ¹⁰ 60 8 = 110 ¹⁰ 45
27	Zoop.	11:58	48° 36.832'	123° 30.105'	221m	100m → 50m	flow meter start: 05189 flow meter end: 05471 zoop. net (closing) ^{some sample} was lost in whirl pac
28	Zoop.	12:16	48° 36.764'	123° 30.010'	221m	50m → 0m	flow meter start: 05471 flow meter end: 05727 zoop. net (closing)
29	Niskin	12:28	48° 36.833'	123° 29.992'	221m	0m → 100m → 0m	bottle 1 = 100 ³⁵ 4 = 25 ¹⁵ 40 2 = 65 ²⁵ 5 = 10 ¹⁰ 00 3 = 40 ¹⁵ 35 6 = 0

OCEAN SCIENCES STRICKLAND EVENT LOG

VESSEL: Strickland

Date: 13/06/12

Collected By: Katie Pocock

Consecutive Stn #: 7

Station Name: 54.5

Notes: (temperature, wind, barometer, weather, sea-state, etc)
 Temp: 17°C SEA: 12.5°C Wind: NW 5 knots
 Weather: 80% cover Sea state: rippled
 Visibility: 20 miles Barometer: 30.14

EVENT NUMBER	EVENT TYPE	TIME	LAT.	LONG.	BOTTOM DEPTH (m)	CAST DEPTH (m)	NOTES (e.g. CTD file names, bottle depths, flow meter readings, etc)
30	CTD	1:10 pm	48° 39.775	123° 30.182	174m	170m	
31	NISK	1:40			175m	165m	165 155 145 140 135 0 10 20 25 30 125 110 90 40 55 75 - wire out
32	ZOO NET	2:00				100m	Flow meter start: 05825 lost Flow meter finish: 06095 Some bag sample Cast: 100-52m
33	ZOO NET	2:17				50m	Flow meter start: 06095 Flow meter end: 06485 Cast: 50-0m Stopper fell out, lost some sample
34	NISK	2:35				70m	70 40 25 10 5 0 depth 0 30 45 60 65 70 wire out

54.5 0-50
 NOT Quantitative
 → much lost from spilling in jar

OCEAN SCIENCES STRICKLAND EVENT LOG

VESSEL: Strickland

Date: 13/06/12

Collected By: Ben

Consecutive Stn #: 8

Station Name: 11

Notes: (temperature, wind, barometer, weather, sea-state, etc)
 Temp: 14°C
 Wind: S-g 16 kts
 Weather: 95% overcast
 Sea State: 4-6 meter
 Visibility: unlimited
 Barometer:

EVENT NUMBER	EVENT TYPE	TIME	LAT.	LONG.	BOTTOM DEPTH (m)	CAST DEPTH (m)	NOTES (e.g. CTD file names, bottle depths, flow meter readings, etc)
35	2.5K	3:13 PM	48° 43.768	123° 32.583	113 m	100 m	105 80 55 40 ← depth 25 10 0 ← total wire out 80 75 103
36	CTD	3:30	48° 43.774	123° 32.601	116 m	105	20130613-511
37	200P tow	4:00	48° 43.774	123° 32.584	114 m	100-50	St 06388 E 06700
38	200P tow	4:05	"	"	114 m	50-0	St 06700 End. 06971

Ammonia Standards

	S4.5	S3	S3.5
0 even	A-36	A-74	A103
3	A-37	A-75	A-99
5	A38	A-76	A100
10	A-34	A-77	A-101
20	A-35	A-78	A102

Water Chemistry Sampling

University of Victoria

Cruise: OSM JUNE 2012

201206

Station Name: S3

Date: June 13, 2012

Time: 9:15

Cast #: 1 Event #: 21

Sampler Names: Nic, Michael, Andre-Anne, Katie

Niskin Bottle	Target Depth (m)	Oxygen Bottle #'s	DIC Bottle#	NH4 Vial#	NO3	NO2	PO4	Mn (✓ when acid spiked)	SiO4	CHL filtered vol (mL)
8	100	012C ✓	X	A59 ✓	✓	✓	✓		✓	X
7	120	x2 013C ✓ 014C ✓	X	A60 ✓	✓	✓	✓		✓	X
6	125	015C ✓	X	A61 ✓	✓	✓	X		X	X
5	130	x2 016C ✓ 017C ✓	X	A63 ✓	✓	✓	✓		✓	X
4	135	X	X	A64 ✓	✓	✓	X		X	X
3	140	X	X	A65 ✓	✓	✓	✓		✓	X
2	170	X	X	A66 ✓	✓	✓	✓		✓	X
1	210	X	X	A67 ✓	✓	✓	✓		✓	X

NOTES:

Niskin #1 → A67 smells like sulfur

NH4 Spiked with Working Reagent: yes no Time Spiked?

NH4 Stds Vial# 0uM = 2.5uM = 5uM = 10uM = 15uM =

Time spiked?

Water Chemistry Sampling University of Victoria

Cruise: OSM JUNE 2012

201206

Station Name: S3

Date: June 13, 2012

Time: 10:05

Cast #: 2 Event #: 24

Sampler Names: Nic, Mihal, Anne, Katie

Niskin Bottle	Target Depth (m)	Oxygen Bottle #'s	DIC Bottle#	NH4 Vial#	NO3	NO2	PO4	Mn (✓ when acid spiked)	SiO4	CHL filtered vol (mL)
8										
7										
6	0	018 ✓ 019C ✓	C-19 ✓	A68 ✓	✓	✓	✓	X	✓	✓ 250mL
5	10	018 ✓ 019C ✓	X	A69 ✓	✓	✓	X	X	X	✓ 250mL
4	25	020C ✓	C-20 ✓	A70 ✓	✓	✓	✓	X	✓	✓ 250mL
3	40	020 ✓ 022C ✓	C-21 ✓	A71 ✓	✓	✓	X	X	X	✓ 250mL
2	60	023C ✓	C-22 ✓	A72 ✓	✓	✓	✓	✓	✓	X
1	80	024C ✓	C-23 ✓	A73 ✓	✓	✓	✓	✓	✓	X

NOTES: NH4 standards A74-A78

NH4 Spiked with Working Reagent (yes) no Time Spiked? 6:01 pm

NH4 Stds Vial# 0uM = A-74 2.5uM = A-75 5uM = A-76 10uM = A-77 15uM = A-78

Time spiked?

0uM 3 5 10 20

Station Checklist - Chemical Samples

Station: 53
 Samplers: Red Square

Cruise: _____
 Date: 13 June 2012

Mark when completed:

☒	CTD cast downloaded and saved	Preparation
☒	Final sampling depths planned	
☒	Log Sheets prepared (choose OXY / DIC / NH4 bottle numbers)	
☒	MN/NO3/PO4/NO2/Si labels: depths written in	
☒	NO3/PO4/MN: bottles labeled, organized by cast in carry-tote	
☒	nutrient tubes labeled and placed in rack (1 each tube for each sample depth): , Si = Yellow, , 	
☒	Oxygen sampled in duplicate, pickled, bottle #'s checked	Sampling
☒	Carbon sampled, poisoned, sealed, bottle #'s checked	
☒	MN bottles sampled, samples in box	
☒	NO3 tubes (50ml) sampled, samples in cooler	
☒	NH4 tubes sampled, re-check # on log sheet. Samples into red cooler (in racks).	
☒	PO4 bottles sampled	
☒	NO2 (15ml) tubes sampled	
☒	Si, PO4, NO3 (15 ml) tubes sampled	
☒	CHL bottles filled	Post-sampling
☒	NO3/PO4/Si 15ml tubes into freezer in rack	
☒	NO3 bottle samples into freezer	
☒	NO2 samples into cooler in rack	
☒	MN samples spiked with 2.5mL 6M HCl (put check mark on label when complete)	
☒	CHL filtrations completed, filters frozen	
☒	Oxygen bottles shaken, tops filled with water	
☒	NH4 samples spiked with Working Reagent time? <u>6:01 pm</u>	

* assume boundary 130m.

NO₂ - purple
Si - yellow
PO₄ - blue
NO₃ - green

OSM June 2012

GROUP Red Square

Responsible for Station S3

Saanich Inlet Stations

Station S3

	Niskin number	Depth (m)	O2	DIC	MN	NH4	NO2	NO3	PO4/Si	CHL
	16									
	15									
1	14	210			✓	✓	✓	✓	✓	
2	13	170			✓	✓	✓	✓	✓	
3	12	140			✓	✓	✓	✓	✓	
4	11	135			✓	✓	✓	✓		
5	10	130	✓		✓	✓	✓	✓	✓	
6	9	125	✓		✓	✓	✓	✓		
7	8	120	✓		✓	✓	✓	✓	✓	
8	7	100	✓		✓	✓	✓	✓	✓	
1	6	80	✓	✓	✓	✓	✓	✓	✓	
2	5	60	✓	✓	✓	✓	✓	✓	✓	
3	4	40	✓	✓		✓	✓	✓		✓
4	3	25	✓	✓		✓	✓	✓	✓	✓
5	2	10				✓	✓	✓		✓
6	1	0	✓	✓		✓	✓	✓	✓	✓

Instead of choosing particular depths to target the interface, you could indicate values like "interface + 10m"

Try to use only 14 Niskin bottles. If necessary for your sampling, you may use up to 16 bottles.
resolution + profile.

Water Chemistry Sampling

University of Victoria

Cruise: OSM JUNE 2012

201206

Station Name: S 3, 5

Date: June 13 2012 Time: 1:00 pm

Cast #: 29 Event #: 29

Sampler Names: B, A, S, B 0.100 g/l

DIC, PO₄, NO₃, NO₂

last

Niskin Bottle	Target Depth (m)	Oxygen Bottle #'s	DIC Bottle#	NH4 Vial#	NO3	NO2	PO4	Mn (✓ when acid spiked)	SiO4	CHL filtered vol (mL)
8										
7										
6	0	105C ✓ 106C ✓	24C ✓	A93 ✓	✓	✓	✓	—	✓	249 mL ✓
5	10	107C ✓ 108C ✓	25C ✓	A94 ✓	✓	✓	✓	—	✓	252 mL ✓
4	25	109C ✓ 110C ✓	26C ✓	A95 ✓	✓	✓	✓	—	✓	252 mL ✓
3	40	111C ✓ 112C ✓	27C ✓	A96 ✓	✓	✓	✓	—	✓	248 mL ✓
2	65	—	—	A97 ✓	✓	✓	✓	✓	✓	—
1	100	113C ✓ 114C ✓	28C ✓	A98 ✓	✓	✓	—	✓	—	—

NOTES:

NH4 Spiked with Working Reagent: yes no Time Spiked? 602 pm

NH4 Stds Vial# 0uM = A103 25uM = A99 5uM = A100 10uM = A101 15uM = A102 Time spiked? ✓

3

20

52 mL

Water Chemistry Sampling

University of Victoria

Cruise: OSM JUNE 2012

201206

Station Name: 3,5

Date: June 13 2012 Time: 12:50

Cast #: Event #: 26

Sampler Names: B, A, J, B, Oct 17

DIC, ox nutrients

Niskin Bottle	Target Depth (m)	Oxygen Bottle #'s	DIC Bottle#	NH4 Vial#	NO3	NO2	PO4	Mn (✓ when acid spiked)	SiO4	CHL filtered vol (mL)
8	110	97C ✓ 98C ✓	—	A85 ✓	✓	✓	✓	✓	✓	—
7	120	99C ✓ 100C ✓	—	A86 ✓	✓	✓	✓	✓	✓	—
6	130	101C ✓ 102C ✓	—	A87 ✓	✓	✓	✓	✓	✓	—
5	140	103C ✓ 104C ✓	—	A88 ✓	✓	✓	✓	✓	✓	—
4	150	—	—	A89 ✓	✓	✓	—	✓	—	—
3	160	—	—	A90 ✓	✓	✓	—	✓	—	—
2	175	—	—	A91 ✓	✓	✓	—	✓	—	—
1	205	—	—	A92 ✓	✓	✓	✓	✓	✓	—

NOTES:

purple

NH4 Spiked with Working Reagent: yes no Time Spiked?

NH4 Stds Vial# 0uM = 2.5uM = 5uM = 10uM = 15uM = Time spiked?

sulfide
well?

NO

NO

NO

NO

NO

yes.

yes.

medly.

OSM June 2012

GROUP Oct 9

Responsible for Station Ben. S3.5

Saanich Inlet Stations

Station 3.5

Niskin number	Depth (m)	O2	DIC	MN	NH4	NO2	NO3	PO4/Si	CHL
16	0	✓	/		/	/	/	/	/
15	10	/	/		/	/	/	/	/
14	25	/	/		/	/	/	/	/
13	40	/			/	/	/	/	/
12	65		✓	✓	/	/	/	/	
11									
10	100	/	✓	✓	/	/	/		
9	110	/		✓	/	/	/	/	
8	120	/		✓	/	/	/	/	
7	130	/		✓	/	/	/	/	
6	140	/		/	/	/	/	/	
5	150			/	/	/	/		
4	160			/	/	/	/		
3	175			/	/	/	/		
2									
1	205			/	/	/	/	/	

Instead of choosing particular depths to target the interface, you could indicate values like "interface + 10m"

Try to use only 14 Niskin bottles. If necessary for your sampling, you may use up to 16 bottles.

Station Checklist - Chemical Samples

Station: 3.5

Cruise: _____

Samplers: B, Alex, Sam, Brianna

Date: June 13 2012

Mark when completed:

☒	CTD cast downloaded and saved	Preparation
☒	Final sampling depths planned	
☒	Log Sheets prepared (choose OXY / DIC / NH4 bottle numbers)	
☒	MN/NO3/PO4/NO2/Si labels: depths written in	
☒	NO3/PO4/MN: bottles labeled, organized by cast in carry-tote	
☒	nutrient tubes labeled and placed in rack (1 each tube for each sample depth): , Si = Yellow, , 	
☒	Oxygen sampled in duplicate, pickled, bottle #'s checked	Sampling
☒	Carbon sampled, poisoned, sealed, bottle #'s checked	
☒	MN bottles sampled, samples in box	
☒	NO3 tubes (50ml) sampled, samples in cooler	
☒	NH4 tubes sampled, re-check # on log sheet. Samples into red cooler (in racks).	
☒	PO4 bottles sampled	
☒	NO2 (15ml) tubes sampled	
☒	Si, PO4, NO3 (15 ml) tubes sampled	
☒	CHL bottles filled	
☒	NO3/PO4/Si 15ml tubes into freezer in rack	Post-sampling
☒	NO3 bottle samples into freezer	
☒	NO2 samples into cooler in rack	
☒	MN samples spiked with 2.5mL 6M HCl (put check mark on label when complete)	
☒	CHL filtrations completed, filters frozen	
☒	Oxygen bottles shaken, tops filled with water	
☒	NH4 samples spiked with Working Reagent time? <u>6:2 pm</u>	

Water Chemistry Sampling

University of Victoria

Cruise: OSM JUNE 2012

201206

Station Name: S4.5

Date: June 13, 2012

Time: 14:35

Cast #: 34 Event #: 34

Sampler Names: Jessica Tang, Amber, Bryce, Petra, Clementson, Gordon.

Niskin Bottle	Target Depth (m)	Oxygen Bottle #'s	DIC Bottle#	NH4 Vial#	NO3	NO2	PO4	Mn (N when acid spiked)	SiO4	CHL filtered vol (mL)
8										
7										
6	0m	049C ✓ 050C ✓	G-29	A-28	✓	✓	✓	✓	✓	✓ 250mL
5	5m	051C ✓ 052C ✓		A-29	✓	✓	✓	✓	✓	✓ 250mL
4	10m	053C ✓ 054C ✓	G-30	A-30	✓	✓	✓	✓	✓	✓ 250mL
3	25m	055C ✓ 056C ✓	G-31	A-31	✓	✓	✓	✓	✓	✓ 250mL
2	40m	057C ✓ 058C ✓	G-32	A-32	✓	✓	✓	✓	✓	✓ 250mL
1	70m	059C ✓ 060C ✓	G-33	A-33	✓	✓	✓	✓	✓	✓

NOTES:

NH4 Spiked with Working Reagent: yes no Time Spiked? 6:06pm

NH4 Stds Vial# 0uM = A 36 25uM = A 37 5uM = A 38 10uM = A 39 15uM = A 34 20uM = A 35

Time spiked? ✓

20uM

Water Chemistry Sampling

University of Victoria

Cruise: OSM JUNE 2012

201206

Station Name: S415
Cast #: 21 Event #: 21

Date: June 13 2012 Time: 13:56

Sampler Names: Jessica Tang, Amber Bryce, Peter Clementson, Gordon

Niskin Bottle	Target Depth (m)	Oxygen Bottle #'s	DIC Bottle#	NH4 Vial#	Large NO3	P. NO2	PO4	Mn (N when acid spiked)	Y, B, G SiO4	CHL filtered vol (mL)
8	90m			A-20	✓	✓		✓		
7	110m	115C ✓ 116C ✓		A-21	✓	✓		✓		
6	125m			A-22	✓	✓	✓	✓	✓	
5	135m	117C ✓ 118C ✓		A-23	✓	✓	✓	✓	✓	
4	140m	119C ✓ 120C ✓		A-24	✓	✓	✓	✓	✓	
3	145m			A-25	✓	✓	✓	✓	✓	
2	155m			A-26	✓	✓	✓	✓	✓	
1	165m			A-27	✓	✓	✓	✓	✓	

NOTES: Oxygen bottle 117C had small bubbles in it Niskin # 1, 2 & 3
Niskin bottle #4 was not properly sealed. smelled like sulphur

NH4 Spiked with Working Reagent: yes no Time Spiked?

NH4 Stds Vial# 0uM = 2.5uM = 5uM = 10uM = 15uM = Time spiked?

Sulphur
Sulphur
Sulphur

OSM ~~July~~ 2011

GROUP E-tiger sharks

Responsible for Station S4.5

Saanich Inlet Stations

Station S4.5

Niskin number	Depth (m)	O2	DIC	MN	NH4	NO2	NO3	PO4/Si	CHL
16									
15									
14	0m	0m	✓	✓	✓	✓	✓	✓	✓
13	5m	5m	✓		✓	✓	✓		
12	10m	10m	✓	✓	✓	✓	✓	✓	✓
11	25m	25m	✓	✓	✓	✓	✓	✓	✓
10	40m	40m	✓	✓	✓	✓	✓		✓
9	70m	70m	✓	✓	✓	✓	✓	✓	
8	90m	X + 10m		✓	✓	✓	✓		
7	110m	X + 5m	✓	✓	✓	✓	✓		
→ 6	125	X		✓	✓	✓	✓	✓	
5	135	X - 5	✓	✓	✓	✓	✓	✓	
→ 4	140	X - 10	✓	✓	✓	✓	✓	✓	
3	145	X ± 20		✓	✓	✓	✓	✓	
2	155	145		✓	✓	✓	✓	✓	
1	165	155		✓	✓	✓	✓	✓	

Instead of choosing particular depths to target the interface, you could indicate values like "interface + 10m"

Try to use only 14 Niskin bottles. If necessary for your sampling, you may use up to 16 bottles.

Station Checklist - Chemical Samples

Station: 345

Cruise: _____

Samplers: Amber & Petra, Emma, Sarah

Date: June 13, 2012

Mark when completed:

✓	CTD cast downloaded and saved	Preparation	
✓	Final sampling depths planned		
✓	Log Sheets prepared (choose OXY / DIC / NH4 bottle numbers)		
✓	MN/NO3/PO4/NO2/Si labels: depths written in		
✓	NO3/PO4/MN: bottles labeled, organized by cast in carry-tote		
✓	nutrient tubes labeled and placed in rack (1 each tube for each sample depth): , Si = Yellow, , 		
✓	✓	Oxygen sampled in duplicate, pickled, bottle #'s checked	Sampling
✓	✓	Carbon sampled, poisoned, sealed, bottle #'s checked	
✓	✓	MN bottles sampled, samples in box	
✓	✓	NO3 tubes (50ml) sampled, samples in cooler	
✓	✓	NH4 tubes sampled, re-check # on log sheet. Samples into red cooler (in racks).	
✓	✓	PO4 bottles sampled	
✓	✓	NO2 (15ml) tubes sampled	
✓	✓	Si, PO4, NO3 (15 ml) tubes sampled	
✓	✓	CHL bottles filled	
✓		NO3/PO4/Si 15ml tubes into freezer in rack	Post-sampling
✓		NO3 bottle samples into freezer	
✓		NO2 samples into cooler in rack	
✓		MN samples spiked with 2.5mL 6M HCl (put check mark on label when complete)	
✓		CHL filtrations completed, filters frozen	
✓		Oxygen bottles shaken, tops filled with water	
✓		NH4 samples spiked with Working Reagent time? <u>6:06 pm</u>)	
✓			

Water Chemistry Sampling

University of Victoria

Cruise: OSM JUNE 2012

201206

Station Name: S11

Date: 13 Jun 2012

Time: 15:30

Cast #: 1 Event #: 35

Sampler Names: _____

Niskin Bottle	Target Depth (m)	Oxygen Bottle #'s	DIC Bottle#	NH4 Vial#	NO3	NO2	PO4	Mn (✓ when acid spiked)	SiO4	CHL filtered vol (mL)
8										
7	0	G1C✓ G2C✓	C-34✓	A133✓	✓✓	✓	✓✓	X	✓	✓25mL
6	10	G3C✓ G4C✓	X	A134✓	✓✓	✓	✓✓	X	✓	✓250 mL
5	25	X	X	A135✓	✓✓	✓	✓✓	X	✓	249 mL ✓
4	40	X	X	A136✓	✓✓	✓	✓✓	X	✓	250mL
3	55	X	X	A137✓	✓✓	✓	✓	X	✓	X
2	80	X	X	A138✓	✓✓	✓✓	✓	X	✓	X
1	120	G5C✓ G6C✓	C-35✓	A144✓	✓✓	✓✓	✓✓	X	✓	X

NOTES:

NH4 Spiked with Working Reagent: yes no Time Spiked? _____

NH4 Stds Vial# 0uM = _____ 2.5uM = _____ 5uM = _____ 10uM = _____ 15uM = _____ Time spiked? _____

Station Checklist - Chemical Samples

Station: S11
 Samplers: Nicolas, Jenn, Emma, Roberta
 Sara

Cruise: 13th GSM
 Date: 13 June 2012

Mark when completed:

	CTD cast downloaded and saved	Preparation
✓	Final sampling depths planned	
✓	Log Sheets prepared (choose OXY / DIC / NH4 bottle numbers)	
✓	MN/NO3/PO4/NO2/Si labels: depths written in	
✓	NO3/PO4/MN: bottles labeled, organized by cast in carry-tote	
✓	nutrient tubes labeled and placed in rack (1 each tube for each sample depth): , Si = Yellow, , 	
✓	Oxygen sampled in duplicate, pickled, bottle #'s checked	Sampling
✓	Carbon sampled, poisoned, sealed, bottle #'s checked	
✓	MN bottles sampled, samples in box	
✓	NO3 tubes (50ml) sampled, samples in cooler	
✓	NH4 tubes sampled, re-check # on log sheet. Samples into red cooler (in racks).	
✓	PO4 bottles sampled	
✓	NO2 (15ml) tubes sampled	
✓	Si, PO4, NO3 (15 ml) tubes sampled	
✓	CHL bottles filled	
✓	NO3/PO4/Si 15ml tubes into freezer in rack	Post-sampling
✓	NO3 bottle samples into freezer	
✓	NO2 samples into cooler in rack	
✓	MN samples spiked with 2.5mL 6M HCl (put check mark on label when complete)	
✓	CHL filtrations completed, filters frozen	
✓	Oxygen bottles shaken, tops filled with water	
	NH4 samples spiked with Working Reagent time? <u> </u>)	