

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: S1Date: Jan 24 2020Time Sampled: 11:27Cast #: 1 Event #: 2Sampler Names: Troy, Liz, Nick, Adrian

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8								
7								
6	110	001D ^v	/	A-01 ^v	✓	✓	✓	✓
5	115	002C ^v	/	A-04 ⁴	✓	✓	✓	✓
4	120	003C ^v 004C ^{x2v}	C-01 ^v	A-03 ^v	✓	✓	✓	✓
3	125	/	/	A-04 ^{2v}	/	✓	/	✓
2	130	005C ^v	/	A-05 ^v	✓	✓	✓	✓
1	140	006C ^v	C-02 ^v	A-06 ^v	/	✓	/	✓

NOTES:

Bottle 6 Leaks

A-04 & A-02 were switched

Oxygen bottle order reversed

Sulfide smelled from Niskins: 3, 2, 1

Time Mn spiked with acid: 12:55

Time NH4 spiked with working reagent: 16:00

NH4 Standards: Vial #: A-15 Vial #: A-16 Vial #: A-18 Vial #: A-19 Vial #: A-20

Vial # A-21

NH4 Standards: Conc: 0 μ M Conc: 2 μ M Conc: 4 μ M Conc: 6 μ M Conc: 10 μ MConc: 15 μ M# Note A-17
NOT used

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: 1Date: Jan 24 2020Time Sampled: 12:20Cast #: 2 Event #: 3Sampler Names: Troy, Liz, Nick Adriane

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	0	^{x2} 007C 008D ✓✓	C-03 ✓	A-07 ✓	✓	✓	✓	✓
7	20	009E ✓	✓	A-08 ✓			✓	✓
6	40	010F ✓	✓	A-09 ✓		✓	✓	✓
5	60	011C ✓	C-05 ✓	A-10 ✓		✓	✓	✓
4	80	012C ✓	✓	A-11 ✓			✓	✓
3	95	013E ✓	✓	A-12 ✓			✓	✓
2	100	^{x2} 014C 015E ✓✓	C6 ✓	A-13 ✓			✓	✓
1	105	016E ✓	✓	A-14 ✓			✓	✓

NOTES:

Sulfide smelled from Niskins: 3, 1Time Mn spiked with acid: 12:55

Time NH4 spiked with working reagent:

NH4 Standards: Vial #:

Vial #:

Vial #:

Vial #:

Vial #:

NH4 Standards: Conc:

Conc:

Conc:

Conc:

Conc:

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: S3Date: 24/Jan/2020Time Sampled: 14:05Cast #: 1 Event #: 5Sampler Names: Erin, Grayson, Amanda, Matt

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	X	X	X	X	X	X	X	X
7	X	X	X	X	X	X	X	X
6	135	017C ✓	X	A-22 ✓	✓	✓	✓	✓
5	145	018C ✓	C7 ✓	A-23 ✓	✓	✓	✓	✓
4	160	019C ✓	X	A-24 ✓	✓	✓	✓	✓
3	190	020C ✓	X	A-25 ✓	✓	✓	✓	✓
2	205	X ✓	X	A-26 ✓	X	X	X	✓
1	215	021C ✓	C8 ✓	A-27 ✓	✓	✓	✓	✓

NOTES:

Sulfide smelled from Niskins: Niskin 4, Niskin 3, Niskin 2, Niskin 1

Time Mn spiked with acid:

Time NH4 spiked with working reagent: 16:00NH4 Standards: Vial #: A-36 Vial #: A-37 Vial #: A-38 Vial #: A-39 Vial #: A-40 Vial #: A-41NH4 Standards: Conc: 0.2 μM Conc: 2 μM Conc: 4 μM Conc: 6 μM Conc: 10 μM Conc: 15 μM

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: 53Date: 24 Jan 2020Time Sampled: 14:50Cast #: 2 Event #: 6Sampler Names: Eric, Amanda, Matt, Grayson

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	0	022C ✓ 023C ✓	X	A-28 ✓	✓	✓	✓	X
7	5	024C ✓ 025C ✓	C9 ✓	A-29 ✓	✓	✓	✓	X
6	15	026C ✓	X	A-30 ✓	✓	✓	✓	X
5	45	027C ✓	X	A-31 ✓	✓	✓	✓	X
4	90	028C ✓	X	A-32 ✓	X	X	X	✓
3	115	C29C ✓	X	A-33 ✓	✓	✓	✓	✓
2	125	030C ✓	X	A-34 ✓	✓	✓	✓	✓
1	130	031C ✓ 032C ✓	C10 ✓	A-35 ✓	✓	✓	✓	✓

NOTES: *rainfall while we were sampling*

→ ? Some might disagree
 Sulfide smelled from Niskins: *4 smells, 3 smells, 2 smells, 1 smell*

Time Mn spiked with acid:

Time NH4 spiked with working reagent:

NH4 Standards: Vial #:

Vial #:

Vial #:

Vial #:

Vial #:

NH4 Standards: Conc:

Conc:

Conc:

Conc:

Conc:

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: 54Date: Jan. 25, 2020

Time Sampled: _____

Cast #: 1 Event #: 8Sampler Names: Caitlin, Josh, Carolina, Sean

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8								
7								
6	125	033 C ✓	X	A-43 ✓	✓	✓	✓	✓
5	130	034 D ✓	C-11 ✓	A-44 ✓	✓	✓	✓	✓
4	135	035 C ✓	C-12 ✓	A-45 ✓	✓	✓	✓	✓
3	140	036 C ✓	X	A-46 ✓	✓	✓	✓	✓
2	160	037 C ✓	C-13 ✓	A-47 ✓	X	✓	✓	✓
1	180	038 C ✓	X	A-48 ✓	✓	✓	✓	✓

NOTES:

*A-57 - do not run

Sulfide smelled from Niskins: YES, NISKIN 1 & 2Time Mn spiked with acid: 11:56Time NH4 spiked with working reagent: 16:32NH4 Standards: Vial #: A-58Vial #: A-59Vial #: A-60Vial #: A-61Vial #: A-62

*A-63

NH4 Standards: Conc: 0Conc: 2 μMConc: 4 μMConc: 6 μMConc: 10 μM

15 μM

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: S4Date: Jan. 25, 2020

Time Sampled: _____

Cast #: 2 Event #: 9Sampler Names: Caitlin, Josh, Carolina, Sean

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
^D 8	0	039C / 040E ✓	C-14 ✓	A-49 ✓	✓	✓	✓	✓
7	10	041C ✓	C-15 ✓	A-50 ✓	✓	✓	✓	✓
6	20	042C ✓	C-16 ✓	A-51 ✓	✓	✓	✓	✓
5	30	043 ✓	C-17 ✓	A-52 ✓	✓	✓	✓	✓
4	40	044C ✓	C-18 ✓	A-53 ✓	✓	✓	✓	✓
^D 3	60	045F / 046D ✓	✓	A-54 ✓	✓	✓	✓	✓
2	80	047C ✓	C-19 ✓	A-55 ✓	✓	✓	✓	✓
1	120	049C ✓	C-20 ✓	A-56 ✓	✓	✓	✓	✓

NOTES:

Sulfide smelled from Niskins: NoneTime Mn spiked with acid: 11:56

Time NH4 spiked with working reagent:

NH4 Standards: Vial #:

Vial #:

Vial #:

Vial #:

Vial #:

NH4 Standards: Conc:

Conc:

Conc:

Conc:

Conc:

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: 2.5Date: Jan 25/20

Time Sampled: _____

Cast #: 1 Event #: 11Sampler Names: Curtis, Lisa, Austin, Tasha

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	X							
7	X							
6	100	050 E ✓	C-21 ✓	A-64 ✓	✓	✓	✓	✓
5	110	051 C ✓	X	A-65 ✓	✓	✓	✓	✓
4	120	052 C ✓	X	A-66 ✓	✓	✓	✓	✓
3	140	053 C ✓	C-22 ✓	A-67 ✓	✓	✓	✓	✓
2	180	054 D ✓	C-23 ✓	A-68 ✓	X	X	X	✓
1	220	055 C ✓	X	A-69 ✓	✓	✓	✓	✓

NOTES:

* A-78 do not run

Sulfide smelled from Niskins: 2, 1, 3

Time Mn spiked with acid:

Time NH4 spiked with working reagent: 17:00NH4 Standards: Vial #: 79Vial #: A-80Vial #: A-81Vial #: A-82Vial #: A-83

A-84

NH4 Standards: Conc: 0Conc: 2 μMConc: 4 μMConc: 6 μMConc: 10 μM

15 μM

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: 2.5Date: Jan. 25, 2020

Time Sampled: _____

Cast #: 2 Event #: 12Sampler Names: Lisa, Carlis, Tasha, Austin

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	0	056 ^C /057 ^C	X	A-70 [✓]	✓	✓	✓	X
7	10	058 ^C ✓	C-24	A-71 [✓]	✓	✓	✓	X
6	35	059 ^C ✓	X	A-72 [✓]	✓	✓	✓	X
5	45	060 ^E ✓	X	A-73 [✓]	X	X	X	✓
4	60	061 ^C ✓	X	A-74 [✓]	✓	✓	✓	X
3	70	062 ^C ✓	X	A-75 [✓]	✓	✓	✓	✓
2	80	063 ^C ✓	C-25 [✓]	A-76 [✓]	✓	✓	✓	✓
1	90	064 ^C ✓ / 065 ^E ✓	C-26 [✓]	A-77 [✓]	✓	✓	✓	✓

NOTES:

Sulfide smelled from Niskins:

Time Mn spiked with acid:

Time NH4 spiked with working reagent:

NH4 Standards: Vial #:

Vial #:

Vial #:

Vial #:

Vial #:

NH4 Standards: Conc:

Conc:

Conc:

Conc:

Conc:

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: S15Date: 25th January 2020

Time Sampled: _____

Cast #: 1 Event #: 14Sampler Names: Cool Chemist

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8								
7								
6	110	067C ✓	X	A-85 ✓	✓	✓	✓	✓
5	115	x2 • 068E ✓ • 069E ✓	C-36 ✓	A-86 ✓	✓	✓	✓	✓
4	120	070C ✓	X	A-87 ✓	✓	✓	✓	✓
3	140	071C ✓	C-35 ✓	A-88 ✓	✓	✓	✓	✓
2	160	072C ✓	X	A-89 ✓	X	X	X	✓
1	200	X	C-34 ✓	A-90 ✓	✓	✓	✓	✓

NOTES:

* A-99 - do not run.

Sulfide smelled from Niskins: #3, #2, #1

Time Mn spiked with acid: 16:30Time NH4 spiked with working reagent: 17:05NH4 Standards: Vial #: A-100 Vial #: A-101 Vial #: A-102 Vial #: A-103 Vial #: A-104 A-105NH4 Standards: Conc: 0 Conc: 2µM Conc: 4µM Conc: 6µM Conc: 10µM 15µM

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: SLSDate: 25th Jan/2020Time Sampled: 3845Cast #: 2 Event #: 15Sampler Names: Cool Chemists (Quinn, Mica, Travis, Tina)

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	0	x2 ° 073-C ✓ 074-C ✓	C-33 ✓	A-91 ✓	✓	✓	✓	✓
7	10	075-C ✓	X	A-92 ✓	✓	✓	X	X
6	20	076-C ✓	X	A-93 ✓	✓	X	✓	X
5	40	077-D ✓	X	A-94 ✓	X	✓	✓	✓
4	70	078-C ✓	X	A-95 ✓	✓	✓	✓	X
3	80	079-C ✓	X	A-96 ✓	✓	✓	✓	X
2	90	080-C ✓	C-32 ✓	A-97 ✓	✓	✓	✓	✓
1	100	082-C ✓	X	A-98 ✓	✓	✓	✓	✓

NOTES:

Sulfide smelled from Niskins: X

Time Mn spiked with acid: 16:30

Time NH4 spiked with working reagent:

NH4 Standards: Vial #:

Vial #:

Vial #:

Vial #:

Vial #:

NH4 Standards: Conc:

Conc:

Conc:

Conc:

Conc:

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: 4.5Date: Jan 26/2020Time Sampled: 10:30 amCast #: 1 Event #: 17Sampler Names: Kelley, Bowen & Sam

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8			X					
7								
6	80	82c ✓		A-106 ✓	✓	✓	✓	✓
5	125	83c ✓		A-107 ✓	✓	✓	✓	✓
4	130	84c ✓		A-108 ✓	✓	✓	✓	✓
3	135	85c ✓		A-109 ✓	✓	✓	✓	✓
2	140	87E ✓		A-110 ✓	✓	✓	✓	✓
1	145	88C ✓		A-111 ✓	✓	✓	✓	✓

NOTES:

*86n C → broken bottle
 NO₂ + PO₄ in box #2

Sulfide smelled from Niskins: NoneTime Mn spiked with acid: 15:41Time NH₄ spiked with working reagent: 16:45NH₄ Standards: Vial #: A-121

Vial #: A-122

Vial #: A-123

Vial #: A-124

Vial #: A-125

A-126

NH₄ Standards: Conc: 0 μMConc: 2 μMConc: 4 μMConc: 6 μMConc: 10 μM

15 μM

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: 4.5Date: Jan 26 / 2020Time Sampled: 11:15Cast #: 2 Event #: 18Sampler Names: Keller, Sam, Rowen

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	X							
7	0	^D 89C/90C ✓		A-112 ✓	✓	✓	✓	X
6	5	^D 91C/92D ✓		A-113 ✓	✓	✓	✓	X
5	10	^D 94C/95C ✓		A-114 ✓	✓	✓	✓	X
4	15	96G ✓		A-115 ✓	✓	✓	✓	✓
3	20	97C ✓		A-116 ✓	✓	✓	✓	✓
2	40	98E ✓		A-117 ✓	✓	X	✓	✓
1	60	99C ✓		A-118 ✓	X	✓	X	✓

NOTES:

93C has crack → DO NOT USE

Sulfide smelled from Niskins: noneTime Mn spiked with acid: 11:41

Time NH4 spiked with working reagent:

NH4 Standards: Vial #:

Vial #:

Vial #:

Vial #:

Vial #:

NH4 Standards: Conc:

Conc:

Conc:

Conc:

Conc:

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: S 3.5Date: JAN 26, 2020Time Sampled: 12:40Cast #: 1 Event #: 20Sampler Names: KATE, RUSSELL, SIOBHAN COURTNEY

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	X	X	X	X	X	X	X	X
7	X	X	X	X	X	X	X	X
6	125	100C	X	A-127	✓	✓	✓	✓
5	135	101C	X	A-128	✓	✓	✓	✓
4	145	^D 102C 103F	X	A-129	✓	✓	✓	✓
3	160	104E	X	A-130	✓	✓	✓	✓
2	180	105D	X	A-131	✓	X	✓	✓
1	210	X	X	A-132	X	✓	X	✓

NOTES:

Sulfide smelled from Niskins: 3 mild; 1 & 2 strongTime Mn spiked with acid: 1:39 pmTime NH4 spiked with working reagent: 16:50NH4 Standards: Vial #: A-142Vial #: A-143Vial #: A-144Vial #: A-145Vial #: A-146A-147NH4 Standards: Conc: 0 μMConc: 2 μMConc: 4 μMConc: 6 μMConc: 10 μM15 μM

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: S 3.5Date: JAN 26, 2020Time Sampled: 13:15Cast #: 2 Event #: 21Sampler Names: KATE, RUSSELL, SIOBHAN, COURTNEY

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	0	D 106C 107F	X	A-133	✓	X	✓	X
7	10	108C	X	A-134	✓	✓	✓	X
6	30	109C	X	A-135	✓	✓	✓	X
5	55	110F	X	A-136	X	✓	X	X
4	75	111D	X	A-137	✓	✓	✓	✓
3	100	112C	X	A-138	✓	✓	✓	✓
2	110	D 113D 114C	X	A-141	✓	✓	✓	✓
1	120	115C	X	A-140	✓	✓	✓	✓

NOTES: A-138 tube too small could not add full 10mL LWR

Sulfide smelled from Niskins: NONETime Mn spiked with acid: 1:39 pm

Time NH4 spiked with working reagent:

NH4 Standards: Vial #:

Vial #:

Vial #:

Vial #:

Vial #:

NH4 Standards: Conc:

Conc:

Conc:

Conc:

Conc:

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: S2Date: Jan 26Time Sampled: 2:35Cast #: 1 Event #: 23Sampler Names: Patrick, Conner, Emma

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8								
7								
6	115	116 E [✓]	C27 [✓]	A148 [✓]	✓	✓	✓	✓
5	120	117 C [✓]	C28 [✓]	A149 [✓]	✓			✓
^{Sulfur} 4	130	118 C [✓]	C29 [✓]	A150 [✓]	✓			✓
3	155	119 E [✓]	X	A151 [✓]	✓			✓
2	185	120 C [✓]	C30 [✓]	A152 [✓]	X	X	X	✓
1	205	121 C [✓]	X	A153 [✓]				✓

NOTES:

Sulfide smelled from Niskins: 4 slightly, 3, 2, 1 very strong

Time Mn spiked with acid: 16:10

Time NH4 spiked with working reagent: ~~16:10~~ 17:00

NH4 Standards: Vial #: A-163

Vial #: A-164

Vial #: A-165

Vial #: A-166

Vial #: A-167

A-168

NH4 Standards: Conc: 0.1M

Conc: 2μM

Conc: 4μM

Conc: 6μM

Conc: 10μM

15μM

Water Chemistry Sampling

Crusie: EOS 312 Jan 2020

202001

Station Name: SZDate: Jan 26 2020Time Sampled: 15:21Cast #: 2 Event #: 24Sampler Names: Enna, Conner, Anna, Patrick

Niskin Bottle	Target Depth (m)	Oxygen Bottle #s	DIC Bottle #	NH4 Vial #	NO3	NO2	PO4	Mn
8	0	134D	C31	A-154				X
7	5	^{x2} 133D, 132D	C37	A-155	^{skipped} LTD			X
6	10	131C	C38	A-156				
5	20	130C	C39	A-157				X
4	40	129C	X	A-158	X	X	X	X
3	75	^{x2} 128C, 127E	X	A-159				
2	85	126C	C40	A-160				
1	100	125E	C41	A-161				

NOTES:

Sulfide smelled from Niskins: 3,2,1 slightly ← below from last castTime Mn spiked with acid: 16:10

Time NH4 spiked with working reagent:

NH4 Standards: Vial #:

Vial #:

Vial #:

Vial #:

Vial #:

NH4 Standards: Conc:

Conc:

Conc:

Conc:

Conc: