

Consec. Cast # 001		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 39		Vessel Sta. I.D. -		Instructions CTD to max depth with nutrient samples										Sta. Designation Line 8, Sta 61							
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 106 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.				
001	57	43	25 N	155	15	55 W	16	A	P	R	91	20	03	62	60	08	28	090	17	87	20	161	61				
CTD Type & SN 91220-A			Press. SN 25084			Temp. SN 701			Cond. SN 304			Monitor Checks on Deck at Surface				Times JD/Time Data on 106/ at Surface 1954 Start Down 1958 at Bottom 2003 Start Up 2004 at Surface 2016 Data off				Data Location Tape/Diskette I.D. File Name/Header Cast 001 side A CAST1-16APR1957				Remarks*no thermometers - bottom came up before equilibration. NITS			
Pos.	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values Press. Temp. Cond. Other				Conv. Mon. Values-CTD Press. Temp. Cond. Sal.				Sample Bot. Data Therm-P Avg Tw Sal.			Sal. Bot. #	Other Samp.	Pos.								
1	29		158		2003					157.900	3.315	29.569	32.055					247	1								
2	T	B	145*		2007					144.779	3.326	29.567	32.047					11	248	2							
3	3141		100		2009					102.821	3.357	29.552	32.021						249	3							
4	26		75	144	2011					74.438	3.341	29.514	32.006						250	4							
5	25		50		2012					50.602	3.326	29.486	31.999						251	5							
6	24		30		2013					30.121	3.310	29.434	31.964						252	6							
7	23		20		2014					19.734	3.379	29.481	31.958						253	7							
8	22		10		2015					9.354	3.513	29.470	31.818						254	8							
9	21																			9							
10	20																			10							
11	19																			11							
12	PINGET																			12							

Initials JPM

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Consec. Cast # 002		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-034		Event # 41		Vessel Sta. I.D.		Instructions CTD to 60 m with microzooplankton & chlorophyll samples										Sta. Designation Line 8, Sta 61						
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 166 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.			
002	57	43	28 N	155	15	40 W	16	4	PR	91	21	14	3	5	3	0	0	7	26	11	0	10	87	2	187	61
CTD Type & SN 91220-A				Monitor Checks								Times JD/Time				Data Location										
Press. SN 25084				on Deck at Surface								Data on				Tape/Diskette I.D.				File Name/Header						
Temp. SN 701				Press. _____								at Surface 2111				Side B				CAST 2-16 APR 2110						
Cond. SN 304				Temp. _____								Start Down 2111														
				Cond. _____								at Bottom _____														
				Other _____								Start Up 2114														
												at Surface 2122														
												Data off _____														
																Remarks										
Stn. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data				Sal. Bot. #	Other Samp.	Pos.						
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.										
1	29		60	2114						60.988	3.320	29.474	31.986					MZ	1							
2	28		50	2116						50.012	3.316	29.460	31.979					Chl	2							
3	3141		50	2116						50.048	3.316	29.462	31.981					MZ	3							
4	26		40	2118						41.365	3.321	29.459	31.977					MZ	4							
5	25		40	2118						41.370	3.330	29.467	31.977					Chl	5							
6	24		30	2119						30.706	3.407	29.528	31.981					MZ	6							
7	23		30	2119						30.652	3.429	29.543	31.978					Chl	7							
8	22		20	2120						19.837	3.401	29.490	31.947					MZ	8							
9	21		20	2120						19.851	3.402	29.490	31.946					Chl	9							
10	20		10	2121						9.907	3.452	29.519	31.937					MZ	10							
11	19		10	2121						9.905	3.452	29.518	31.935					Chl	11							
12	PINGER																		12							

Initials AM

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Consec. Cast # 003		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event #		Vessel Sta. I.D.		Instructions <i>CTD to max depth with nutrient samples</i>										Sta. Designation <i>line 8, Sta 60</i>						
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 106 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.			
003	57	41	18 N	155	09	97 W	16	A	P	R	91	22	23	50	40	08	36	110	08	87	2	290	60			
CTD Type & SN 91220-A			Monitor Checks			Times JD/Time			Data Location																	
Press. SN 25084			on Deck			at Surface			Data on 106			Tape/Diskette I.D.												File Name/Header		
Temp. SN 701			Press. _____			_____			at Surface 2212			cast #3 ✓												CAST3-16 APR 2212		
Cond. SN 304			Temp. _____			_____			Start Down 2214			_____												_____		
_____			Cond. _____			_____			at Bottom 2223			_____												_____		
_____			Other _____			_____			Start Up 2224			Remarks												Nut		
_____			_____			_____			at Surface 2242			_____												_____		
_____			_____			_____			Data off _____			_____												_____		
Stn. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.							
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.										
1	29				2224					284.750	4.785	31.735	33.080					255	1							
2	T		250	2225:40	2230:40					250.952	4.232	30.934	32.715		4.22			20	256	2						
3	341		200		2232					199.892	3.267	29.722	32.263					385	3							
4	26		150		2234					148.871	3.608	29.929	32.199					386	4							
5	25		100		2236					99.302	3.501	29.713	32.073					387	5							
6	24		75		2237					74.745	3.470	29.645	32.035					388	6							
7	23		50		2238					51.668	3.377	29.530	32.001					389	7							
8	22		30		2239					29.631	3.378	29.469	31.940					390	8							
9	21		20		2240					20.624	3.412	29.490	31.935					391	9							
10	20		10		2242					10.173	3.437	29.506	31.935					392	10							
11	19		—		—					—	—	—	—					—	11							
12	Pinger																		12							

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Consec. Cast # 004		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 44		Vessel Sta. I.D.		Instructions CTD to 60m with micro- zooplankton & chlorophyll samples										Sta. Designation leg 8, Sta. 60			
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.
004	57	40	91 N	115	09	63 W	16	A	P	R	91	23	40	60	49	07	38	110	10	5	71	288	60
CTD Type & SN 91220-A Press. SN 25084 Temp. SN 701 Cond. SN 304				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____								Times JD/Time Data on 106 at Surface 2337:00 Start Down 2337:20 at Bottom _____ Start Up 2339:55 at Surface 2347:50 Data off _____				Data Location Tape/Diskette I.D. _____ File Name/Header CAST4-16APR2336 _____ _____ _____ Remarks _____							
St. #	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	St. #				
				Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.									
1	29		60	2339:55				60.453	3.321	29.481	31.994						MZ	1					
2	28		50	2341:07				50.273	3.241	29.386	31.964						Chl	2					
3	3141		50	2341:25				50.324	3.232	29.380	31.966						MZ	3					
4	26		40	2342:28				40.335	3.222	29.360	31.957						MZ	4					
5	25		40	2342:50				40.307	3.228	29.368	31.968						Chl	5					
6	24		30	2343:57				30.508	3.218	29.346	31.949						MZ	6					
7	23		30	2344:18				30.511	3.208	29.338	31.950						Chl	7					
8	22		20	2345:18				20.066	3.315	29.415	31.942						MZ	8					
9	21		20	2345:35				20.129	3.318	29.417	31.941						Chl	9					
10	20		10	2346:37				10.044	3.390	29.469	31.937						MZ	10					
11	19		10	2346:54				10.055	3.389	29.468	31.937						Chl	11					
12	Pings																	12					

Initials SAM

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Consec. Cast # 005		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 45		Vessel Sta. I.D.		Instructions CTD to max depth with nutrient samples										Sta. Designation (line 8, sta. 59)				
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S. Vis.	Wind Dir.	Wind Sp.	Cloud Type	Weath.	Bottom Depth, m	Sta. Name or I.D.			
005	5	73	8	63	N	155	04	22	W	17	A	P	R	9	1	0037	72	65	07	38	100	08571	256	59
CTD Type & SN 91220-A				Monitor Checks				Times JD/Time				Data Location												
Press. SN 25084				on Deck				Data on				Tape/Diskette I.D.				File Name/Header								
Temp. SN 701				at Surface				at Surface 0019:40				Cast 5 side A.				CAST5-17APR0021								
Cond. SN 304				Press.				Start Down 0022:35																
				Temp.				at Bottom 0031:10																
				Cond.				Start Up 0032:00																
				Other				at Surface 0043:40								Remarks Bottom: 250 are same sample. Not								
								Data off																
Stn No.	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Stn No.					
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.								
1	29		30 250		0031:50					249.637	4.576	31.419	32.939					393	1					
2	28		200		0033:49					199.881	4.107	30.589	32.460					394	2					
3	341		150		0035:43					150.256	3.761	30.149	32.308					395	3					
4	26		100		0037:24					99.711	3.785	30.096	32.248					396	4					
5	25		75		0038:32					74.139	3.879	30.117	32.194					397	5					
6	24		50		0039:40					49.400	3.244	29.411	31.991					398	6					
7	23		30		0040:50					30.328	3.241	29.366	31.951					399	7					
8	22		20		0041:57					20.355	3.265	29.367	31.933				33	400	8					
9	21		10		0042:55					10.368	3.299	29.384	31.925					401	9					
10	20																		10					
11	19																		11					
12	Pinged																		12					

Initials SAM

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Consec. Cast # 006		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 47		Vessel Sta. I.D.		Instructions CTD to 60 m with microzooplankton & chlorophyll samples										Sta. Designation Line 8, stn-58								
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 107 Day Mo. Yr.		Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weather	Bottom Depth, m	Sta. Name or I.D.						
006	57	38	41	N	155	04	23	W	17	A	P	R	9	1	01	27	5	2	5	0	07	38	09	50	65	71	255	59
CTD Type & SN 91220-A			Press. SN 25084			Temp. SN 701			Cond. SN 304			Monitor Checks on Deck at Surface				Times JD/Time Data on 107 at Surface 0124:20 Start Down 0124:50 at Bottom Start Up 0127:40 at Surface 0135:27 Data off				Data Location Tape/Diskette I.D. File Name/Header Cast 6 Side B CAST6-APPRO123				Remarks				
Stn. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.									
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.												
1	29		60		0127:37								61.643	3.593	29.800	32.105					MZ	1						
2	28		50		0128:42								49.845	3.355	29.538	32.034					MZ	2						
3	3141		50		0129:12								49.980	3.327	29.504	32.021					Chl	3						
4	26		40		0130:15								39.888	3.199	29.352	31.971					MZ	4						
5	25		40		0130:33								39.892	3.196	29.348	31.968					Chl	5						
6	24		30		0131:31								30.681	3.219	29.349	31.952					MZ	6						
7	23		30		0131:50								30.761	3.220	29.350	31.951					Chl	7						
8	22		20		0132:56								20.681	3.270	29.374	31.936					MZ	8						
9	21		20		0133:17								20.739	3.281	29.380	31.933					Chl	9						
10	20		10		0134:21								9.752	3.350	29.427	31.926					MZ	10						
11	19		10		0134:38								9.807	3.335	29.414	31.926					Chl	11						
12																						12						

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Consec. Cast # 007		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-034		Event # 48		Vessel Sta. I.D.		Instructions CTD to max depth with nutrient samples										Sta. Designation Line 8, Sta. 58							
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 107 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.				
007	57	36	21	N	155	01	05	W	17	A	P	R	9	1	0	21	1	60	50	07	38	08	00	65	71	236	58
CTD Type & SN 91220-A				Monitor Checks				Times JD/Time				Data Location															
Press. SN 25084				on Deck at Surface				Data on _____				Tape/Diskette I.D.				File Name/Header											
Temp. SN 701				Press. _____				at Surface 0202:20				Cast 7 side A				CAST7-17APR0200											
Cond. SN 304				Temp. _____				Start Down 0202:40																			
				Cond. _____				at Bottom 0210:40																			
				Other _____				Start Up 0211:20																			
								at Surface 0225:16																			
								Data off _____								Remarks											
																Nut											

Pos.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	29		B		0211:14					231.086	4.737	31.640	33.046				402	1	
2	28		200		0213:25					200.274	4.116	30.693	32.574				403	2	
3	3141		150		0215:51					149.975	3.779	30.194	32.344				404	3	
4	26		100		0218:20					100.003	3.748	30.073	32.258				405	4	
5	25		75		0219:45					74.932	3.779	30.063	32.228				406	5	
6	24		50		0221:13					49.801	3.817	30.055	32.193				407	6	
7	23		30		0222:27					29.665	3.466	29.578	31.983				408	7	
8	22		20		0223:27					19.701	3.329	29.411	31.923				409	8	
9	21		10		0224:31					10.153	3.610	29.634	31.917				26 410	9	
10	20																	10	
11	19																	11	
12	Pinger																	12	

Initials SHW

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Consec. Cast # 008		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 50		Vessel Sta. I.D.		Instructions CTD to 60 m with micro- zooplankton and chlorophyll samples				Sta. Designation Line 8, Sta. 58															
Consec. Cast #	Latitude N or S Deg. Min.		Longitude E or W Deg.		Date JD = 107 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud Type	Weath.	Bottom Depth, m	Sta. Name or I.D.									
008	57	36	28	N	155	00	86	W	17	A	P	R	91	03	13	05	00	40	07	38	105	06	57	1	238				58
CTD Type & SN 91220-A Press. SN 25084 Temp. SN 701 Cond. SN 304				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____				Times JD/Time Data on _____ at Surface 0309:28 Start Down 0310:08 at Bottom 03 Start Up 0312:40 at Surface 0319:18 Data off _____				Data Location Tape/Diskette I.D. File Name/Header cast 8 side B CAST8_17APR0309 Remarks																	
Stn. #	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values Press. Temp. Cond. Other				Conv. Mon. Values-CTD Press. Temp. Cond. Sal.				Sample Bot. Data Therm-P Avg Tw Sal.			Sal. Bot. #	Other Samp.	Pos.										
1	29		60		0312:38					60.502	3.229	29.555	32.174					MZ	1										
2	28		50		0313:40					49.763	3.420	29.699	32.163					MZ	2										
3	3141		50		0313:58					49.744	3.407	29.688	32.162					chl	3										
4	26		40		0314:51					39.840	3.695	29.917	32.156					MZ	4										
5	25		40		0315:10					39.812	3.696	29.917	32.155					chl	5										
6	24		30		0316:02					29.940	3.686	29.862	32.105					MZ	6										
7	23		30		0316:21					29.905	3.690	29.862	32.100					chl	7										
8	22		20		0317:15					20.218	3.670	29.799	32.050					MZ	8										
9	21		20		0317:32					20.203	3.674	29.802	32.050					chl	9										
10	20		10		0318:13					10.061	3.732	29.804	32.000					MZ	10										
11	19		10		0318:47					10.069	3.722	29.798	32.003					chl	11										
12	Pinger																		12										

Initials

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Consec. Cast # 810		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 53		Vessel Sta. I.D.		Instructions CTD to 60 m with micro-plankton and chlorophyll samples										Sta. Designation Line 8, sta. 57								
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 107 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.					
010	57	32	79	N	154	53	02	W	17	A	P	R	9	1	05	25	04	9	04	1	08	38	105	08	57	1	228	57
CTD Type & SN 91220-A				Press. SN 25084				Temp. SN 701				Cond. SN 304				Monitor Checks on Deck at Surface				Times JD/Time Data on 107				Data Location Tape/Diskette I.D. File Name/Header				
																Press. _____				Start Down 0515:00				CST10-side B CST10-17APR0514				
																Temp. _____				at Bottom _____								
																Cond. _____				Start Up 0518:00								
																Other _____				at Surface 0525:34				Remarks Hi Leslie Allen				
																Data off _____												

Stn. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Stn. #
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	29		60		0517:51					60.200	3.703	29.989	32.223					MZ	1
2	28		50		0519:00					50.217	3.719	29.960	32.177					MZ	2
3	341		50		0519:23					50.196	3.717	29.963	32.183					CI	3
4	26		40		0520:32					40.007	3.709	29.919	32.144					MZ	4
5	25		40		0520:49					39.997	3.710	29.921	32.145					CI	5
6	24		30		0521:47					29.936	3.661	29.813	32.070					MZ	6
7	23		30		0522:03					29.909	3.657	29.812	32.074					CI	7
8	22		20		0523:06					19.990	3.264	29.359	31.924					MZ	8
9	21		20		0523:27					20.010	3.264	29.358	31.924					CI	9
10	20		10		0524:23					10.327	3.380	29.431	31.902					MZ	10
11	19		10		0524:40					10.243	3.375	29.428	31.904					CI	11
12	ping																		12

Initials SLM

Consec. Cast # 011		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 54		Vessel Sta. I.D.		Instructions <i>CTD to max depth with ambient samples</i>										Sta. Designation <i>Line 8, Sta 56</i>						
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 107 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.			
011	57	30	80 N	154	46	73 W	17	A	P	R	91	06	06	05	0	03	8	08	28	100	08	57	1	205	56	
CTD Type & SN 91220-A			Monitor Checks			Times			Data Location																	
Press. SN 25084			on Deck			at Surface			Data on 107/0558			Tape/Diskette I.D. File Name/Header														
Temp. SN 701			Press. _____			_____			at Surface 0559:10			<i>10011 Side A CAST11-17APROS</i>														
Cond. SN 304			Temp. _____			_____			Start Down 0559:28			_____														
_____			Cond. _____			_____			at Bottom 0606:20			_____														
_____			Other _____			_____			Start Up 0606:40			_____														
_____			_____			_____			at Surface 0618:00			Remarks bottom 4200m same sample														
_____			_____			_____			Data off _____			heslie, How come youse dint out here?														
Stn. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Stn. #							
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.										
1	29		180		0606:35					200.542	4.614	31.475	32.992					420	1							
2	28		150		0608:34					149.790	3.791	30.369	32.540					421	2							
3	341		100		0610:29					100.105	3.404	29.829	32.307					422	3							
4	26		75		0611:52					75.067	3.430	29.801	32.261					423	4							
5	25		50		0613:11					50.711	3.302	29.644	32.214					424	5							
6	24		30		0614:42					29.912	3.804	30.047	32.208					425	6							
7	23		20		0615:56					20.579	3.700	29.912	32.155					426	7							
8	22		10		0617:06					10.169	3.663	29.809	32.074					27 427	8							
9	21		—																9							
10	20		—																10							
11	19		—																11							
12	18		—																12							

Initials *SAW*

Consec. Cast # 012		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-034		Event # 57		Vessel Sta. I.D.		Instructions <i>CTD to 60m with microzooplankton + chlorophyll sample</i>										Sta. Designation <i>Line 8, Sta 56</i>								
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 167 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud Type	Weather	Bottom Depth, m	Sta. Name or I.D.						
012	57	30	90	N	154	46	78	W	17	A	P	R	91	07	43	04	8	03	8	09	28	100	08	57	1	20	8	56
CTD Type & SN 91220-A Press. SN 25084 Temp. SN 701 Cond. SN 304				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____				Times JD/Time Data on _____ at Surface _____ Start Down 074125 at Bottom 074326 Start Up 074355 at Surface 0751 Data off _____				Data Location Tape/Diskette I.D. <i>Cast 12 side B</i> File Name/Header <i>CAST12-17APR0740</i> Remarks _____																
Stn No.	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values Press. Temp. Cond. Other				Conv. Mon. Values-CTD Press. Temp. Cond. Sal.				Sample Bot. Data Therm-P Avg Tw Sal.			Sal. Bot. #	Other Samp.	Stn No.									
1	29		60	132	074418					60.988	3.508	29.856	32.257					MZ	1									
2	28		50		074507					50.102	3.835	30.144	32.281					MZ	2									
3	3141		50		074543					50.100	3.837	30.147	32.282					CL	3									
4	26		40		074722					40.870	3.501	29.814	32.225					MZ	4									
5	25		40		074739					40.882	3.461	29.778	32.221					CL	5									
6	24		30		074830					29.924	3.361	29.665	32.191					MZ	6									
7	23		30		074845					29.933	3.371	29.674	32.191					CL	7									
8	22		20		074934					20.273	3.586	29.786	32.118					MZ	8									
9	21		20		074949					20.234	3.600	29.798	32.118					CL	9									
10	20		10		075037					9.695	3.642	29.796	32.079					MZ	10									
11	19		10		075053					9.728	3.628	29.793	32.091					CL	11									
12	19																		12									

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Consec. Cast # 013		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 58		Vessel Sta. I.D.		Instructions <i>CTD to max depth, nutrient samples</i>										Sta. Designation <i>Line 8, Sta 55</i>						
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 107 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.			
013	57	28	78 N	154	41	88 W	17	A	P	R	91	08	31	03	8	03	0	10	08	080	03	27	1	58	55	
CTD Type & SN 91220-A			Monitor Checks			Times			Data Location																	
Press. SN 25084			on Deck			at Surface			Data on 107 0828			Tape/Diskette I.D. File Name/Header														
Temp. SN 701			Press. _____			_____			at Surface 0829			<i>cast 13 side A</i> <i>CAST13-17APR0827</i>														
Cond. SN 304			Temp. _____			_____			Start Down 0829			_____														
_____			Cond. _____			_____			at Bottom 0831			_____														
_____			Other _____			_____			Start Up 0831			Remarks														
_____			_____			_____			at Surface _____			_____														
_____			_____			_____			Data off _____			_____														
Stn. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.							
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.										
1	29		58		0831					57.859	3.381	29.803	32.322					1								
2	28		50		0832					50.674	3.339	29.729	32.278					28								
3	341		30		0834					29.201	3.373	29.709	32.233					29								
4	26		20		083505					19.132	3.371	29.673	32.196					30								
5	25		10		083620					10.234	3.406	29.631	32.115					31								
6	24																									
7	23																									
8	22																									
9	21																									
10	20																									
11	19																									
12	<i>plunged</i>																									

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Consec. Cast # 014		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 60		Vessel Sta. I.D.		Instructions CTD to 60 m microzooplankton + chlorophyll samples										Sta. Designation Line 8, Alm 55													
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 107 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.										
014	57	28	66 N	154	42	31 W	17	A	P	R	9	1	09	14	04	0	0	3	2	1	0	0	8	0	8	0	0	2	3	7	1	64	55
CTD Type & SN 91220-A			Press. SN 25084			Temp. SN 701			Cond. SN 304			Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____					Times JD/Time Data on 107 / 0911 at Surface 091146 Start Down 091153 at Bottom 091353 Start Up 0914 at Surface 0920 Data off _____					Data Location Tape/Diskette I.D. File Name/Header Cast 14 mid B CAST14-17APR0910 _____ _____ _____ Remarks _____											
St. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	St. #														
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.																	
1	29		59		091147						58.851	3.500	29.930	32.354					MZ	1													
2	28		50		091512						49.852	3.406	29.794	32.290					MZ	2													
3	3141		50		091528						49.853	3.406	29.794	32.290				07	CL	3													
4	26		40		091619						39.685	3.359	29.728	32.263					MZ	4													
5	25		40		091635						39.638	3.362	29.731	32.263					CL	5													
6	24		30		091725						29.733	3.319	29.642	32.205					MZ	6													
7	23		30		091742						29.699	3.318	29.639	32.202					CL	7													
8	22		20		091835						19.771	3.385	29.662	32.169					MZ	8													
9	21		20		091851						19.822	3.381	29.660	32.170					CL	9													
10	20		10		091945						10.022	3.504	29.652	32.043					MZ	10													
11	19		10		092003						10.025	3.502	29.653	32.047					CL	11													
12	pingul																			12													

Initials SD

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Consec. Cast # 015		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 132		Vessel Sta. I.D.		Instructions CTD to bottom w/ thermometers at 114m										Sta. Designation M 9005																																																	
Consec. Cast #	Latitude		N or S	Longitude		E or W	Date JD = 111			Time GMT		Dry Bulb	Wet Bulb	Bar. mb	SS Vis.	Wind Dir.	Wind Sp.	Cloud Type	Weath.	Bottom Depth, m	Sta. Name or I.D.																																																
	Deg.	Min.		Deg.	Day		Mo.	Yr.	Hr.	Min.																																																											
015	56	21	83	N	156	54	86	W	21	A	P	R	91	22	35	05	0	03	8	94	18	120	07	46	1	130	M9005																																										
CTD Type & SN 91220-A			Press. SN 25084			Temp. SN 701			Cond. SN 304			<table border="1"> <tr> <th colspan="2">Monitor Checks</th> <th colspan="2">Times JD/Time</th> <th colspan="2">Data Location</th> </tr> <tr> <td>on Deck</td> <td>at Surface</td> <td>Data on</td> <td></td> <td>Tape/Diskette I.D.</td> <td>File Name/Header</td> </tr> <tr> <td>Press. _____</td> <td>_____</td> <td>at Surface</td> <td>_____</td> <td>✓</td> <td>Cast 15-21 Apr 2229</td> </tr> <tr> <td>Temp. _____</td> <td>_____</td> <td>Start Down</td> <td>22:31</td> <td></td> <td></td> </tr> <tr> <td>Cond. _____</td> <td>_____</td> <td>at Bottom</td> <td>22:35</td> <td></td> <td></td> </tr> <tr> <td>Other _____</td> <td>_____</td> <td>Start Up</td> <td>22:35</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>at Surface</td> <td>22:45:04</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Data off</td> <td>_____</td> <td></td> <td></td> </tr> </table>										Monitor Checks		Times JD/Time		Data Location		on Deck	at Surface	Data on		Tape/Diskette I.D.	File Name/Header	Press. _____	_____	at Surface	_____	✓	Cast 15-21 Apr 2229	Temp. _____	_____	Start Down	22:31			Cond. _____	_____	at Bottom	22:35			Other _____	_____	Start Up	22:35					at Surface	22:45:04					Data off	_____		
Monitor Checks		Times JD/Time		Data Location																																																																	
on Deck	at Surface	Data on		Tape/Diskette I.D.	File Name/Header																																																																
Press. _____	_____	at Surface	_____	✓	Cast 15-21 Apr 2229																																																																
Temp. _____	_____	Start Down	22:31																																																																		
Cond. _____	_____	at Bottom	22:35																																																																		
Other _____	_____	Start Up	22:35																																																																		
		at Surface	22:45:04																																																																		
		Data off	_____																																																																		
CTD		Type & SN 91220-A		Press. SN 25084		Temp. SN 701		Cond. SN 304		Remarks Sample at same depth as lower current meter of mooring; per recovery CTD for M 9005																																																											
Stn. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Stn. #																																																		
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.																																																					
1																			1																																																		
2																			2																																																		
3																			3																																																		
4																			4																																																		
5	38	8	113	22:36:20	22:41:20					114.375	2.636	29.118	32.209		3.56		25		5																																																		
6																			6																																																		
7																			7																																																		
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Consec. Cast # 016		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 136		Vessel Sta. I.D.		Instructions CTD to bottom w/ thermometers @ 115m and chlorophyll sample at ~25m										Sta. Designation M9105									
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 112 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.						
016	56	22	37	N	156	55	20	W	22	A	P	R	91	02	47	05	9	04	4	9	3	28	14	00	65	61	01	30	M9105
CTD Type & SN 91220-A				Press. SN 25084				Temp. SN 701				Cond. SN 304				Monitor Checks on Deck at Surface				Times JD/Time Data on _____ at Surface 0241:40 Start Down 0242:04 at Bottom 0246:30 Start Up 0246:50 at Surface 0258:45 Data off _____				Data Location Tape/Diskette I.D. _____ File Name/Header CAST16-22 APR 241 Remarks post-deployment CTD for M9105 PR-1.0114 = fluorometer					
St. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.										
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.													
1																				1									
2																					2								
3																					3								
4																					4								
5																					5								
6	38	B	111	0247:35	0252:35							111.129	2.607	29.092	32.207		2.61		21		6								
7	C		12	0257:55								12.051	2.795	29.161	32.155					CL	7								
8																					8								
9																					9								
10																					10								
11																					11								
12																					12								

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Consec. Cast # 017		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event #		Vessel Sta. I.D.		Instructions, CTD to bottom with thermometers @ 76 m : chlorophyll sample at fluorometer				Sta. Designation M9140																	
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 113 Day Mo. Yr.		Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud Type	Weather	Bottom Depth, m	Sta. Name or I.D.										
017	55	44	41	N	158	33	24	W	23	APR	91	20	01	06	7	05	0	04	18	25	00	61	81	00	97	M9140					
CTD Type & SN 91220-A				Press. SN 25084				Temp. SN 701				Cond. SN 304				Monitor Checks on Deck at Surface				Times JD/Time Data on 1957:15 at Surface 1957:50 Start Down 2001:15 at Bottom 2001:30 Start Up 2009:54 Data off				Data Location Tape/Diskette I.D. File Name/Header VCAST 17 CAST17-23APR1957 side A side B blank				Remarks post-deployment CTD for M9140			
St. #	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values Press. Temp. Cond. Other				Conv. Mon. Values-CTD Press. Temp. Cond. Sal.				Sample Bot. Data Therm-P Avg Tw Sal.			Sal. Bot. #	Other Samp.	St. #												
1																										1					
2																										2					
3	38	B	76	2002:05	2009:05									76.667	2.624	29.063	32.173		2.62			12				3					
4	7		21		2009:10									20.974	2.804	29.149	32.127									4					
5																										5					
6																										6					
7																										7					
8																										8					
9																										9					
10																										10					
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Consec. Cast # 018		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 311		Vessel Sta. I.D.		Instructions <i>CTD to max depth with nutrient samples</i>										Sta. Designation <i>Line 17 Sta. 152</i>									
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg. W		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	V.S.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.						
018	55	54	14	N	155	59	77	W	24	A	P	R	91	03	33	05	0	03	5	04	18	35	00	64	60	00	82	00	152
CTD Type & SN 91220-A Press. SN 25084 Temp. SN 701 Cond. SN 304				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____						Times JD/Time Data on 114/0330:24 at Surface 0330:05 Start Down 0330:32 at Bottom 0333:27 Start Up 0333:45 at Surface 0339:28 Data off _____						Data Location Tape/Diskette I.D. File Name/Header <i>CAST 18 side A</i> <i>CAST 18-24APR0329</i> Remarks													
St. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos										
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.													
1	28		78	78	0333:40								77.894	3.215	29.739	32.400				10	432	1							
2	27		50	50	0335:27								50.605	3.214	29.723	32.397					433	2							
3	26		30	30	0336:43								30.683	3.204	29.698	32.386					434	3							
4	29		20	20	0337:42								20.555	3.192	29.670	32.370					435	4							
5	21		10	10	0338:48								10.397	3.375	29.797	32.346					436	5							
6	20																					6							
7	19																					7							
8	24																					8							
9	25																					9							
10	22																					10							
11	23																					11							
12	—	ping																				12							

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Consec. Cast # 019		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 312		Vessel Sta. I.D.		Instructions CTD to 60m with micro- zooplankton and chlorophyll samples										Sta. Designation Line 17, Sta. 152					
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.		Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.			
019	55	54	06	N	155	59	95	W	24	A	P	R	91	04	02	05	0	03	5	04	18	355	08	460	008300152
CTD Type & SN 91220-A			Press. SN 25084			Temp. SN 701			Cond. SN 304			Monitor Checks on Deck at Surface				Times JD/Time Data on 114/0359				Data Location Tape/Diskette I.D. File Name/Header					
									Press. _____				Start Down at Surface 0400:05				Cast 19 side B CAST19-24APR0359								
						Temp. _____				Start Up at Surface 0402:40															
						Cond. _____				Data off				Remarks											
						Other _____																			

Stn. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Stn. #
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	28		60		0403:02					60.780	3.222	29.738	32.401					MZ	1
2	27		50		0404:07					50.802	3.215	29.721	32.392					CL	2
3	26		50		0404:25					50.827	3.215	29.721	32.392					MZ	3
4	29		40		0405:38					40.452	3.124	29.598	32.341					MZ	4
5	21		40		0405:57					40.455	3.155	29.638	32.358					CL	5
6	20		30		0406:57					30.493	3.546	29.931	32.324					MZ	6
7	19		30		0407:14					30.490	3.535	29.921	32.324					CL	7
8	24		20		0408:24					20.747	3.562	29.931	32.314					MZ	8
9	25		20		0408:43					20.726	3.569	29.939	32.317					CL	9
10	22		10		0409:49					10.693	3.363	29.681	32.219					MZ	10
11	23		10		0410:08					10.719	3.362	29.680	32.217					CL	11
12	-pinge																		12

Initials SHM

Consec. Cast # 020		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 314		Vessel Sta. I.D.		Instructions CTD to max depth with nutrient samples										Sta. Designation Line 17, Stn. 153									
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.						
020	55	55	02 N	156	11	44 W	24	A	P	R	91	05	12	06	5	05	0	04	1	8	35	0	04	26	00	20	20	01	53
CTD Type & SN 91220-A				Monitor Checks								Times JD/Time				Data Location													
Press. SN 25084				on Deck at Surface								Data on 114/0505				Tape/Diskette I.D. File Name/Header													
Temp. SN 701				Press. _____								at Surface 0506:06				cast 20 side A CAST20-24APR0505													
Cond. SN 304				Temp. _____								Start Down 0506:20																	
				Cond. _____								at Bottom 0512:45																	
				Other _____								Start Up 0513:20																	
												at Surface 0524:59				Remarks													
												Data off																	
St. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos										
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.													
1	28		197		0515:15					196.890	4.748	31.832	33.274					437	1										
2	27		150		0515:25					150.773	3.879	30.675	32.814					438	2										
3	26		100		0517:30					100.785	3.233	29.777	32.416					439	3										
4	29		75		0518:57					75.707	3.187	29.710	32.394					440	4										
5	21		50		0520:26					50.991	3.170	29.646	32.348					441	5										
6	20		30		0521:47					30.950	3.180	29.507	32.180					442	6										
7	19		20		0523:24					19.777	3.165	29.481	32.169					443	7										
8	24		10		0524:28					9.770	3.541	29.741	32.114				35	444	8										
9	25		—															—	9										
10	22		—															—	10										
11	23		—															—	11										
12	—	finger																—	12										

 Initials SNM
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Consec. Cast # 021		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 316		Vessel Sta. I.D.		Instructions <i>CTD to 60m w/ microzoo plankton & chlorophyll samples</i>										Sta. Designation <i>June 13 - 153</i>											
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud Type	Weath.	Bottom Depth, m	Sta. Name or I.D.									
021	55	54	9	1	N	156	10	80	W	24	A	P	R	91	06	08	05	1	03	8	04	18	36	00	45	71	020	000	153		
CTD Type & SN 91220-A				Press. SN 25084				Temp. SN 701				Cond. SN 304				Monitor Checks on Deck at Surface				Times JD/Time Data on 114/0605 at Surface 0605:34 Start Down 0605:45 at Bottom 0607:52 Start Up 0608:40 at Surface 0616:45 Data off				Data Location Tape/Diskette I.D. CAST 21 side B File Name/Header CAST 21-24 APR 0604				Remarks <i>computer (SCS) clock 30 seconds ahead of GMT, i.e., fast.</i>			
St. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	St. #												
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.															
1	28		60		0608:36					60.479	3.189	29.712	32.403					MZ	1												
2	27		50		0609:40					50.233	3.298	29.766	32.364					CL	2												
3	26		50		0610:08					50.109	3.296	29.765	32.365					MZ	3												
4	29		40		0611:05					39.984	3.429	29.839	32.326					MZ	4												
5	21		40		0611:34					39.974	3.430	29.841	32.327					CL	5												
6	20		30		0612:52					30.056	3.470	29.834	32.284					MZ	6												
7	19		30		0613:01					30.082	3.471	29.835	32.284					CL	7												
8	24		20		0614:02					19.980	3.758	30.004	32.207					MZ	8												
9	25		20		0614:30					19.851	3.769	30.012	32.206					CL	9												
10	22		10		0615:31					9.881	3.813	30.019	32.176					MZ	10												
11	23		10		0616:01					9.884	3.811	30.019	32.177					CL	11												
12	-	angled																-	12												

 Initials *SKM*
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Consec. Cast # 022		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-084		Event # 317		Vessel Sta. I.D.		Instructions CTD to max depth with nutrient samples										Sta. Designation Line 17, Sdn, 154																																																																																																							
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg. W		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	SS	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.																																																																																																				
022	55	55	83	N	156	15	06	W	24	A	P	R	9	1	06	50	05	0	04	0	04	18	290	04671	022400154																																																																																																		
CTD Type & SN 91220-A				Press. SN 25084				Temp. SN 701				Cond. SN 304				<table border="1"> <tr> <th colspan="4">Monitor Checks</th> <th colspan="2">Times JD/Time</th> <th colspan="2">Data Location</th> </tr> <tr> <td colspan="2">on Deck</td> <td colspan="2">at Surface</td> <td colspan="2">Data on 114/0642</td> <td colspan="2">Tape/Diskette I.D.</td> <td colspan="2">File Name/Header</td> </tr> <tr> <td>Press.</td> <td></td> <td></td> <td></td> <td>at Surface</td> <td>0642:55</td> <td colspan="2">CAST 022 side A -</td> <td colspan="2">CAST22-24APR0642</td> </tr> <tr> <td>Temp.</td> <td></td> <td></td> <td></td> <td>Start Down</td> <td>0643:40</td> <td colspan="2"></td> <td colspan="2"></td> </tr> <tr> <td>Cond.</td> <td></td> <td></td> <td></td> <td>at Bottom</td> <td>0650:35</td> <td colspan="2"></td> <td colspan="2"></td> </tr> <tr> <td>Other</td> <td></td> <td></td> <td></td> <td>Start Up</td> <td>0654:20(?)</td> <td colspan="2"></td> <td colspan="2"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>at Surface</td> <td>0608:44</td> <td colspan="2"></td> <td colspan="2"></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>Data off</td> <td></td> <td colspan="2"></td> <td colspan="2"></td> </tr> <tr> <td colspan="10">Remarks Thermom. in pos'n 2</td> <td colspan="10">SCS clock reset to GMT</td> </tr> </table>										Monitor Checks				Times JD/Time		Data Location		on Deck		at Surface		Data on 114/0642		Tape/Diskette I.D.		File Name/Header		Press.				at Surface	0642:55	CAST 022 side A -		CAST22-24APR0642		Temp.				Start Down	0643:40					Cond.				at Bottom	0650:35					Other				Start Up	0654:20(?)									at Surface	0608:44									Data off						Remarks Thermom. in pos'n 2										SCS clock reset to GMT									
Monitor Checks				Times JD/Time		Data Location																																																																																																																					
on Deck		at Surface		Data on 114/0642		Tape/Diskette I.D.		File Name/Header																																																																																																																			
Press.				at Surface	0642:55	CAST 022 side A -		CAST22-24APR0642																																																																																																																			
Temp.				Start Down	0643:40																																																																																																																						
Cond.				at Bottom	0650:35																																																																																																																						
Other				Start Up	0654:20(?)																																																																																																																						
				at Surface	0608:44																																																																																																																						
				Data off																																																																																																																							
Remarks Thermom. in pos'n 2										SCS clock reset to GMT																																																																																																																	
Stn. #	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.																																																																																																								
				Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.																																																																																																													
1	28		Bot	0650:52				221.260	4.785	31.887	33.288					445	1																																																																																																										
2	38	B	200	0652:40	0657:40			200.656	4.654	31.699	33.212		4.64		18	446	2																																																																																																										
3	26		150	0700:07				151.005	3.598	30.306	32.657					447	3																																																																																																										
4	29		100	0702:06				100.772	2.667	29.179	32.259					448	4																																																																																																										
5	21		75	0703:51				74.959	2.565	29.046	32.213					961	5																																																																																																										
6	20		50	0705:10				50.075	2.616	29.068	32.203					962	6																																																																																																										
7	19		30	0706:25				30.303	2.824	29.203	32.168					963	7																																																																																																										
8	24		20	0709:18				19.901	2.815	29.176	32.151					964	8																																																																																																										
9	25		10	0708:12				10.048	3.323	29.547	32.097					965	9																																																																																																										
10	22		-													-	10																																																																																																										
11	23		-													-	11																																																																																																										
12	-	pingel	-													-	12																																																																																																										

Initials **SAM**

Consec. Cast # 023		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-024		Event # 314		Vessel Sta. I.D.		Instructions CTD to 60m w/ microzooplankton and chlorophyll samples										Sta. Designation Line 17, Sta. 154												
Consec. Cast #		Latitude N or S Deg. Min.			Longitude E or W Deg.			Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb		Wet Bulb		Bar. mb		S.S. Vis.		Wind Dir.		Wind Sp.		Cloud Type		Weath.		Bottom Depth, m		Sta. Name or I.D.	
023		55 55 22 N			156 14 93 W			24 APR 91			07 48		04		903		904		18		260		04		171		226		154			
CTD Type & SN 91220-A				Monitor Checks								Times JD/Time				Data Location																
Press. SN 25084				on Deck at Surface								Data on 114				Tape/Diskette I.D. File Name/Header																
Temp. SN 701				Press. _____								at Surface 0744				C-123 side B CAST23-24APR0745																
Cond. SN 304				Temp. _____								Start Down 074615																				
				Cond. _____								at Bottom 074820																				
				Other _____								Start Up 074918																				
												at Surface 0756				Remarks																
												Data off _____																				

Stn. No.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	28		60		074854					60.374	2.595	29.065	32.214					MZ	1
2	27		60		074912					60.376	2.590	29.061	32.213					cl	2
3	26		50		075015					48.261	2.606	29.051	32.193					MZ	3
4	29		40		075139					40.336	2.684	29.109	32.189					MZ	4
5	21		40		075156					40.514	2.680	29.107	32.190					cl	5
6	20		30		075244					29.984	2.745	29.142	32.173					MZ	6
7	19		30		075302					29.916	2.746	29.142	32.172					cl	7
8	24		20		075346					19.807	2.869	29.191	32.114					MZ	8
9	25		20		075403					19.942	2.836	29.169	32.121					cl	9
10	22		10		075447					9.953	3.304	29.507	32.069					MZ	10
11	23		10		075505					9.908	3.317	29.519	32.070					cl	11
12	-	ringed																-	12

 Initials CO
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Consec. Cast # 024		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-024		Event # 320		Vessel Sta. I.D.		Instructions CTD to max depth with nutrient samples										Sta. Designation Line 17, Sta. 155														
Consec. Cast #		Latitude N or S Deg. Min.			Longitude E or W Deg.			Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb		Wet Bulb		Bar. mb		S.S.		Vis.		Wind Dir.		Wind Sp.		Cloud Type		Weath.		Bottom Depth, m		Sta. Name or I.D.	
024		555601N			1562098W			24 APR 91			0834		050		035		041		82		60		061		71		234		00155					
CTD Type & SN 91220-A				Press. SN 25084				Temp. SN 701				Cond. SN 304				Monitor Checks on Deck at Surface				Times JD/Time Data on 114/ at Surface 0823 Start Down 082631 at Bottom 083400 Start Up at Surface Data off				Data Location 234 Tape/Diskette I.D. CAST 24 side A File Name/Header CAST 24-24 APR 0824										
																								Remarks										
Pos.		Bot.		T Rack		Trip Depth		Time @ Depth Trip		Monitor Values Press. Temp. Cond. Other				Conv. Mon. Values-CTD Press. Temp. Cond. Sal.				Sample Bot. Data Therm-P Avg Tw Sal.			Sal. Bot. #		Other Samp.		Pos.									
1		28				228		083425						228.526 4.825 31.945 33.312							34		973		1									
2		27				200		083552						199.547 4.171 31.057 32.947									972		2									
3		26				150		083736						150.399 2.819 29.358 32.298									971		3									
4		29				100		083922						98.399 2.602 29.099 32.229									970		4									
5		21				75		084031						74.086 2.565 29.043 32.210									969		5									
6		20				50		084136						49.474 2.694 29.129 32.199									968		6									
7		19				30		084230						29.129 2.837 29.225 32.182									967		7									
8		24				20		084319						20.143 2.926 29.295 32.184				Bottom of Niche bottle hung up							8									
9		25				10		084418						10.304 3.525 29.759 32.151									966		9									
10		22				—																			10									
11		23				—																			11									
12		passed																							12									

Initials CD

Nutrient sample on second cast

Consec. Cast # 025		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-034		Event # 322		Vessel Sta. I.D.		Instructions CTD to 60m with microzooplankton and chlorophyll samples										Sta. Designation Line 17, Sta 155								
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.					
025	55	55	18	1	N	156	21	08	W	24	A	P	R	9	1	09	27	04	9	03	5	04	18	26	004	171	234	00155
CTD Type & SN 91220-A				Monitor Checks				Times JD/Time				Data Location																
Press. SN 25084				on Deck at Surface				Data on 114 / 0924				Tape/Diskette I.D. File Name/Header																
Temp. SN 701				Press. _____				at Surface 0925				_____ CAST25-24APR0924																
Cond. SN 304				Temp. _____				Start Down 0925				_____																
_____				Cond. _____				at Bottom 0927				_____																
_____				Other _____				Start Up 0928				Remarks																
_____				_____				at Surface _____				_____																
_____				_____				Data off _____				_____																

Pos.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	gi
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	28		60		092832					60.768	2.588	29.043	32.194				MZ	1	
2	27		60		092848					60.831	2.595	29.049	32.194				cl	2	
3	26		50		092937					49.804	2.744	29.171	32.199				MZ	3	
4	29		40		093036					40.196	2.809	29.218	32.196				MZ	4	
5	21		40		093056					40.263	2.809	29.218	32.196				cl	5	
6	20		30		093210					29.593	2.873	29.259	32.188				MZ	6	
7	19		30		093225					29.599	2.873	29.259	32.188				cl	7	
8	24		20		093310					19.199	3.148	29.465	32.168				MZ	8	
9	25		20		093326					19.355	3.139	29.459	32.170				cl	9	
10	22		10		093413					9.584	3.4166	29.713	32.155				MZ	10	
11	23		10		093429					9.634	3.473	29.719	32.154				cl	11	
12	-	Pinger															-	12	

 Initials _____
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Consec. Cast # 026		Vessel Miller Freeman		Proj. & Leg MF9104		Event # 323		Vessel Sta. I.D.		Instructions CTD to max depth, with nutrient samples										Sta. Designation Line 17, Stn. 156			
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.
026	55	56	21N	156	25	92W	24	APR	91	10	04	04	00	03	00	04	18	240	05	171		216	00156
CTD Type & SN _____ Press. SN _____ Temp. SN _____ Cond. SN _____			Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____						Times JD/Time Data on 114 / 0954 at Surface 0953 Start Down 0953 at Bottom 1004 Start Up 1005 at Surface 1014 Data off _____				Data Location 215 Tape/Diskette I.D. File Name/Header CAST 26 SIDE A CAST 26-24 APR 0955 Remarks										
Pos No.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos No.				
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.							
1	28		209		100427							209.181	3.618	30.323	32.626					1			
2	27		200		100527							199.052	3.570	30.253	32.597					2			
3	26		150		100709							149.110	2.842	29.390	32.315					3			
4	29		100		100856							99.439	2.591	29.090	32.227					4			
5	21		75		101004							74.599	2.508	28.981	32.191					5			
6	20		50		101112							50.270	2.683	29.110	32.186					6			
7	19		30		101210							30.455	2.871	29.248	32.176					7			
8	24		20		101253							20.211	2.891	29.260	32.176					8			
9	25		10		101343							9.150	3.308	29.579	32.151					9			
10	22		—																	10			
11	23		—																	11			
12	—	pinge																		12			

Initials SD

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Consec. Cast # 027		Vessel MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 325		Vessel Sta. I.D.		Instructions CTD to 60m with microzooplankton and chlorophyll samples										Sta. Designation Line 17, Sta. 156			
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.
027	55	56	36 N	156	26	51 W	24	APR	91	10	54	04	0	03	0	04	18	220	04	17	1	211	00156
CTD Type & SN _____ Press. SN _____ Temp. SN _____ Cond. SN _____				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____						Times JD/Time Data on 114/1051 at Surface 1052 Start Down 1053 at Bottom 1054 Start Up 1055 at Surface _____ Data off _____				Data Location Tape/Diskette I.D. File Name/Header Cast 27 side B CAST27-24APR1050 Remarks _____									
Stn. No.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Stn. No.				
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.							
1	28		60		105456								61.095	2.549	29.006	32.188						MZ	1
2	27	T	50	105545	110049											32.178					03	cl	2
3	26		50		110109											32.178						MZ	3
4	29		40		110202											32.176						MZ	4
5	21		40		110218											32.176						cl	5
6	20		30		110302											32.176						MZ	6
7	19		30		110319																	cl	7
8	24		20		110355																	MZ	8
9	25		20		110422																	cl	9
10	27		10		110516																	MZ	10
11	23		10		110532																	cl	11
12	-	Pinger																				-	12

Initials _____

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Consec. Cast # 028		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 326		Vessel Sta. I.D.		Instructions CTD to max depth with nutrient samples										Sta. Designation Line 17 Sta. 157			
Consec. Cast #	Latitude N or S			Longitude E or W			Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.
	Deg.	Min.	S	Deg.		W	Day	Mo.	Yr.	Hr.	Min.												
028	55	57	03 N	156	30	88 W	24	APR	91	11	36	04	10	29	04	18	22	50	41	71		20200157	
CTD Type & SN 91220-A			Monitor Checks								Times JD/Time				Data Location								
Press. SN 25084			on Deck at Surface								Data on 114				Tape/Diskette I.D. File Name/Header								
Temp. SN 701			Press. _____								at Surface 1125				CAST28-24APR1125								
Cond. SN 304			Temp. _____								Start Down 1128				CAST28-24APR1144								
			Cond. _____								at Bottom 1134												
			Other _____								Start Up 1135				Remarks Balto CAST28-24APR1143								
											at Surface _____				Computer glitch during upcast of CAST28-24APR1143								
											Data off _____				at 75m; remainder of log on CAST28-24APR1144 NUTS								
Stn #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.				
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.							
1	28		194		113517						193.989	3.531	30.146	32.510				191	1				
2	27		150		113656						150.089	3.290	29.852	32.424				190	2				
3	26		100		113833						99.587	2.634	29.129	32.223				189	3				
4	29		75		114540						75.766	2.861	29.304	32.230				188	4				
5	21		50		1147						50.478	2.761	29.168	32.178				187	5				
6	20		30		114846						30.723	2.807	29.168	32.143				186	6				
7	19		20		114947						20.906	2.963	29.261	32.104				185	7				
8	24		10		115046						10.626	3.301	29.535	32.105				184	8				
9	25																		9				
10	22																		10				
11	23																		11				
12	Pinger																		12				

Initials _____

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Consec. Cast # 029		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 329		Vessel Sta. I.D.		Instructions CTD to 60 m with microprof auto 15 min sample										Sta. Designation Line 17 Stn 157				
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.	
029	55	57	33N	156	31	17W	24	APR	91	13	08	05	0	04	0	04	28	215	08	171		2000	0157	
CTD Type & SN			Monitor Checks on Deck at Surface			Times JD/Time Data on 114			Data Location Tape/Diskette I.D. File Name/Header			Remarks LAST NISKEN BOTTLE DIDN'T TRIP RE-DID CAST - DELETE CAST 29 - 24 APR 1239												
Press. SN			Press.			at Surface 1305			Tape/Diskette I.D.													File Name/Header		
Temp. SN			Temp.			Start Down 1305																		
Cond. SN			Cond.			Start Up																		
			Other			Data off																		
St. No.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.					
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.								
1	28		60		130755					60.238	2.816	29.232	32.196					Mz	1					
2	27		50		130853					50.207	2.875	29.266	32.184					29	CK1	2				
3	26		50		130909					50.179	2.887	29.275	32.182					Mz	3					
4	29		40		131002					40.148	2.925	29.295	32.174					Mz	4					
5	21		40		131020					40.265	2.927	29.296	32.173					CK1	5					
6	20		30		131129					30.265	2.967	29.319	32.166					Mz	6					
7	19		30		131155					30.232	2.968	29.320	32.166					CK1	7					
8	24		20		131258					20.334	3.079	29.367	32.117					Mz	8					
9	25		20		131306					20.305	3.096	29.381	32.117					CK1	9					
10	22		10		131401					10.009	3.505	29.694	32.094					Mz	10					
11	23		10		131415					9.960	3.501	29.692	32.095					CK1	11					
12	Piggy																		12					

Initials CS

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Consec. Cast # 030		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 330		Vessel Sta. I.D.		Instructions <i>CTD to max depth with nutrient samples</i>										Sta. Designation <i>Line 17 sta. 158</i>			
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.
030	55	58	10 N	156	37	97 W	24	APR	91	13	50	03	8	02	8	03	28	100	06	7	71	199	158
CTD Type & SN 91220-A Press. SN 25084 Temp. SN 701 Cond. SN 304				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____						Times JD/Time Data on 114 at Surface 1343 Start Down 1344 at Bottom 1350 Start Up 1351 at Surface 1402 Data off _____				Data Location Tape/Diskette I.D. _____ File Name/Header <i>CAST30-24APR1342</i> Remarks <i>NUTS</i>									
Stn No.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.				
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.							
1	28		185		135042					184.942	3.160	29.736	32.395						1				
2	27		150		135243					149.827	2.670	29.185	32.237						2				
3	26		100		135502					99.603	2.725	29.183	32.206						3				
4	29		75		135627					74.433	2.752	29.191	32.202						4				
5	21		50		135751					50.017	2.899	29.287	32.185						5				
6	20		30		135918					30.026	3.062	29.392	32.160						6				
7	19		20		140010					20.268	3.068	29.386	32.151						7				
8	24		10		140104					9.867	3.234	29.514	32.146						8				
9	25		—																9				
10	22		—																10				
11	23		—																11				
12	PINGER																		12				

Initials _____

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Consec. Cast # 031		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 332		Vessel Sta. I.D.		Instructions CTD to 60 m with microplankton pump										Sta. Designation Line 17 Sta 158				
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.	
031	55	58	05	N	156	37	98	W	24	APR	91	14	41	04	50	38	03	28	08	50	67	71	197	158
CTD Type & SN 91220-A Press. SN 25084 Temp. SN 701 Cond. SN 304				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____						Times JD/Time Data on 114/ at Surface 1438 Start Down 1438 at Bottom 1440 Start Up 1441 at Surface Data off				Data Location Tape/Diskette I.D. File Name/Header CAST31-24APR1436 Remarks										
Stn ID	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.					
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.								
1	28		60		144103						61.086	2.735	29.163	32.193					MZ	1				
2	27		50		144203						49.778	2.740	29.158	32.187					22	CHL	2			
3	26		50		144219						49.753	2.747	29.162	32.186					MZ	3				
4	29		40		144311						40.146	2.946	29.313	32.175					MZ	4				
5	21		40		144326						40.186	2.934	29.305	32.176					CHL	5				
6	20		30		144423						29.764	3.074	29.409	32.168					MZ	6				
7	19		30		144438						29.784	3.062	29.400	32.170					CHL	7				
8	24		20		144533						20.442	3.116	29.435	32.162					MZ	8				
9	25		20		144548						20.365	3.117	29.436	32.163					CHL	9				
10	22		10		144644						10.118	3.159	29.457	32.152					MZ	10				
11	23		10		144700						10.150	3.159	29.459	32.153					CHL	11				
12	PINGER																			12				

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Consec. Cast # 032		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event# 336		Vessel Sta. I.D.		Instructions CTD to max depth with outcasts										Sta. Designation Line 16 Sta. 147						
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.			
032	56	18	13	N	156	48	26	W	24	APR	91	17	01	04	2	03	0	02	18	16	00	67	7	1	104	147
CTD Type & SN 91220-A				Monitor Checks								Times JD/Time				Data Location 104										
Press. SN 25084				on Deck at Surface								Data on 114 / 1655				Tape/Diskette I.D. File Name/Header										
Temp. SN 701				Press. _____								at Surface 1656				CAST32-24APR										
Cond. SN 304				Temp. _____								Start Down 1656				CAST32-24APR 1707										
				Cond. _____								at Bottom 1700														
				Other _____								Start Up 1701														
												at Surface _____				Remarks										
												Data off _____														
Stn No.	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos. No.							
1	28		95		170044	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.		1005	1							
2	27	T	75	170200	170646					74.3	2.622		32.195		2.63		08	1004	2							
3	26		50		171004													1003	3							
4	29		30		171130													1002	4							
5	21		20		171232													1001	5							
6	20		10		171331													1000	6							
7	19																		7							
8	24																		8							
9	25																		9							
10	22																		10							
11	23																		11							
12	PINGER																		12							

Initials _____
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Consec. Cast # 033		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event# 338		Vessel Sta. I.D.		Instructions <i>CTD to 60 m water</i> <i>microplankton and chlorophyll</i>										Sta. Designation <i>Line 16 Sta 147</i>														
Consec. Cast #		Latitude N or S Deg. Min.			Longitude E or W Deg.			Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb		Wet Bulb		Bar. mb		S.S.		Vis.		Wind Dir.		Wind Sp.		Cloud Type		Weath.		Bottom Depth, m		Sta. Name or I.D.	
033		561817 N			1564796 W			24 APR 91			174605		5038		01		181400		6671						105				147					
CTD Type & SN 91220-A				Monitor Checks								Times JD/Time				Data Location 104																		
Press. SN 25084				on Deck at Surface								Data on 114/1442				Tape/Diskette I.D. File Name/Header																		
Temp. SN 701				Press. _____								at Surface 1744				_____																		
Cond. SN 304				Temp. _____								Start Down 1744				_____																		
				Cond. _____								at Bottom 1746				_____																		
				Other _____								Start Up 1747				_____																		
												at Surface _____				Remarks																		
												Data off 1746																						

Pos.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	28		60		174652					60.845	2.600	29.050	32.190					MZ	1
2	27		50		174802					50.021	2.624	29.063	32.188					CHL	2
3	26		50		174818					50.049	2.624	29.063						MZ	3
4	29		40		174915					40.046	2.623	29.036						MZ	4
5	21		40		174930					40.095	2.623	29.035						CHL	5
6	20		30		175028					30.281	2.662	29.056						MZ	6
7	19		30		175044					30.296	2.668	29.057						CHL	7
8	24		20		175143					19.580	2.953	29.282						MZ	8
9	25		20		175158					19.610	2.976	29.301						CHL	9
10	22		10		175255					9.806	3.125	29.422						MZ	10
11	23		10		175311					9.786	3.140	29.433						CHL	11
12	PINGER																		12

Initials _____

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Consec. Cast # 034		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 339		Vessel Sta. I.D.		Instructions CTD to map depth with multibeam										Sta. Designation 116 sta 148			
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.
034	56	21	60 N	156	52	14 W	24	APR	91	18	28	06	20	50	01	18	110	08	77	1		130	148
CTD Type & SN 91220-A			Monitor Checks			Times JD/Time			Data Location														
Press. SN 25084			on Deck			at Surface			Data on 114			Tape/Diskette I.D.							File Name/Header				
Temp. SN 701			Press. _____			_____			at Surface 1823			_____							CAST34-24APR1822				
Cond. SN 304			Temp. _____			_____			at Bottom 1828			_____							_____				
_____			Cond. _____			_____			Start Up 1829			_____							_____				
_____			Other _____			_____			at Surface _____			Remarks							_____				
_____			_____			_____			Data off _____			_____							_____				

Stn.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	28		123		182852					124.098	2.622	29.112	32.210				15	1012	1
2	27		100		183010					100.350	2.625	29.104	32.210					1011	2
3	26		75		183124					74.791	2.597	29.055	32.192					1010	3
4	29		50		183236					50.626	2.673	29.095	32.177					1009	4
5	21		30		183348					30.251	2.741	29.126	32.157					1008	5
6	20		20		183446					19.916	2.914	29.258	32.150					1007	6
7	19		10		183539					10.546	3.104	29.412	32.152					1006	7
8	24		—																8
9	25		—																9
10	22		—																10
11	23		—																11
12	PINGER																		12

Initials CD

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Consec. Cast # 035			Vessel NOAA Ship MILLER FREEMAN			Proj. & Leg MF-91-04			Event # 341			Vessel Sta. I.D.			Instructions <i>CTD to 60 m with microprofet</i>										Sta. Designation <i>Line 16 sta 148</i>											
Consec. Cast #			Latitude N or S			Longitude E or W			Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.			Dry Bulb		Wet Bulb		Bar. mb		S.S.		Vis.		Wind Dir.		Wind Sp.		Cloud Type		Weath.		Bottom Depth, m		Sta. Name or I.D.	
035			562161 N			1565231 W			24 APR 91			1912			055		032		000		181		200		087		771		129		148					
CTD Type & SN <u>91220-A</u>			Monitor Checks										Times D/Time				Data Location ¹²⁹																			
Press. SN <u>25084</u>			on Deck at Surface										Data on <u>114</u>				Tape/Diskette I.D. File Name/Header																			
Temp. SN <u>701</u>			Press. _____										at Surface <u>1908</u>				_____																			
Cond. SN <u>304</u>			Temp. _____										Start Down <u>1908</u>				_____																			
			Cond. _____										at Bottom <u>1910</u>				_____																			
			Other _____										Start Up <u>1911</u>				_____																			
													at Surface <u>1917</u>				_____																			
													Data off _____				Remarks																			

Stn. No.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	28		60		191055					61.794	2.622	29.074	32.197				MZ	1	
2	27		50		191203					50.028	2.665	29.091	32.181				CHL	2	
3	26		50		191216					50.020	2.665	29.091	32.181				MZ	3	
4	29		40		191314					40.157	2.707	29.111	32.169				MZ	4	
5	21		40		191329					40.156	2.708	29.112	32.168				CHL	5	
6	20		30		191429					29.886	2.764	29.145	32.157				MZ	6	
7	19		30		191443					29.947	2.766	29.146	32.157				CHL	7	
8	24		20		191532					20.008	2.915	29.262	32.154				MZ	8	
9	25		20		191547					20.005	2.914	29.261	32.155				CHL	9	
10	22		10		191639					10.384	3.114	29.422	32.154				MZ	10	
11	23		10		191653					10.383	3.111	29.420	32.154				CHL	11	
12	PINGER																	12	

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Consec. Cast # 036		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 342		Vessel Sta. I.D.		Instructions <i>CTD to max depth with microprofiler + chlorophyll</i>										Sta. Designation <i>Line 16, Sta 149</i>							
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.		Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.					
036	56	24	02 N	156	54	89 W	24	APR	91	19	44	06	1	03	8	00	28	11	0	13	6	7	10126	00149			
CTD Type & SN 91220-A			Monitor Checks			Times			Data Location																		
Press. SN 25084			on Deck			at Surface			Data on 114			Tape/Diskette I.D.			File Name/Header												
Temp. SN 701			Press. _____			_____			at Surface 1940			Cast 36 Side A			CAST 36-24APR1940 ⁸⁹												
Cond. SN 304			Temp. _____			_____			Start Down _____			_____			_____												
_____			Cond. _____			_____			at Bottom 1945:30			_____			_____												
_____			Other _____			_____			Start Up 1945:45			_____			_____												
_____			_____			_____			at Surface 1952:27			Remarks			_____												
_____			_____			_____			Data off _____			_____			_____												

Pos.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	28		Bot. 122		1945:30					122.294	2.607	29.089	32.159				1013	1	
2	27		100		1946:24					99.567	2.613	29.084	32.199				1014	2	
3	26		75		1947:46					74.752	2.637	29.092	32.196				1015	3	
4	29		50		1949:03					50.064	2.696	29.108	32.170				1016	4	
5	21		30		1950:12					29.926	2.797	29.168	32.152				1017	5	
6	20		20		1951:04					20.039	3.269	29.516	32.109				1018	6	
7	19		10		1951:53					9.884	3.322	29.551	32.103				1019	7	
8	24																—	8	
9	25																—	9	
10	22																—	10	
11	23																—	11	
12	PINGER																—	12	

Initials

SKM

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Consec. Cast # 037		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 344		Vessel Sta. I.D.		Instructions CTD to 60m with micro-sampler, 12m up										Sta. Designation 16 Sta 149			
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.
037	56	24	04	N	156	55	32	W	24	APR	91	20	17	05	00	30	99	27	110	107	71	0129	00149
CTD Type & SN 91220-A Press. SN 25084 Temp. SN 701 Cond. SN 304				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____				Times JD/Time Data on 114/2014 at Surface 2014:47 Start Down 2015:05 at Bottom 2017:20 Start Up 2017:55 at Surface 2024:55 Data off _____				Data Location Tape/Diskette I.D. File Name/Header CAST 37 side B CAST 37-24 APR 2014 Remarks											
St. #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	St. #				
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.							
1	28		60		2017:54						60.259	2.704	29.131	32.185					MZ	1			
2	27		50		2018:51						58.121	2.745	29.149	32.171					CHL	2			
3	26		50		2019:20						58.141	2.746	29.150	32.171					MZ	3			
4	29		40		2019:59						40.119	2.809	29.189	32.161					MZ	4			
5	21		40		2020:26						40.081	2.808	29.189	32.162					CHL	5			
6	20		30		2021:12						29.918	2.852	29.211	32.150					MZ	6			
7	19		30		2021:39						29.907	2.848	29.208	32.150					CHL	7			
8	24		20		2022:23						19.870	3.230	29.486	32.111					MZ	8			
9	25		20		2022:53						19.883	3.232	29.487	32.110					CHL	9			
10	22		10		2023:39						9.912	3.368	29.583	32.095					MZ	10			
11	23		10		2024:06						9.820	3.362	29.577	32.095					CHL	11			
12	PINGER																			12			

Initials SAM



Consec. Cast # 038		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 345		Vessel Sta. I.D.		Instructions <i>CTD to max depth with</i> <i>return to</i>										Sta. Designation <i>Line 16 Sta 150</i>			
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.
038	50	26	46	N	156	56	98	W	24	APR	91	20	49	05	2	03	0	99	27	115	18	77	1010400150
CTD Type & SN 91220-A			Monitor Checks			Times JD/Time			Data Location														
Press. SN 25084			on Deck			at Surface			Data on 114/2044			Tape/Diskette I.D. File Name/Header											
Temp. SN 701			Press. _____			_____			at Surface 2045:27			CAST 38 Side A CAST 38-24 APR 2044											
Cond. SN 304			Temp. _____			_____			Start Down 2045:35 ?			_____											
_____			Cond. _____			_____			at Bottom 2049:15			_____											
_____			Other _____			_____			Start Up 2049:38			Remarks <i>thermometers in pos'n 2</i>											
_____			_____			_____			at Surface 2059:45			_____											
_____			_____			_____			Data off _____			_____											

Pos.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.		
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.					
1	28		Bottom		2049:34							100.810	2.578	29.029	32.165				1020	1	
2	38	B	75	2050:25	2055:35							75.361	2.572	28.984	32.129		2.56		24	1021	2
3	26		50		2056:37							50.832	2.637	29.018	32.119					1022	3
4	29		30		2057:48							30.029	2.701	29.029	32.080					1023	4
5	21		20		2058:31							19.869	2.928	29.183	32.046					1024	5
6	20		10		2059:17							9.750	3.346	29.511	32.031					1217	6
7	19		—		—															—	7
8	24		—		—															—	8
9	25		—		—															—	9
10	22		—		—															—	10
11	23		—		—															—	11
12	PINGER		—		—															—	12

Initials *STAM*

Consec. Cast # 039		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 347		Vessel Sta. I.D.		Instructions CTD to 60 m with micro-sampler (10) & chlorophyll										Sta. Designation Sta 116 Sta 150						
Consec. Cast #	Latitude N or S Deg. Min.		Longitude E or W Deg.		Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud Type	Weath.	Bottom Depth, m	Sta. Name or I.D.						
039	56	26	48	N	156	56	89	W	24	APR	91	21	21	05	0	03	0	98	27	115	16	77	101	04	001	50
CTD Type & SN 91220-A Press. SN 25084 Temp. SN 701 Cond. SN 304				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____				Times ID/Time Data on 114/2118 at Surface 2118:37 Start Down 2118:56 at Bottom 2121:10 Start Up 2121:43 at Surface 2128:04 Data off _____				Data Location Tape/Diskette I.D. File Name/Header CAST 39 side B- CAST 39-24 APR 2118 Remarks														
Pos. No.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.							
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.										
1	28		60		2121:37						60.052	2.561	28.967	32.128					MZ	1						
2	27		50		2122:23						49.990	2.577	28.973	32.126					CHL	2						
3	26		50		2123:00						50.051	2.570	28.969	32.127					MZ	3						
4	29		40		2123:33						40.060	2.593	28.977	32.119					MZ	4						
5	21		40		2124:04						40.106	2.594	28.977	32.118					CHL	5						
6	20		30		2124:47						30.190	2.723	29.048	32.081					MZ	6						
7	19		30		2125:16						30.255	2.730	29.054	32.081					CHL	7						
8	24		20		2126:00						19.829	3.093	29.316	32.042					MZ	8						
9	25		20		2126:30						19.862	3.078	29.305	32.044					CHL	9						
10	22		10		2127:09						10.130	3.363	29.525	32.031					MZ	10						
11	23		10		2127:35						10.096	3.364	29.526	32.031					CHL	11						
12	PINGER		-		-						-	-	-	-					-	12						

Initials _____
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Consec. Cast # 040		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 348		Vessel Sta. I.D.		Instructions <i>CTD to max depth with verticality</i>										Sta. Designation <i>01016 Sta 151</i>					
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 114 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.		
040	56	29	97	N	156	59	81	W	24	APR	91	22	09	06	0	04	09	8	27	100	14	77	100	48	00151
CTD Type & SN 91220-A Press. SN 25084 Temp. SN 701 Cond. SN 304				Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____				Times JD/Time Data on 114/2206 at Surface 2207:23 Start Down 2205:55 at Bottom 2209:34 Start Up 2209:50 at Surface 2212:30 Data off _____				Data Location Tape/Diskette I.D. File Name/Header <i>CAST 40 side A</i> <i>CAST 40-24 APR 2006</i> Remarks													
Stn #	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data /			Sal. Bot. #	Other Samp.	Pos.						
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.									
1	28		Bot.		2209:46							43.874	2.889	29.242	32.143				1	118	1				
2	27		30		2210:42							30.113	2.891	29.232	32.137					119	2				
3	26		20		2211:22							20.122	2.925	29.245	32.124					120	3				
4	29		10		2212:05							10.076	3.101	29.331	32.057					23	121	4			
5	21		-																	-	5				
6	20		-																	-	6				
7	19		-																	-	7				
8	24		-																	-	8				
9	25		-																	-	9				
10	22		-																	-	10				
11	23		-																	-	11				
12	PINGER		-		-															-	12				

Initials *Sam*

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Consec. Cast #		Vessel NOAA Ship		Proj. & Leg		Event#		Vessel Sta. I.D.		Instructions										Sta. Designation									
041		MILLER FREEMAN		MF-91-04		350				CTD to 60m with microneedle & chlorophyll										Sta 16 Sta 151									
Consec. Cast #		Latitude N or S		Longitude E or W		Date JD = 114		Time GMT		Dry Bulb		Wet Bulb		Bar. mb		S.S. Vis.		Wind Dir.		Wind Sp.		Cloud Type		Weath.		Bottom Depth, m		Sta. Name or I.D.	
041		5630 09 N		15700 18 W		24 APR 91		22 29		05 2		03 5		98		27		100		16		77		100		4800		151	
CTD Type & SN 91220-A				Monitor Checks				Times				Data Location																	
Press. SN 25084				on Deck at Surface				Data on 114/2226				Tape/Diskette I.D. File Name/Header																	
Temp. SN 701				Press. _____				at Surface 2227:30				Cast 41 side B CAST41-2 APR 2226																	
Cond. SN 304				Temp. _____				Start Down 2227:40				_____																	
_____				Cond. _____				at Bottom 2229:15				_____																	
_____				Other _____				Start Up 2229:40				Remarks																	
_____				_____				at Surface 2234:35				_____																	
_____				_____				Data off _____				_____																	
Pos. No.		T		Trip		Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data				Sal.		Other		Pos.					
Bot. Rack		Depth		Depth Trip		Press. Temp. Cond. Other		Press. Temp. Cond. Sal.				Therm-P Avg Tw Sal.				Bot. #		Samp.		Pos.									
1 28		40		2229:37						40.963 2.903 29.255 32.146										MZ		1							
2 27		40		2230:11						40.895 2.904 29.255 32.146										CHL		2							
3 26		37		2230:35						— — — —										MZ		3							
4 29		30		2231:05						29.826 2.906 29.253 32.147										MZ		4							
5 21		30		2231:42						29.894 2.906 29.253 32.146										CHL		5							
6 20		20		2232:34						20.061 3.001 29.312 32.129										MZ		6							
7 19		20		2233:03						20.069 3.000 29.311 32.128										CHL		7							
8 24		10		2233:42						9.927 3.175 29.402 32.070										MZ		8							
9 25		10		2234:10						9.923 3.169 29.403 32.076										CHL		9							
10 22		—		—																—		MZ		10					
11 23		—		—																—		CHL		11					
12 PINGER		—		—																—		—		12					

Initials SWW

Consec. Cast # 042		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 422		Vessel Sta. I.D.		Instructions CTD to max depth with micro- 300 plankton; chlorophyll samples										Sta. Designation G136A								
Consec. Cast #	Latitude N or S		Longitude E or W		Date JD = 116 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.							
042	57	47	04	N	154	53	76	W	26	APR	91	22	57	06	3	05	2	0	2	48	05	01	7	57	1	02	78	G136A
CTD Type & SN 91220-A			Monitor Checks						Times JD/Time				Data Location															
Press. SN 25084			on Deck at Surface						Data on 116/2246				Tape/Diskette I.D. File Name/Header															
Temp. SN 701			Press. _____						at Surface 2247:20				Cast 42 side A CAST42-26APR2246															
Cond. SN 304			Temp. _____						Start Down 2248:30																			
			Cond. _____						at Bottom 2259:20																			
			Other _____						Start Up 2259:30																			
									at Surface 2309:26				Remarks (only inlet water?)															
									Data off																			
Pos.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.									
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.												
1	28		60		2302:58					59.812	3.657	29.982	32.260					MZ	1									
2	27		50		2303:31					49.667	3.572	29.882	32.231				16	CL	2									
3	26		50		2303:58					49.737	3.579	29.888	32.231					MZ	3									
4	29		40		2304:37					39.773	3.737	29.960	32.166					MZ	4									
5	21		40		2305:04					39.785	3.682	29.923	32.176					CL	5									
6	20		30		2305:42					29.867	3.965	30.068	32.074					MZ	6									
7	19		30		2306:10					29.933	3.965	30.069	32.075					CL	7									
8	24		20		2307:00					19.603	3.931	29.979	32.007					MZ	8									
9	25		20		2307:30					19.559	3.931	29.979	32.007					CL	9									
10	22		10		2308:10					9.780	3.992	30.026	32.008					MZ	10									
11	23		10		2308:37					9.795	3.994	30.026	32.008					CL	11									
12	-	pruget			-													-	12									

Initials SAW

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Consec. Cast # 043		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 424		Vessel Sta. I.D.		Instructions CTD to max depth with microzooplankton (MZ) and chlorophyll (C1)										Sta. Designation G137A							
Consec. Cast #	Latitude N or S Deg. Min.		Longitude E or W Deg.		Date JD = 117 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud Type	Weather	Bottom Depth, m	Sta. Name or I.D.							
043	57	46	54	N	155	01	65	W	27	APR	91	00	04	06	1	05	1	0	2	48	060	15	57	1	029	56	137A
CTD Type & SN 91220-A			Press. SN 25084			Temp. SN 701			Cond. SN 304			Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____					Times JD/Time Data on 116/2352 at Surface 2352:30 Start Down 2353:15 at Bottom 117/0004:02 Start Up 0004:20 at Surface 0024:11 Data off _____					Data Location Tape/Diskette I.D. File Name/Header Cast 43 side B CAST43-26APR2352 Remarks (cool salt water, thermometer in pos'n. 2)					
Pos. No.	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values Press. Temp. Cond. Other				Conv. Mon. Values-CTD Press. Temp. Cond. Sal.				Sample Bot. Data Therm-P Avg Tw Sal.			Sal. Bot. #	Other Samp.	Pos. No.								
1	28		60		0016:40					60.571	3.673	29.988	32.251					MZ	1								
2	38	B	50	011:35	0016:48					50.931	3.878	30.140	32.233		3.87		20	cl	2								
3	26		50		0017:16					50.976	3.865	30.110	32.211					MZ	3								
4	29		40		0018:46					40.932	3.892	30.035	32.100					MZ	4								
5	21		40		0019:12					40.933	3.891	30.031	32.097					cl	5								
6	20		30		0020:07					30.755	3.750	29.789	31.954					MZ	6								
7	19		30		0020:35					30.755	3.754	29.796	31.958					cl	7								
8	24		20		0021:38					20.351	3.790	29.800	31.933					MZ	8								
9	25		20		0022:05					20.348	3.787	29.798	31.935					cl	9								
10	22		10		0022:57					10.569	3.969	29.943	31.932					MZ	10								
11	23		10		0023:25					10.569	3.951	29.928	31.932					cl	11								
12	-	pingel																-	12								

Initials SAM

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Consec. Cast # 044		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 426		Vessel Sta. I.D.		Instructions CTD to max depth with micro-zooplankton (MZ) and chlorophyll (cl) samples										Sta. Designation G138A														
Consec. Cast #	Latitude N or S		Longitude E or W		Date JD = 117 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weather	Bottom Depth, m	Sta. Name or I.D.													
044	57	46	51	N	155	08	48	W	27	APR	91	01	34	08	0	06	7	0	2	4	8	0	7	0	1	8	6	7	1	0	2	6	8	G138A
CTD Type & SN 91220-A			Monitor Checks						Times				Data Location																					
Press. SN 25084			on Deck at Surface						Data on 117/0123				Tape/Diskette I.D. File Name/Header																					
Temp. SN 701			Press. _____						at Surface 0124:17				cost 44 on deck CAST44-27APR0123																					
Cond. SN 304			Temp. _____						Start Down 0124:40																									
			Cond. _____						at Bottom 0133:50																									
			Other _____						Start Up 0134:00																									
									at Surface 0147:50				Remarks																					
									Data off																									

Pos.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.			
1	28		60		0139:26					59.649	4.026	30.152	32.098					MZ	1
2	27		50		0140:22					50.342	4.018	30.137	32.093					cl	2
3	26		50		0140:52					50.192	4.018	30.137	32.092					MZ	3
4	29		40		0141:53					40.331	3.964	30.053	32.051					MZ	4
5	21		40		0142:19					40.332	3.962	30.048	32.048					cl	5
6	20		30		0143:20					30.192	3.956	30.025	32.032					MZ	6
7	19		30		0143:48					30.437	3.941	30.012	32.031					cl	7
8	24		20		0144:37					20.388	4.021	30.033	31.984					MZ	8
9	25		20		0145:05					20.364	4.060	30.061	31.977					cl	9
10	22		10		0146:06					10.267	4.117	30.104	31.978					MZ	10
11	23		10		0146:36					10.300	4.112	30.100	31.978					28 cl	11
12	-	Prings																-	12

Initials SAM

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Consec. Cast # 045		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event #		Vessel Sta. I.D.		Instructions CTD to max depth microzooplankton and chlorophyll										Sta. Designation G139A																															
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 117 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.																												
045	5	7	40	8	7	N	1	5	4	3	7	5	5	W	2	7	A	P	R	9	1	0	8	0	9	0	6	0	0	5	2	0	3	1	8	2	0	0	0	4	7	7	1	2	1	6	G	1	3	9	A
CTD Type & SN 91220-A				Press. SN 25084				Temp. SN 701				Cond. SN 304				Monitor Checks on Deck at Surface				Times JD/Time Data on 117/0801				Data Location Tape/Diskette I.D. File Name/Header																											
								Press. _____								at Surface 0802				0801				0802																											
								Temp. _____								Start Down 0803				0803				0803																											
								Cond. _____								at Bottom 0809				0809				0809																											
								Other _____								Start Up 0810				0810				0810																											
																at Surface _____				_____				_____																											
																Data off _____				_____				_____																											
																Remarks w/o 205																																			

St. No.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.		
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.					
1	28		60		081438							60.311	3.984	30.303	32.316					MZ	1
2	27		50		081527							50.063	4.014	30.309	32.299					12	2
3	26		50		081543							50.048	4.014	30.308	32.298					MZ	3
4	29		40		081650							40.033	3.983	30.260	32.277					MZ	4
5	21		40		081707							40.138	3.986	30.263	32.279					cl	5
6	20		30		081749							30.161	3.893	30.135	32.223					MZ	6
7	19		30		081806							30.164	3.894	30.136	32.223					cl	7
8	24		20		081900							19.814	3.917	30.124	32.192					MZ	8
9	25		20		081918							19.863	3.914	30.125	32.195					cl	9
10	22		10		082004							9.754	3.913	30.080	32.149					MZ	10
11	23		10		082020							9.641	3.915	30.083	32.150					cl	11
12	-																			-	12

Initials

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Consec. Cast # 046		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event# 437		Vessel Sta. I.D.		Instructions CTD to max depth with microzooplankton and chlorophyll										Sta. Designation G140A						
Consec. Cast #	Latitude N or S		Longitude E or W		Date JD = 117 Day Mo. Yr.			Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.					
046	57	38	19	7	N	154	41	39	W	27	APR	91	09	16	06	50	56	03	18	1700	04771	220	G140A			
CTD Type & SN 91220-A			Press. SN 25084			Temp. SN 701			Cond. SN 304			Monitor Checks on Deck at Surface					Times JD/Time Data on 117					Data Location Tape/Diskette I.D. File Name/Header				
												Press. _____					at Surface 0909					C64 46				
												Temp. _____					at Bottom 0916					CAST46-27APR0907				
												Cond. _____					Start Up 0918					CAST46-27APR0916.log				
												Other _____					at Surface 0932					Remarks w/o 212 HIT "X" INSTEAD OF "S" - RESTARTED CTD FILE FOR MDCAST				
												Data off _____														
Stn No.	Bot.	T Rack	Trip Depth	Time @		Monitor Values				Conv. Mon. Values-CTD				Sample Bot. Data			Sal. Bot. #	Other Samp.	Pos.							
				Depth	Trip	Press.	Temp.	Cond.	Other	Press.	Temp.	Cond.	Sal.	Therm-P	Avg Tw	Sal.										
1	28		60		092145							60.061	3.990	30.280	32.284					m2	1					
2	38	B	60	092135	092633							59.988	4.002	30.295	32.290		3.99			33	cl	2				
3	26		50		092725							49.749	3.984	30.236	32.243					m2	3					
4	29		40		092813							39.897	3.889	30.105	32.187					m2	4					
5	21		40		092830							39.905	3.892	30.109	32.189					cl	5					
6	20		30		092917							29.997	3.927	30.091	32.138					m2	6					
7	19		30		092933							29.934	3.927	30.091	32.138					cl	7					
8	24		20		093016							20.467	3.974	30.128	32.140					m2	8					
9	25		20		093032							20.339	3.974	30.128	32.141					cl	9					
10	22		10		093120							10.283	3.999	30.140	32.135					m2	10					
11	23		10		093136							10.317	3.999	30.140	32.135					cl	11					
12	-	prigut																		-	12					

Initials

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Consec. Cast # 047		Vessel NOAA Ship MILLER FREEMAN		Proj. & Leg MF-91-04		Event # 439		Vessel Sta. I.D.		Instructions CTD to max depth, microzoo plankton and chlorophyll										Sta. Designation G-141A						
Consec. Cast #	Latitude Deg. Min.		N or S	Longitude Deg.		E or W	Date JD = 117 Day Mo. Yr.		Time GMT Hr. Min.		Dry Bulb	Wet Bulb	Bar. mb	S.S.	Vis.	Wind Dir.	Wind Sp.	Cloud	Type	Weath.	Bottom Depth, m	Sta. Name or I.D.				
047	5	7	37	12	N	154	47	16	W	27	APR	91	10	25	05	50	4	5	0	4	18	150	04771	2246141A		
CTD Type & SN 91220-A			Press. SN 25084			Temp. SN 701			Cond. SN 304			Monitor Checks on Deck at Surface Press. _____ Temp. _____ Cond. _____ Other _____					Times Data on 117/ at Surface 1017 Start Down 1017 at Bottom 1025 Start Up 1029 at Surface 1034 Data off _____					Data Location Tape/Diskette I.D. File Name/Header Cast 47 CAST47-27APR10116 Remarks wo 216				
St. #	Bot.	T Rack	Trip Depth	Time @ Depth Trip		Monitor Values Press. Temp. Cond. Other				Conv. Mon. Values-CTD Press. Temp. Cond. Sal.				Sample Bot. Data Therm-P Avg Tw Sal.			Sal. Bot. #	Other Samp.	Pos.							
1	28		60		102859					60.040	3.830	30.177	32.320						MZ	1						
2	27		50		102949					50.156	3.643	29.981	32.278					02	cl	2						
3	26		50		103008					50.150	3.642	29.980	32.277						MZ	3						
4	29		40		103052					40.438	3.611	29.937	32.262						MZ	4						
5	21		40		103107					40.303	3.614	29.939	32.262						cl	5						
6	20		30		103152					30.014	3.606	29.913	32.244						MZ	6						
7	19		30		103208					29.974	3.609	29.916	32.244						cl	7						
8	24		20		103252					20.422	3.706	29.960	32.206						MZ	8						
9	25		20		103308					20.409	3.700	29.956	32.207						cl	9						
10	22		10		103358					10.103	4.136	30.247	32.128						MZ	10						
11	23		10		103413					10.027	4.132	30.247	32.131						cl	11						
12	—	purged																	—	12						

Initials _____

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