

1. Chief Scientist Narrative:

ALL CAST DETAILS ARE FOUND IN AE1916CAST LOG

Day #	Day & Date	Time (Local)	Event	SIC
1	MON, 08/JULY/2019	0900	Depart St Davids for a station in between HS ss#2 and BATS SS#3. Mini detected weak current and bifurcated DCM on July 7 at this location. 32° 10' N; 64° 13' will be our target station for this cruise.	CC
1	MON, 08/JULY/2019	1200	Arrived on station. Wind 14 kts, seas 1-3' Air temp 28.75°C; SST 27.016°C	CC
1	MON, 08/JULY/2019	1217	CTD CAST #1- Cast Type C to 500m and large volume collection for Liu and English Experiments DCM- 1° at 95-100 with high beam attenuation at 95 will target this depth; also 2ndary DCM at 150 with corresponding beam attenuation. SST 26.9°C Wind- 14 kts; Seas 2-3' Set up DOM dosing experiment with TW lysate and Exudate (PPL) Filtrate for AutoBOD respiration Exp will be set up from this cast Only to 500 m	CC
1	MON, 08/JULY/2019	1417	PUMP CAST #1- 3 pumps were deployed two with double head (one for Close and one for Carlson). Each pump head held 4 size fractions Close – GF-75; GF/F on 150 um nytex, 6 um nytex, and 20 um nytex Carlson- 0.2 supor, 1.2 mixed ester, 5 um PC and 20 um nytex. Target depths were 10, 75, 95 m	CC

		1725	Pump on deck all worked well.	
1	MON, 08/JULY/2019	1850	<p>CTD CAST #2- large volume collection cast. Collect experimental water for Liu, English, Temperton, Bergauer</p> <p>SST 26.8°C Wind- 10 kts; Seas 2-3'</p> <p>200m max</p> <p>DCM has shoaled to ~ 80 m with strong corresponding beam attenuation.</p>	CC
1	MON, 08/JULY/2019	2140	<p>CTD CAST #3- Cast Type A to 1000m and large</p> <p>DCM- 1° at 92-96 with high beam attenuation at 95 will target this depth; also 2ndary DCM at ~ 150 with corresponding beam attenuation.</p> <p>SST 26.9°C Wind- 11 kts; Seas 2-3'</p>	
1	MON, 08/JULY/2019	2350	Zoo Tow - tow yo cast with 160 m wire payed out. Amy and Hannah are collecting samples for respiration experiments. All went smoothly	CC
2	TUES, 09/JULY/2019	0135	<p>PUMP CAST #2-</p> <p>3 pumps were deployed two with double head (one for Close and one for Carlson). Each pump head held 4 size fractions</p> <p>Close – GF-75; GF/F on 150 um nytex, 6 um nytex, and 20 um nytex</p> <p>Carlson- 0.2 supor, 1.2 mixed ester, 5 um PC and 20 um nytex.</p> <p>Target depths were 30, 115, 250 m</p> <p>30 is the shallow region that zooplankton migrate to at night and a day time comparison will also be conducted to compare isotopic signatures in the context of vertical migrators</p> <p>115 was targeted as a potential depth where resident zooplankton reside and may produce a heterotrophic signature in the particle C isotopes.</p>	CC

		0530	All pumps on deck and worked well	
2	TUES, 09/JULY/2019	0633	<p>CTD # 4 CAST TYPE B</p> <p>DCM was again located at 95 m with a minor secondary peak at 140. Bottles were adjusted to accommodate those features. There was some confusion with the bottle firing...instead of firing 5 bottles at 500 m only two were fired. To balance the cast list 3 additional bottles were fired at 200 m.</p> <p>SST 26.8°C Wind- 20 kts; Seas 3-5'</p> <p>Bottle 2 was misfired.</p>	CC
2	TUES, 09/JULY/2019	0920	<p>CTD CAST #5- large volume collection cast. Collect water for POC experiment, CRM and for B. Temperton at 10m and 200m</p> <p>SST 26.7°C Wind- 17 kts; Seas 2-3'</p>	CC
2	TUES, 09/JULY/2019	1115 1200	<p>MOCNESS deployment for the surface 300 m</p> <p>The MOCNESS was deployed and made it to target depth. First net successfully fired but after that bridge lost comms with the MOCNESS. Shorted out the 11 unit on bridge</p> <p>Brought back to deck and is being re-terminated.</p> <p>To preserve the majority of the cruise schedule the 1630 Type A cast will be cancelled and MOCNESS will be redeployed</p> <p>UPDATE- retermination did not solve the problem and the MTs do not want to compromise the remaining Seabird 11 unit; thus remaining MOCNESS tow will be aborted.</p>	CC
2	TUES, 09/JULY/2019	1900	<p>PUMP CAST #3-</p> <p>3 pumps were deployed two with double head (one for Close and one for Carlson). Each pump head held 4 size fractions</p>	CC

			<p>Close – GF-75; GF/F on 150 um nytex, 6 um nytex, and 20 um nytex</p> <p>Carlson- 0.2 supor, 1.2 mixed ester, 5 um PC and 20 um nytex.</p> <p>Target depths were 60, 160, 300m</p> <p>Deployment went smoothly.</p> <p>On deck</p>	
2	TUES, 09/JULY/2019	2241 2320	<p>CTD # 6 CAST TYPE B</p> <p>DCM was again located at 95 m with a minor secondary peak at 150.</p> <p>SST 26.7°C Wind- 14 kts; Seas 2-3’</p> <p>Bottle 2 was misfired.</p>	CC
3	WED, 10/JULY/2019	0100	<p>ZOO TOW - REEVE NET</p> <p>Amy did a zoo plankton tow with regular Reeve net to collect zooplankton for respiration exp</p>	CC
3	WED, 10/JULY/2019	0231	<p>CTD # 7 CAST VITAMIN CAST</p> <p>All bottles were fired at 10 m for Giovannoni’s Vitamin experiment.</p> <p>SST 26.7°C Wind- 18 kts; Seas 3-5’</p>	CC
3	WED, 10/JULY/2019	0530	<p>CTD # 8 CAST TYPE B</p> <p>DCM was again located at 95 m with a minor secondary peak at 150.</p> <p>Bottle 9 and bottle 23 misfired. We lost the 80 m sample but were able to get water from N24 for 1000 m water for hydrography</p> <p>SST 26.7°C ; Wind up to ~ 20 – 25 kts; Seas 3-6’</p>	CC
3	WED, 10/JULY/2019	0900	<p>ZOO TOW - REEVE NET</p>	CC

			Amy did a zoo plankton tow with regular reeve net to collect zooplankton for respiration exp	
3	WED, 10/JULY/2019	10:03	<p>PUMP CAST #4:</p> <p>This is the Day time repeat of the 30, 115, 250 m pump cast and there was a 4th pump with a single pump head was added to make sure we capture enough material from 500m for Hillary's samples...will be combined with pump cast #5</p> <p>Wind is up to ~ 25 kts ...wire angle was quite sharp for this cast which will impact actual depths.</p> <p>See TDR data for actual depths</p> <p>On Deck with all 4 pumps ...no issues.</p>	CC
3	WED, 10/JULY/2019	1525 1748	<p>CTD # 9 CAST TYPE D - 2600m</p> <p>DCM was again located at 95 m the minor secondary peak has disappeared. The DCM is very broad i.e start at ~ 80, peaks at 95 fall back to baseline by 16</p> <p>On deck</p> <p>SST 26.6°C ; Wind up to ~ 25-30 kts; Seas 3-6'</p> <p>Bottles 9, 14 and 16 misfired</p>	CC
3	WED, 10/JULY/2019	2245 2330	<p>CTD # 10 CAST TYPE B - 500m</p> <p>Broad DCM started at 72m reached max attenuation at 80, DCM at 95 and returned to baseline by 160. Still lots of fluor at 120m</p> <p>SST 27°C ; Wind s12 kts; Seas 2-4'</p> <p>On deck</p> <p>Bottle 9 misfired but double tripped at 60 m so did not lose depth.</p> <p>Wind dropped to 11kts after heavy rain storm.</p>	CC

4	THURS, 11/JULY/2019	0045	PUMP CAST #5 Winds are 11 kts. 4 pumps deployed 200, 350 X2, 500 Actual depths 184, 330 and 485 m.	CC
		0545	Start recovery- no issues	
4	THUR, 11/JULY/2019	0645	CTD # 11 CAST TYPE A - 1000m LAST core cast. Looks like we stayed within the same water parcel for the duration of the cruise. The main features of shallow DCM coincident with high beam attenuation were retained. Thick lens of 19° water extended between ~ 100 – 400 m. SST 26.7°C ; Winds 4 kts; Seas 2-3'	CC
		0807	On deck Bottle 9 misfired but double tripped at 80 m so did not lose depth.	
4	THUR, 11/JULY/2019	0930	CTD # 12 large volume collection cast-250 m Last cast of the cruise -used to collect water for Liu's SIP experiment, English's respiration experiment, Giovannoni cultivation water and Opalk CRM water. SST 26.7°C ; Winds 3 kts; Seas 1-2'	CC
		1010	On Deck	
4	THUR, 11/JULY/2019	1035	Man overboard Drill	CC
4	THUR, 11/JULY/2019	1045	Recovered Mini successfully	CC
4	THUR, 11/JULY/2019	1100	Depart for Sea Buoy	CC