

Cruise EW 04-04 JD 110		R/V Maurice Ewing Science Watch Log					Page 1
Time	Latitude	Longitude	Cse	Spd	Log	Depth	
1900	15° 04.978	069.29.981	209.8	11.2	329.54	3926.3	Start watch. Main watch. Atten. Sandy
1930	15° 00.544N	069.32.802	210.7	10.8	335.04	3961.9	
2000	14.56.029	69.35.679	210.3	11.3	340.50	4002.6	
2030	14.51.450	069.38.567	209.6	11.2	346.25	4024.0	
2100	14.46.899	069.41.476	214.0	11.1	351.73	4039.3	
2130	14.42.440	069.44.296	216.4	11.0	357.27	4059.6	
2200	14.37.957	069.47.149	211.0	11.2	362.84	4048.5	
2230	14.33.651	069.49.884	208.3	11.0	368.39	4142.1	
2300	14° 29.243 N	069° 52.693 W	209	11.3	374.08	4211.4	
2330	14° 24.871 N	069 55.461 W	205.2	11.5	379.70	4268	
0000	14° 20.499 N	069° 58.310 W	207.0	11.2	385.27	4292.9	Change the duty. Chief: Mr. Dale
0030	14° 16.048 N	070° 01.052 W	207.0	11.4	390.79	4368.2	
0100	14° 11.726 N	070° 03.785 W	203.2	10.9	396.26	4376.3	
0130	14° 07.332 N	070° 06.548 W	204.1	11.5	401.84	4409.3	
0200	14.03.038 N	070° 09.269 W	206.7	11.2	407.32	4221.6	
0230	13.58.528 N	070° 12.125 W	211.6	11.1	413.03	4228.3	
0300	13.53.036 N	070° 15.099 W	207.4	11.0	418.70	4343.2	
0330	13.49.146 N	070° 18.060 W	206.6	11.0	424.12	4647.3	Change The duty. Chief: Mr. Paul
0400	13.44.539 N	070° 20.978 W	208.1	11.1	429.79	4830.5	
0430	13.39.731	070 23.992	209.7	10.9	435.15	4800.4	
0500	13.34.841	070 27.100	209.0	11.1	440.77	4015.6	
0530	13.30.046	070.30.133	209.2	11.2	446.36	33410.2	
0600	13.25.256	070 33.148	208.5	11.1	451.80	3359.3	
0630	13.20.399	070 36.210	210.3	11.0	457.38	2571.9	
0700	13.15.463	7039.324	209.1	11.0	462.97	2139.1	
0730	13.10.546	7042.425	208.7	11.2	468.48	1537.9	
0800	13.05.541	70 45.579	208.8	11.0	474.04	1125.6	change the duty chief Exalona.
0830	13.00.430	70 48.785	211.3	11.0	479.70	856.81	home/sci/forms/dir/watchlog.doc
0900	12.55.423	70 51.941	210.5	11.2	485.30	704.91	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0930	12.50.651	070.54.960	206.0	10.8	490.75	647.21	—
1000	12.45.662	070.58.085	207.8	11.3	496.36	758.61	—
1030	12 42.850	070.59.642	107.3	1.11	499.70	81.51	ON Station - prep for deploy of streamer
1039	12 42.832	070 59.444	89.6	3.81	500.02	83.81	Streamer in
11:00	12 42.891	070 58.270	80.3	3.81	501.38	83.41	Deploying mammal streamer.
11:30	12 42.863	070 56.601	86.2	4.01	503.33	275.0	Deploying and Testing mammal streamer
12:00	12.42.891	070.54.905	85.6	5.01	505.32	84.41	Redeploying MMD Streamer to Boom
1230	12.42.899 N	070° 53.795W	86.9	4.31	507.26	86.51	—
1300	12° 42.861 N	070° 51.700W	94.6	4.11	509.17	89.11	—
1370	12° 42.893 N	070.50.080	83.1	3.81	511.17	92.71	still st working with MMD streamer
1400	12° 43.189 N	070° 44.984W	85.3	3.71	512.80	94.41	Starboard boom swung out
1430	12.43.578N	070° 47.486W	89.5	3.71	514.85	99.21	
1500	12° 43.969 N	070° 46.026W	91.4	4.11	516.83	95.11	
1530	12° 44.392N	070° 44.592W	82.0	3.91	518.78	99.61	
1600	12° 44.815 N	070° 43.189W	79.2	3.91	520.68	99.31	Change of Duty: Chief: Alejandro
1618	12° 44.980	070 42.235					Ship speed at 4.31 - streamer deploy OK
1630	12° 44.929	070 41.650	102	4.31	522.76	105.21	Bird 13 deployed OK.
1644	12° 44.834	070.40.856					Reducing speed from 4.3 to 4.0 kts ^{tension} _{highly}
1700	12 44.725	070 40.088	107.2	3.61	524.88	196.41	
1706	12 44.671	070 39.764					Repacked bird #9 riding high - speed at 3.8
1730	12 44.432	070 38.386	100.6	4.71	527.14	239.0	
1741	12 44.311	070 37.622					Ship speed slowed down to 4 kts.
1800	12 44.187	070 36.916	96.9	3.81	529.26	281-81	Ship back to 4 kts
1830	12 43.908	070 35.525	99.9	3.71	531.21	329-81	Streamer having difficulty - shallow
1838							Informed gun shop to fire SW air gun at 20:00Z
1900	12 45.057	070 34.721	331.3	4.91	533.33	389.81	Streamer 17-21 now in green, not shallow
1922							Changed out streamer section
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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
20:00	12 45.737	070.39.830	260.1	3.71	537.23	249.51	Resumed Streamer Deployment
20:30	12 45.639	070.42.359	259.4	3.61	539.17	169.51	Test firing 1 gun full PSI - Streamer deployed
21:00	12 45.566	070 44.759	261.2	3.71	541.04	97.1	1 gun test
21:16	12 45.514	070 46.102	255.2	3.31	542.14	97.31	Hearing dolphins
21:30	12 45.466	070.47.080	254.2	3.81	542.88	96.61	
22:00	12 45.349	070 49.421	257.5	3.71	544.74	94.81	
22:30	12 45.247	070 51.821	264.7	3.81	546.61	96.91	
23:00	12 45.019	070 54.590	258.0	4.71	548.84	445.71	
23:30	12 44.995	070 57.419	269.3	4.81	551.00	544.71	Approx 30min to ramp-up of Guns
00:00	JD 112						
00:00	12 45.233	071 00.684	280.0	5.01	553.88	473.11	
00:30	12 45.536 N	071.03.410	277.2	4.31	556.14	531.81	Starting the turn to line up for Pt line
01:00	12 44.040	071.04.834	149.2	4.61	558.49	913.41	
01:30	12 43.163	071.02.980	96.7	4.51	560.92	445.01	
02:00	12° 42.775 W	071° 00.956 W	98.5	4.51	563.16	171.71	
02:30	12° 42.383 N	070° 58.907 W	99.30	4.91	565.53	81.11	
03:00	12° 42.047 N	070° 56.978 W	101.9	4.81	567.96	81.01	
03:30	12° 41.666 N	070° 55.177 W	100.0	4.61	570.32	82.91	
04:00	12 41.317	070 53.339	95.4	5.01	572.64	83.81	Changed Watch
04:30	12 40.988	070 51.621	98.9	4.91	574.85	85.31	
05:00	12 40.619	070 49.654	97.99	4.61	577.39	90.51	
05:30	12 40.267	070 47.838	105.5	4.41	579.61	89.31	
06:00	12 39.912	070 46.032	100.3	4.51	581.76	89.21	
06:30	12 39.551	070 44.122	98.92	4.51	584.15	90.01	
07:00	12.39.191	070.42.240	98.58	4.61	586.50	86.71	
07:30	12.38.816	070.40.318	99.1	4.81	588.90	85.11	
08:00	12.38.452	070.38.457	92.5	4.61	591.24	85.21	Watch Change
08:30	12.38.091	070.36.591	95.0	4.71	593.70	87.31	

Cruise EW 04		JD 112		R/V Maurice Ewing Science Watch Log			Page 4
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0900	12 37.750	070 34.761	90.9	5.01	595.98	88.71	Hydrosway on Capaty - Colled Tech
0930	12 37.415	070 33.007	95.6	4.71	598.4	92.71	Gun 6 steel out of sing / Steamer still drift 1 Km
1000	12 37.072	070 31.241	103.8	5.01	600.82	93.42	
1030	12 36.747	070 29.530	103.0	4.31	603.10	98.01	
1100	12 36.601	070 36.396	103.0	4.81	605.42	109.21	
1130	12 35.995	070 25.644	103	4.51	607.85	153.21	
1200	12 35.648	070 23.802	106.8	4.91	610.05	201.81	Change the duty.
1230	12° 35.253 N	070° 21.730	110.5	4.91	612.74	127.01	
1300	12° 34.893 N	070° 19.784	94.8	5.21	615.27	100.51	
1330	12° 35.535 N	070° 17.955 W	57.8	4.41	617.61	101.41	
1400	12° 37.348 N	070° 16.616 W	53.6	4.11	619.79	315.51	
1430	12° 39.265 N	070° 15.230 W	59.9	5.01	622.02	359.01	
1500	12° 40.824 N	070° 14.111 W	52.7	5.11	624.38	386.11	
1530	12° 42.126 N	070° 13.148 W	45.5	4.81	626.61	401.91	
1600	12° 43.499 N	070° 12.159 W	58.5	4.71	628.72	409.11	Change the duty
1630	12 44.965	070 11.073	49.8	4.61	630.82	428.91	
1700	12 46.026	070 09.471	96.5	4.31	632.94	505.11	
1730	12 46.136	070 07.582	95.7	4.51	635.10	541.21	
1800	12 46.268	070 05.625	86.4	4.61	637.43	612.21	
1830	12 46.388	070 03.720	87.9	4.91	639.71	744.51	
1900	12 46.517	070 01.720	88.8	4.71	642.07	839.01	
1930	12 46.646	069 59.789	89.0	4.51	644.51	905.41	End of Line Bol 1
2000	12 46.326	069 57.945	128.0	5.01	646.83	956.01	
2030	12 44.987	069 56.435	130.0	4.71	649.24	979.91	Begin Line 2 Bol 2 @ 2019 - Shooting - Gun 17
2033	12 44.837	069 56.277	133.2	4.91	649.50	995.	Gun 17 in water - 15 out for entangle
2038	12 44.556	069 56.966	130.1	4.71	650.08	991.71	All guns in water
2100	12 43.616	069 54.985	132.6	5.11	651.65	1018.5	
2130	12 42.268	069 53.564	127.1	4.61	654.1	1036.4	

Cruise EW 04		JD 112-113		R/V Maurice Ewing Science Watch Log				Page 5
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
2200	12 40 988	069 52 201	133.2	5.11	656.49	1087.9		
2230	12 39 310 N	069 50 834	138.2	4.71	658.97	1088.2		
2300	12 38 493	069 49 558	127.4	4.71	661.27	1102.9	- All Systems Normal	
2330	12 37.220	069 48.204	134.4	5.11	663.78	1135.5	- Gun 13 is off? (dark green) back on at 2332	
2400	12 35.948	069 46.867	139.6	4.71	666.21	1131.6	- Changing watch	
0030	12° 34.632N	069° 45.468W	134.2	5.31	668.80	1113.7		
0100	12° 34.947N	069° 43.683W	34.8	4.81	671.29	1216.9	Begin linebol 3 *	
0130	12° 37.479N	069° 43.883W	12.4	4.11	673.46	1280.5		
0200	12° 39.475N	069° 44.162W	1.4	3.81	675.45	1303.3		
0230	12° 42.469 N	069° 44.455W	359.8	4.11	677.50	1311.3		
0300	12 45.075N	069° 44.766W	2.4	4.11	679.58	1300.3		
0330	12 47.555N	069° 45.063W	1.4	3.91	681.61	1319.2		
0400	12° 50.056 N	069° 45.359W	1.8	4.31	683.59	1383.7	Change the duty. (good looks)	
0430	12 52.546	069 45.654	2.4	4.21	685.72	1484.1		
0500	12 54 955	069 45 938	0.4	4.01	687.79	1539.9		
0530	12 57 400	069 46.234	0.3	4.11	689.88	1558.8		
0600	12 59 739	069 46 526	7.8	4.01	691.90	1550.0		
0630	13 02 173	069 46 813	4.0	4.21	694.09	1513.0		
0700	13 04 485	069 47 091	4.31	4.61	696.18	1604.6		
0730	13 07 041	069 47 410	10.2	4.21	698.35	1966.0		
0800	13 09 663	069 47 705	12.4	4.21	700.49	2416.0	Change Watch	
0830	13 12 288	69 48 025	4.7	4.11	702.63	3015.8	5.3 - No effect on Guns - 17m. Interval	
0900	13 14 941	69 48 345	9.3	4.21	704.66	3010.7		
0930	13 17.479	69 48.651	5.6	4.31	706.74	3041.3		
1000	13 19.957	69 48.944	11.4 0.3	4.31	708.89	3125.1		
1030	13 22.411	69 49.238	358.1	4.01	710.91	3238.6		
1100	13 24 746	69 49 518	357.2	4.21	712.9	3329.9	All Birds flying w/in Normal level	
1130	13 27 181	69 49 816	358.2	3.91	715.04	3599.4	All Birds w/in limits	

Cruise EW 04		JD 113		R/V Maurice Ewing Science Watch Log			Page 26
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1200	13 29 438	69 50 085	357.9	4.11	717.03	3650.3	- All Buels w/in limits
1230	13° 31.895 N	069° 50.385 W	357.8	4.41	719.25	3763.9	
1300	13° 34.255 N	069° 50.668 W	1.0	4.51	721.35	4166.6	
1330	13° 36.687 N	069° 50.956 W	1.3	4.41	723.52	4862.5	
1400	13° 39.042 N	069° 51.344 W	356.4	4.11	725.66	4954.2	
1430	13° 41.409 N	069° 51.530 W	357.7	4.21	727.87	4933.4	(End line 3)
1500	13° 43.853 N	069° 51.815 W	353.6	4.61	730.09	4929.3	Dealing with Mod Emergency
1530	13° 46.089 N	069° 51.755 W	58.9	3.51	732.19	4923.3	Recovering Streamer.
1600	13° 46.834 N	069° 50.935 W	51.3	1.01	733.21	4895.7	
1630	13 47.305	069 50.523	96.1	0.81	733.76	4888.6	Recovering Streamer
1700	13 47.760	069 50.109	54.1	1.01	734.30	4888.6	"
1722	13 47.760	069 50.799	67.0	1.31	734.68	4886.6	End
1730	13 48.280	069 49.601	294.5	5.11	735.03	4893.7	
1800	13 49.432	069 50.581	253.7	4.11	737.99	4887.6	
1830	13 46.651	069 51.097	215.5	1.41	741.10	4896.8	
1900	13 45.922	069 51.442	193.4	5.41	742.38	4905.0	Going to Aruba
1930	13 41.591	069 50.020	161.1	10.9	747.15	4932.4	
2000	13 37.560	069 48.136	162.2	10.4	751.80	4956.8	
2030	13 31.748	69 46.286	160.1	10.6	758.19	3954.8	
2100	13 30 437	69 45 653	101.7	4.61	760.91	3852.8	-
2130	13 26.163	69 44.255	162.9	10.4	765.76	3359.3	Trying to resolve steering problem
2200	13 21.343	69 42.653	161.2	10.6	770.99	3325.9	
2230	13 16 632	69 40.868	151.8	10.4	776.27	2930.9	
2300	13 11 445	69 39.063	143.1	10.1	781.46	3085.6	
2330	13 07 643	69 36.444	156.2	11.1	786.78	2551.7	
2400	13.03.246	69 34.26	155.0	10.6	791.89	2896.0	
2430	12 58 533	69 31 854	155.7	10.2	797.29	1284.4	
0030							

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Cruise EW 04		JD 114		R/V Maurice Ewing Science Watch Log			Page 7
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0100	12° 53.401 W	69° 29.498 W	158	10.5	803.05	1531	Rendezvoused with SJ II going to Curacao
0130	12° 48.968 N	69° 27.814 W	166	10.1	807.86	1841	
0200	12° 44.052	69° 26.165 W	161	10.5	813.08	1906	Trevor Leaves Z-folding!
0232	12° 38.878	69° 24.005	156	10.3	818.77	1746.2	Trevor completes Z-folding course!
0300	12° 34.393	69° 22.245	157	10.1	823.54	1507	Ewing en route to Curacao
0330	12° 29.437	69° 20.279	156	10.4	828.81	1376	
0400	12° 24.530	69° 18.057	156	10.7	834.11	1325	
0430	12° 19.581	69° 15.997	157	10.7	839.46	1239	
0500	12° 14.838	69° 13.927	140	10.5	844.7	1245	
0530	12° 10.605	69° 10.711	137	11.0	850.07	1232	
0600	12° 07.115	69° 06.935	118	10.4	855.43	1174	Ewing approaching Curacao
0630	12° 04.198	69° 02.856	128	10.5	860.73	1100	
0700	12° 03.043	69° 02.121	135	7.20	864.1	1139	near Curacao
0730	12° 01.805	68° 59.545	307	0.30	867.4	847	Weighing anchor near Curacao
0745	12° 01.828	68° 59.577	103	1.00	867.7	849	Arrived in Curacao
0800	12° 01.813	68° 59.583	137.6	1.30	867.93	856	
0830	12° 01.793	68° 59.592	96.18	1.20	868.47	853.81	
0900	12° 01.846	68° 59.606	131.0	1.50	869.02	852.91	Maneuvering next to Curacao
0930	12° 01.755	68° 59.564	103.5	1.30	869.62	858.81	Waiting in front of Curacao
10:00	12° 01.801	68° 59.561	97.8	1.30	870.18	849.91	
10:30	12° 01.848	68° 59.411	107.1	1.1	870.84	773.51	
11:00	12° 02.855	68° 58.862	61.5	6.0	872.93	1615.14	Moving closer to Port-Curacao
1130	12° 03.203	68° 57.638	97.15	0	873.11	873.85	- All Stop
1200	03.210	57.703	149.0	1.3	874.29	602	
1230	12° 05.547 N	068° 56.717 W	46.8	1.80	876.74	436.31	
1300	12° 06.359 N	068° 56.416 W	36.9	4.20	878.03	22.01	
1300	12° 06.586 N	068° 55.991 W	357.0	0	878.32	5.51	Close the operations.
							home/sci/forms/dir/watchlog.doc Maurice Ewing in Port of Curacao for repairs of (Simon) rudder.

Cruise EW 04		JD 118		R/V Maurice Ewing Science Watch Log			Page 8
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2003	1205.400	068 57.252	76.4	9.30	878.53	431.71	Testing rudder, going to Coran
2030	1203.289	068 55.420	150.6	10.5	878.53	640.01	Log = 894.57, not working on display
2100	1159.093	068 58.351	228.0	10.8	—	1189.2	Transit to line #6 - Deploy streamer
2130	1155.314	069.03.114	224.5	11.4	905.75	1346.8	Transit to line 6 -
2200	11°51'756 N	069.07.503	225	10.8	911	1329.1	Transit to line #6
2230	11°49'237 N	069°10'408 W	215	4.53	915	986.8	waiting to start deploying streamer (marine mammals 1/2 hrs observation period).
2258	11 48.916	069 12.436	258.5	4.03	916.85	878.71	2 gun shooting (smaller sized gun)
2306	1148.905	069 12.502	255.3	4.43	916.91	888.61	
2330	11 48.544	069 15.044	256.4	4.93	919.10	716.11	Deploying streamer
2400	11 48.084	069 17.888	259.3	4.83	921.51	689.31	Change Sh. ft - had 9 in
0030	11°47.427 N	069°20.555 W	204.3	4.33	923.95	947.81	
0100	11°45.884 N	069°20.144 W	112.4	5.23	926.23	353.21	
0130	11 45 538	069 18 125	98.5	5.03	928.70	441.61	
0200	11°45.397 N	069°16.070 W	97.5	4.93	931.20	560.91	
0230	11 45 259	069 14 025	93.8	4.73	933.68	710.81	
0300	11°45.028 N	069°12.015 W	100.1	5.13	936.16	524.61	streamer deployed
0330	11°44.763 N	069°10.087 W	98.5	4.63	938.53	495.01	
0400	11 44 579	069 08.324	89.5	4.33	940.74	470.31	Shift Change
0430	11 44 392	069 06 312	96.2	5.13	943.22	481.71	
0500	11 44 213	069 04.337	91.5	5.03	945.70	635.91	
0530	11 44 071	069 02.322	93.7	5.03	948.20	798.01	
0600	11 43 931	069 00 634	102.0	4.93	950.59	881.01	
0630	11 43.751	068 58.855	101.1	4.73	950.97	922.81	
0700	11 43 606	068 57.086	101.4	4.83	955.43	957.51	
0730	11 43 432	068 55.002	100.4	5.13	957.93	967.61	
0750	11 43 282	068 53.619	103.2	4.43	959.59	907.91	Starting turn into Line 6
0800	11 43.495	068 52.961	47.7 47.7	4.83	960.43	967.0	Turning to line 6, ramping up guns

Cruise EW 04		JD 119		R/V Maurice Ewing Science Watch Log				Page 9
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
818	11 45.038	068 52.913	334	4.63	961.92	1027.4	First shot - 6000	
826	11 45.501	068 53.342	311	4.83	962.45	1037.4	Problems with spectra, not recording header	
830	11 45.743	068 53.612	311	5.03	962.77	1041.3	Problem persists	
838	11 46.300	068 54.186	310.9	4.63	963.43	1045.8	Stop line 6069	
840	11 46.412	068 54.304	316.8	4.33	963.56	1049.3	Back on line 6074	
0900	11 47.540	068 55.496	315.7	4.23	964.91	1089.2	Gun 20 - offline - still completing turn	
0910	11 48.263	068 56.260	317.3	4.43	965.87	1123.1	Gun 20 Back on line	
0930	11 49.324	068 57.374	315.3	4.33	967.03	1226.9	Maggie out of water - Tail in line - All guns fire	
1000	11 51.074	068 59.235	314.7	4.03	969.12	1345.8	All guns fire - Streamer / Birds Good!	
1030	11 52.701	069 00.968	313.3	4.13	971.21	1351.8	All guns / Streamer / Bird - Good.	
1100	11 54.440	069 02.841	314	4.20	973.39	1348.8	All guns, streamer / Bird - OK.	
1130	11 56.143	069 04.609	317.7	4.43	975.65	1345.8	All guns / Streamer / Birds - Good	
1200	11 57.762	069 06.328	310.0	4.23	977.81	1330.8	All Good.	
1230	12 59.465 N	069 08.136 W	309.3	4.33	980.14	1293.8		
1300	12 01.091 N	069 09.858 W	312.7	4.73	982.32	1238.9		
1338	12 02.764 N	069 11.630 W	314.1	4.53	984.66	1197.0		
1400	12 04.411 N	069 13.373 W	313.1	4.53	986.96	1170.0		
1430	12 06.095 N	069 15.159 W	313.5	4.73	989.32	1157.0		
1500	12 07.741	069 16.921	311.8	4.73	991.63	1141.1		
1530	12 09.431 N	069 18.701 W	311.5	4.63	993.98	1135.1		
1600	12 11.047 N	069 20.421 W	313.3	4.43	996.21	1124.1	Change of duty.	
1630	12 12.675 N	069 22.149 W	306.7	4.53	998.48	1103.2		
1700	12 14.390	069 23.969	301.9	4.43	1000.84	1059.3		
1730	12 16.037	069 25.714	309.4	4.63	1003.13	1010.5		
1800	12 17.640	069 27.420	301.3	4.63	1005.35	977.61		
1830	12 19.331	069 29.201	304.5	4.43	1007.72	967.61		
1900	12 20.980	069 30.964	305.5	4.83	1010.00	971.61		

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Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1930	12 22 577	069 32 664	309.7	3.83	1012.14	991.5	
2000	12 24 306	069 34 494	312.7	4.63	1014.46	1017.4	Change Shift
2006	12 24 657	069 34 873	318.8	4.43	1014.91	1025.4	Tail drifting to N. of line about 300m
2030	12 25 934	069 36 222	317.1	4.73	1016.95	1050.3	Tail still drifting N - 400m
2039	12 26 479	069 36 801	316.0	4.83	1017.48	1062.3	Bird 27 appears to not be sending ^{sending but} - overwater
2100	12 27 606	069 37 009	317.	4.43	1019.02	1091.2	Birds at top of limit -
2100	12 27 812	069 38 225	319.8	4.93	1019.38	1094.2	Bird Dead -
2130	12 29 305	069 39 828	309.2	4.53	1021.38	1106.1	
2200	12 31 064	069 41 679	309.7	4.43	1023.99	1113.1	> All Birds w/in limit
2230	12 32 750	069 43 460	320.7	4.43	1025.73	1110.1	
2300	12 34 510	069 45 345	322.5	4.23	1027.98	1112.1	- All's well
2330	12 36 236	069 47 212	312	4.13	1030.23	1112.1	- All's well
2345	12 37 234	069 48 239	324.7	4.53	1031.41	1138.1	- Pulling Guns 9-10 out of water
2350	12 37 504	069 48 542	327.5	4.43	1031.78	1116.1	- End of Bol 3
2400	12 37 943	069 48 84	346.6	4.13	1032.26	1115.1	Turning to line BOL-4
0030	12 39 518	069 47 786	75.2	4.43	1034.66	1227.9	
0100	12 40 442	069 46 985	78.2	4.83	1037.00	1274.9	
0130	12 40 035	069 44 297	142.0	4.53	1039.39	1299.8	
01327	12 39 925	069 44 220					Over OBS 129 (off to west a bit)
0200	12° 37 881 N	069° 43 899 W	161.5	4.93	1041.93	1286.9	
0227	12 35 929	069 43 678					Over OBS 130
0230	12 35 659	69 43 647	159.1	4.93	1044.44	1237.9	
0300	12° 33 391 N	069° 43 379 W	171.0	5.03	1046.95	1138.1	
0320	12 31 932	69 43 190	162.0	5.33	1048.56	1098.1	Over OBS 131
0330	12° 31 126 N	069° 43 099 W	166.5	5.23	1049.47	1040.4	
0400	12° 28 834 N	069° 42 818 W	171.0	5.13	1052.04	918.81	Change the duty
0411	17 29 931	069 42 710	171.0	5.33	1053.03	870.2	Over OBS 132

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0430	12.26.635 N	069.42.561 W	169.3	5.03	1054.51	818.41	-
0500	12 24.586	069 42.319	170.9	4.93	1056.85	764.71	-
0508	12 23.930	069 42.225	170.3	4.93	1057.64	745.81	over OBS 133
0530	12 22.476	069 42.066	168.3	4.63	1059.38	675.31	-
0600	12 20.410	069 41.818	175.8	4.63	1061.79	580.61	-
0607	12 19.946	069 41.766	170.6	5.03	1062.35	566.21	over OBS 134
0630	12 18.373	069 41.577	172.4	4.63	1064.26	526.91	-
0700	12 16.340	069 41.326	170.1	4.83	1066.71	410.51	-
0706	12 15.947	069 41.280	171.3	5.23	1067.20	445.11	over OBS 135
0730	12 14.390	069 41.088	170.2	5.03	1069.11	416.61	-
0800	12 12.375	069 40.856	165.5	4.73	1071.55	374.91	-
0808	12 11.180	069 40.782	163.5	5.03	1072.34	353.31	over OBS 136
0830	12 10.447	069 40.629	164.5	5.03	1073.94	321.21	-
0900	12 08.479	069 40.394	171.2	4.83	1076.44	312.81	-
0908	12 07.955	069 40.321	170.5	4.83	1077.09	320.71	over OBS 137
0930	12 06.551	069 40.161	172	4.93	1078.94	319.81	-
1000	12 04.573	069 39.923	171.6	4.93	1081.51	294.91	-
1009	12 03.958	069 39.848	172.0	4.93	1082.29	289.81	over OBS 138
1030	12°02'57.2 N	069°39'68.8 W	172.0	4.93	1084.04	269.72	-
1108	12°00'49.8 N	069°39'43.9 W	170.0	5.43	1086.0	245.41	-
1108	11 59.962	069 39.372	166.4	5.13	1087.54	237.11	over OBS 139
1130	11 58.589	069 39.217	164.7	5.43	1089.23	221.81	
1200	11 56.478	069 38.359	163.7	5.33	1091.86	196.81	
1209	11 55.966	069 38.876	171.0	5.63	1092.93	194.41	over OBS 140
1230	11°54.469 N	069°38.716 W	166.5	5.13	1094.68	179.61	
1300	11°52.477 N	069°38.479 W	170.1	5.03	1097.21	150.21	
1307	11 51.959 N	069 38.415	168.6	5.13	1097.87	143.11	over OBS 141
1330	11°50.379 N	069°38.229 W	168.8	5.33	1099.82	79.51	

Cruise EV 04		JD 120	R/V Maurice Ewing Science Watch Log					Page 12
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
1400	11° 48.170 N	069° 37.972 W	166.8	5.13	1102.3	46.91	-	
1403	11° 47.972 N	069° 37.946 W	166.0	5.33	1102.6	40.01	Over OBS 142	
1430	11° 45.915 N	069° 37.696 W	166.2	4.63	1104.9	28.21	-	
1454	11° 43.964 N	069° 37.465 W	170.1	4.10	1106.9	26.31	Over OBS 143	
1500	11° 43.561 N	069° 37.413 W	172.9	4.43	1107.3	26.21	-	
1530	11° 41.159 N	069° 37.127 W	169.2	4.33	1109.2	25.31	-	
1544	11° 39.981 N	069° 36.992 W	166.1	5.13	1110.3	31.01	Over OBS 144	
1600	11° 38.754 N	069° 36.835 W	172.3	4.43	1111.5	26.81	Change of duty	
1630	11° 36.350 N	069° 36.457 W	146.9	4.43	1113.72	22.21	-	
1634	11° 36.116 N	069° 36.256 W	130.6	3.93	1114.01	23.01	over OBS 145. Last shot 2144	
1700	11° 36.794 N	069° 34.639 W	13.1	4.63	1115.73	27.81	-	
1730	11° 38.916 N	069° 35.851 W	270.9	4.83	1116.22	30.61	-	
1748	11° 39.880 N	069° 37.005 W	318.3	4.43	1119.64	28.71	Completed Turning, got Bol-3	
1800	11° 40.816 N	069° 37.104 W	356.7	4.23	1120.47	25.41	-	
1830	11° 43.289 N	069° 37.385 W	257.8	3.73	1122.54	25.51	Streamer behind ship again - straight	
1835	11° 43.976 N						Over OBS 143 18:35	
1900	11° 45.625 N	069° 37.657 W	18	3.43	1124.25	27.41	-	
1927	11° 47.992 N	069° 37.929 W	355.9	4.33	1126.18	46.51	Over OBS 142	
1930	11° 48.115 N	069° 37.949 W	349.4	4.33	1126.31	47.91	-	
2000	11° 50.582 N	069° 38.254 W	359.0	4.13	1128.39	102.01	-	
2018	11° 51.968 N	069° 38.420 W	354.7	4.13	1129.59	144.01	over OBS 141	
2030	11° 52.982 N	069° 38.537 W	357.3	4.33	1130.39	164.11	-	
2100	11° 55.418 N	069° 38.837 W	6.1	4.13	1132.39	189.91	(Found Bol 3) All birds w/in limits	
2107	11° 55.969 N	069° 38.896 W	20.1	4.23	1132.84	194.91	over OBS 140	
2130	11° 57.877 N	069° 39.117 W	358	4.20	1134.47	216.31	-	
2143	11° 59.962 N	069° 39.249 W	2.4	3.93	1135.29	227.71	over OBS 139	
2200	12° 00.390 N	069° 39.417 W	358.4	4.03	1136.38	243.71	Birds 25-29 flying below level.	
2214	12° 01.646 N	069° 39.567 W	11.8	4.93	1137.36	258.51	Tail drifting 1500m to W of line birds 25-28 still below level	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2230	12 02.988	69 39.731	357	4.33	1138.39	279.51	Tail still 1500 W of line Birds trying to recover
2241	12 03.983	69 39.849	354.7	3.83	1139.16	290.11	over OBS - 138 & Seesniff over 400 ft
2243	12 04.112	69 39.862	354.3	4.13	1139.26	290.61	Streamer at level Bol 3H Feb Type 103
2304	12 05.534	69 40.321	352	3.73	1140	310.84	
2320	12 07.975	69 40.319	355.5	3.53	1142.2	320.71	Over OBS 137
2330	12 08.071	69 40.330	356.9	3.73	1142.2	319.21	
2338	12 08.799	69 40.417	352.3	4.13	1142.82	305.91	Birds 23-28 - below level
2348	12 09.643	69 40.526	359.3	4.13	1143.45	315.01	Birds Back on level - #20 still below
2400	12 10.596	69 40.636	355.81	4.23	1144.15	324.0	Birds 24-28 below level
0015	12 11.968	69 40.803	356.4	3.63	1145.23	364.51	over OBS 136
0030	12 13.585	69 40.942	354.1	3.53	1146.25	376.11	Birds 23-28 and birds 11+12 are below level
0100	12 15.743	69 41.752	357.8	3.43	1148.16	441.31	Birds 8-15 high, birds 25-28 below level
0102	12 15.953	69 41.283	356.0	4.23	1148.31	446.01	over OBS 135
0130	12 18.311 N	69 41.565 W	358.3	4.23	1150.21	527.21	
0149	12 19.955	69 41.753	357.3	3.93	1151.55	572.11	over OBS 134
0200	12 20.841	69 41.861	359.8	3.63	1152.27	608.41	
0230	12 23.418 N	69 42.173 W	1.6	3.83	1154.4	732.01	
0230	12 23.418 N	69 42.173 W	1.6	3.83	1154.4	732.01	over OBS 133
0236	12 23.940	69 42.738	347.5	3.73	1154.86	751.21	over OBS 133
0300	12 25.903 N	69 42.456 W	355.2	3.53	1156.49	796.51	
0324	12 27.937 N	69 42.707 W	357.6	3.53	1158.22	881.01	over OBS 132
0330	12 28.379 N	69 42.764 W	1.9	3.83	1158.60	902.91	
0400	12 30.762 N	69 43.057 W	1.6	4.03	1160.68	1024.04	Change of duty
0414	12 31.960	69 43.203	359.7	4.43	1161.88	1115.4	over OBS 131
0430	12 33.209	69 43.348	356.2	4.53	1162.2	1145.1	
0500	12 35.544	69 43.640	5.5	4.83	1164.96	1239.9	
0504	12 35.937	69 43.673	7.6	4.33	1165.26	1248.9	over OBS 130

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0524	12° 37.545	069 43.877	2.7	3.73	1166.66	1281.9	Run 11 back on
0530	12 37 989	069 43 916	6.7	4.43	1167.01	1284.9	
0553	12 39 766	069 44 129	3.2	4.63	1168.48	1300.0	Line Change ^{150m OBS} 4A & OBS 129
0600	12 40 321	069 44 189	0.7	4.43	1169.10	1308.8	08
0630	12 42 760	069 44 489	8.1	4.83	1171.24	13058	
0644	12 43 942	069 44 629	1.2	3.83	1172.25	1300.8	OBS 128
0700	12 45 065	069 44 768	5.5	4.23	1173.22	1300.8	
0730	12 47 481	069 45 057	4.43	4.43	1175.28	1318.8	
0735	12 47 916	069 45					OBS 127
0800	12 49 757	069 45 333	3.8	4.03	1177.25	1375.8	Change of Shift
0825	12 51 912	069 45 553	5.9	4.13	1179.13	1459.9	OBS 126
0830	12 52 263	069 45 624	3.0	4.13	1179.42	1474.9	
900	12 54 677	069 45 915	3.0	4.63	1181.55	1538	
916	12 55 909	069 46.063	358.4	4.83	1182.64	1549	OBS 125
0930	12 57 008	069 46.196	2.2	4.63	1183.62	1560	
1000	12 59 363	069 46.478	357.7	4.23	1185.80	1556	OBS 124
1006	12 59 909	069 46.553	6.6	4.43	1186.27	1545	OBS 124
1030	13 01 804	069 46 756	15.6	4.03	1187.84	1519	- All Birds w/in limits
1053	13 03 900	69 47.021	4.8	4.83	1189.95	1557	OBS 123
1100	13 04 109	69 47 041	1.7	4.63	1190.13	1568.1	All Birds w/in limits
1130	13 06 537	69 47.343	6.2	4.73	1192.40	1876.	
1147	13 07 896	69 47.505	2.81	3.33	1193.64	2086	OBS 122
1200	13 08.884	69 47.624	10.6	4.33	1194.57	2257	
12:37	13° 11.891 N	069° 47.978 W	359.5	4.43	1197.6	2950.3	OVER OBS 121
12:30	13° 11.295 N	069° 47.908 W	6.4	4.53	1196.83	2832.7	
12:00	13° 13.705 N	069° 48.205 W	4.8	4.33	1199.1	3.096.7	
13:27	13° 15.889 N	069° 48.458 W	1.5	4.53	1201.19	2965.3	OVER OBS 120
13:30	13° 16.072 N	069° 48.489 W	5.2	4.83	1201.37	2955.2	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1400	13 18 54S	069 48.787	3.2	4.43	1203.74	3177.6	
1414	13 19 89S	069 48 936	7.1	4.73	1205.01	3139.7	over OBS 119
1430	13° 20.889 N	069° 49.066 W	353.5	4.13	1205.95	3191.7	
1500	13 23 246	069 49 338	4.1	4.73	1208.09	3288.7	
1508	13 23 884	069 49 429	2.1	4.13	1208.66	3318.3	over OBS 118
1530	13 25 640	069 49 640	8.4	4.53	1210.27	3413.6	
1558	13 27 852	069 49 903	5.9	4.33	1212.27	3704.3	over OBS 117
1600	13 27 997	069 49 917	4.6	4.53	1212.38	3738.3	Change Shift
1630	13 30 408	069 50 206	335.4	5.03	1214.58	3795.5	
1648	13 31 840	069 50 398	14.5	4.03	1215.91	3781.4	over OBS 116
1700	13 32.792	069 50 503	7.8	4.83	1216.47	3859.2	
1730	13 35.202	069 50.786	3.5	4.53	1218.95	4395.6	
1739	13 35.866	069 50.864	5.0	4.03	1219.56	4673.2	over OBS 115
1800	13 37.532	069 51.067	462	2.83	1221.02	4992.0	
1830	13 39.944	069 51.349	356.7	3.93	1223.18	4985.6	over OBS 114
1900	13 42.194	069 51.616 W	7.2	4.43	1225.12	4973.3	
1920	13 43.982	069 51.833	5.2	4.73	1226.64	4946.1	over OBS 113
1930	13 44.648	069 51.919	4.2	4.33	1227.25	4938.8	
2000	12° 47' 361	069° 52' 172	358	4.12	1229.3	4903	
2003	13° 47' 855	069° 52' 305	358	4.3	1229.9	4932	over OBS 112
2030	13 49 521	069 52 504	1.97	4.03	1231.37	4927.4	
2058	13 51 848	069 52 778	5.2	4.63	1233.29	4634.7	- over OBS 111
2100	13 51 941	069 52 786	1.6	4.03	1233.36	4634.7	- Birds 21-28 struggling to maintain level
2130	13 54.377	069 53.086	5.2	4.73	1235.45	4565.3	Streamer having hard time close to ship
2148	13 55 848	069 53 268	4.82	4.23	1236.66	4594.1	over OBS-110
2200	13 56 687	069 53.366	0.4	3.43	1237.45	4578.7	- Birds Maintaining
2217	13° 58' 531	069° 53' 531	358	4.12	1238.12	4558.2	Birds 22-27 flying below level
2230	13 59 062	069 53 652	355.5	4.43	1239.38	4450.2	

with depth

Cruise EV 04		JD 121-122	R/V Maurice Ewing Science Watch Log					Page 16
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
2240	13 59.839	69 53.737	354.4	4.33	1240	4384	OBS 109	
2300	14 01.504	69 53.941	359.9	4.63	1241	4373		
2329	14 03.834	69 54.221	358	4.53	1243	4478	OBS 108	
2330	14 03.894	69 54.231	355	4.53	1243	4486		
2400	14 06.272	69 54.529	5.7	4.33	1245	4481	Shift Change	
00:19	14° 07.831 N	069° 54.711 W	359.5	4.53	1247.33	4462.7	OBS 107	
00:30	14° 08.657 N	069° 54.804 W	357.0	4.43	1248.05	4422.0		
0100	14 11 052	069 55 091	1.6	4.43	1250.20	4353.1		
0110	14 11 844	069 55 203	6.1	4.13	1250.88	4321.1	OBS 106	
0130	14 13 449	069 55 382	2.2	4.03	1252.27	4270.6		
0159	14 15 837	069 55 674	351.8	4.63	1254.35	4276.0	OBS 105	
0200	14 16 880	069 55 679	352.7	4.03	1254.40	4275.8		
0230	14 18 222	069 55 965	358.6	4.53	1256.40	4286.1		
0250	14° 19.818 N	069° 56.151 W	6.1	4.23	1257.7	4294.5	Over OBS 104.	
03:00	14° 20.601 N	069° 56.261 W	358.0	4.23	1258.47	4302.5		
03:30	14° 22.965 N	069° 56.531 W	358.2	4.23	1260.50	4305.7		
03:40	14° 23.810 N	069° 56.640 W	1.7	3.83	1261.5	4315.7	Over OBS 103	
0400	14 25 374	069 56 831	6.0	4.23	1262.56	4312.8	Watch Change	
0430	14 27 627	069 57 090	1.2	4.33	1264.51	4302.6		
0431	14 27 827	069 57 111 W					Over OBS 102	
0500	14 29.998 N	069 57.381 W	1.3	4.13	1266.61	4283.0		
0522	14 31.800 N	069 57.596 W	358.2	3.23			Over OBS 101 End of the line 1 hour extension	
0530	14 32.373	069 57.672	356.0	4.33	1268.73	4258.4		
0543	14 33.473	069 57.784					All Gun back on	
0600	14 34 737	069 57 943	354.7	4.33	1270.210	4236.5		
0627	14 36 976	069 58 236	344.1	4.43	1272.74	4210.7	Beginning Turn 3B → 4B	

home/sci/forms/dir/watchlog.doc

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0630	14-37.229	069-58.335	335.3	4.63	1272.98	4207.6	Performing Turn 3B → 4B
0700	14-37.443	069-57.005 196.7	196.7	5.43	1275.59	4221.9	Still in turn 3B → 4B
0730	14 35.229	70.00.353	152.6	4.43	1278.24	4235.4	" "
0800	14° 34' 84 N	069° 58' 271	123.7	4.73	1280.0	4236.2	Still in turn 3B → 4B
0830	14 32 003	069 57 214	169.1	5.43	1283.27	4257	Finished turn on way to line 4B
843	14 31 806	69 57 608	163.4	5.13	1284	4289	Start of line 4B
844	14 31 800	69 57 605	169.1	4.83	1284	4280	OBS 101
848	14 31 446	69 57 544	169	5.23	1284	4283	- not shooting, missed shots 2+3+4
853	14 31 082	69 57 515	169	5.03	1285	4285	start shooting at shot 9 on tape 146
900	14 30 618	69 57 458	168.3	5.13	1285.78	4279	-
930	14 28 389	69 57 191	170.1	5.13	1288.31	4295	-
0938	14 27 800	069 57 127	172.4	4.93	1288.99	4310.9	over OBS 102
1000	14° 26' 217	069° 56' 271	165	5.00	1290.0	4.017.3	-
1030	14 23.893	069 56 648	168.2	4.73	1293.39	4330.6	over OBS 103
1031	14 23.8	069 56 641	168.6	4.73	1293.48	4317.1	over OBS 103
1100	14 21 676	069 56 383	163.8	4.83	1295.88	4305.6	All Birds w/in limits + Stowaway!
1123	14° 19' 847 N	069° 56' 155W	173	5.13	1297.2	4.292	over OBS 104
1130	14° 19' 337 N	069° 56' 055W	168	5.13	1298.0	4.295	-
1200	14 17.026	069 55 830	165.5	5.13	1300.86	4276.8	- Change of Shift
1215	14 15 815	069 55 674	166.7	5.13	1302.34	4274.9	over OBS 105
0230	14 14 643	069 55 531	166.6	5.33	1303.62	4267.5	
1254	14 12 703	069 55 243	171.6	5.33	1305.75	4291.2	3.5 kHz turned off
1300	14 12 305	069 55 246	174.2	5.33	1306.19	4330.3	
1306	14 11 812	069 55 183	172.3	5.23	1306.72	4334.6	over OBS 106
1330	14 09 910	69 54 959	175.0	4.73	1308.80	4365.7	
1356	14 07 820	69 54 711	169.3	5.23	1311.07	4468.0	over OBS 107
1400	14 07 535	69 54 673	167.7	4.83	1311.38	4472.1	
1430	14 05 143	69 54 385	167.2	4.93	1313.99	4482.6	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1446	14 03 818	09 54 226	165.6	5.33	1315.42	4464.9	over OBS 108
1500	14 02 775	09 54 101	168.2	5.23	1316.55	4426.5	
1530	14 00 399	09 53 814	166.9	5.33	1319.08	4345.0	
1536	13 59.838 N	069 53.739	168.2	4.73	1319.7	4382.0	OVER OBS 109
1600	13 58 013	069 53 523	169.1	5.23	1321.64	4506.6	Change Shift
1628	13 55 890	069 53 232	168	5.03	1324.1	4588	over OBS 110
1630	13 55 69	069 53 232	168	5.03	1323.8	4589	
1700	13 53 352	069 52 959	165.8	5.03	1326.63	4601.5	
1719	13 51 848	069 52 759	162	5.03	1328.32	4661	over OBS 111
1730	13 50.929	069 52.672	166.7	4.83	1329.21	4712.9	
1800	13 48.600	069.52.390	169	5.33	1331.50	4936.8	
1809	13 47.880	069 52.310	166.7	5.23	1332.47	4935.8	over OBS 112
1830	13 46 276	069 52 097	162	5.03	1334.18	4934	
1900	13 43 932	069 51 825	168	5.03	1336.71	4948	OVER OBS 113
1930	13 41 650	069 51 552	165.2	5.43	1339.19	4985.	
2000	13 40 210	069 53 598	298.3	5.63	1342.11	4978	Change Shift
2030	13 42 151	069 55 656	323.5	4.83	1344.56	4971.1	Turning for Bol 60
2100	13 44 135	069 55 194	77.3	4.43	1346.80	4942.8	Continue Turn to Bol 60
2123	13 43 556	069 53.839	127.9	4.73	1348.79	4960.6	Start line 60, ^{at 10 guns off} guns
2125	13 43.421	069 53.686	122.8	4.83	1348.94	4966.9	all guns on
2130	13 43.234	069 53.486	128.7	4.93	1349.25	4964.0	
2200	13 41.950	069 52.204	126.4	4.63	1351.32	4963.8	All birds w/in limits
2212	13 41 308	69 54 471	138.5	4.93	1352.52	4968.0	Pass over aim point Bol 60
2230	13 40 403	69 50 660	133.5	4.33	1353.79	4979.5	All birds on track
2300	13 38 952	69 49 083	132.3	4.83	1356.37	4989.8	
2330	13 37 503	69 47 580	127.3	4.53	1358.81	5010.5	
2400	13 36 041	69 46 090	128.9	4.73	1361.18	4902.3	

Cruise EW 4		JD 123		R/V Maurice Ewin Science Watch Log			Page 19
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
00:30	13° 34.552 N	069° 44.553 W	130.5	5.03	1363.8	4742.2	
01:00	13° 33.083 N	069° 43.054 W	129.2	4.83	1366.1	4558.9	
01:30	13° 31.625 N	069° 41.543 W	130.9	5.03	1368.56	4092.8	
02:00	13° 30.180 N	069° 40.059 W	139.9	4.93	1371.1	3891.3	
02:30	13° 28.777 N	069° 38.614 W	135.0	4.83	1373.1	3726.1	
03:00	13° 27.382 N	069° 37.170 W	136.0	4.93	1375.8	3500.0	
03:30	13° 25.970 N	069° 35.718 W	142.6	4.63	1378.7	3604.0	
04:00	13° 24.537 N	069° 34.251 W	134.3	4.63	1380.6	3671.0	Shift Change
04:30	13° 23.121	069° 32.788	138.1	4.83	1383.0	3411.4	
0500	13° 21.693	069° 31.316	132.8	4.63	1385.41	3336.2	
0530	13 20.280	069 29.864	131.8	4.93	1387.78	3361.2	
0600	13 18.933	069 28.479	124.5	4.33	1390.03	3111.2	
0630	13 17.452	069 26.955	134.5	4.63	1392.5	3024.4	
0700	13 16.035	069 25.501	137.0	4.23	1394.89	3354	
0730	13° 14.630	069° 24.048	130.4	4.73	1397.24	2768.0	
0800	13 13.218	069° 22.590	131.5	4.73	1399.57	2676	Shift Change
0830	13° 11' 7.22 N	069° 21.061 W	134	5.23	1402	2337	-
0900	13 10 325	069 19.636	131	4.93	1404.44	2979	
0930	13 08 980	069 18.220	130.7	4.63	1406.83	2881.9	- GPS-4 needed to be used
1000	13 07 454	069 16.683	131.2	4.83	1409.34	2657.9	
1030	13 06 109	069 15.289	129.9	5.33	1411.60	2464.8	All Birds in line
1100	13 04.637	069 13.776	130.5	4.93	1414.13	2297.9	
1130	13 03 284	069 12.395	134.5	4.93	1416.43	2125.2	
1200	13 01.85	069 10.917	125.7	4.63	1418.82	1982.1	End of Shift
12:30	13° 00.345 N	069° 09.407	123.7	5.03	1421.17	1977.2	
1300	12 58.946	69 07.936	133.8	5.13	1423.69	1924.7	
1330	12 57 482	69 06.433	127.1	4.83	1426.13	1932.8	
1400	12° 55.989 N	069° 04.898 W	130.1	4.93	1428.8	1989.1	

Cruise EW 04 JD 123-124 R/V Maurice Ewin Science Watch Log							Page 220
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1430	12° 54.508 N	069° 03.369 W	132.4	4.93	1431.03	2075.8	
15:00	12° 53.068 N	069° 01.896 W	129.3	4.83	1433.5	2171.6	
15:30	12° 51.609 N	069° 00.404 W	128.8	4.83	1435.91	2211.0	
16:00	12° 50.214 N	068° 58.955 W	128.3	4.73	1438.26	2281.8	Change Shift
1612	12 49 574	68 58 310	128.3	4.83	1439.30	2320.1	Maggie is in the water
1630	12 48.737	68 57.454	125.8	4.83	1440.69	2352.5	
1700	12.47.335	68.55.996	126.5	4.93	1443.03	2421.3	
1716	12.46.513	68.55.168					Maggie back out for repairs
1730	12.45.900	68.54.536	124.0	4.73	1445.40	2482.1	
1800	12.44.536	68.53.133	124.6	4.73	1447.73	2536.8	
1830	12 43.156	68 51.728	124.6	4.93	1450.12	2576.3	
1900	12.41.770	68.50.294	131.5	4.63	1452.52	2600.6	
1930	12 40.404	68.48.892	127.8	5.03	1454.83	2594	
2000	12° 39.032	68° 47.495 W	125.5	4.73	1457.32	2644.2	change shift
2030	12 37.625	68 46.052	128.10	5.03	1459.79	2715.2	
2100	12 36.240	68 44.631	126.9	4.83	1462.22	2717.3	
2130	12 34.906	68 43.265	122.8	4.73	1465.57	2727.5	
2200	12 33.453	68 41.773	134.1	5.03	1467.06	2733.5	
2230	12 32.031	68 40.314	128.2	5.03	1469.53	2726.4	
2300	12 30.671	68 38.906	128.7	4.73	1471.84	2714.3	
2330	12 29.200	68 37.403	128.1	5.03	1474.32	2669.6	
2400	12 27.690	68 35.861	129.7	4.73	1476.73	2607.7	Change of Shift
00:30	12° 26.194 N	068 34.342 W	125.5	4.93	1479.22	2662.7	
01:00	12° 24.547 N	068° 32.811 W	149.5	5.13	1481.75	2509.3	
0130	12 22.154	68 33.593	204.1	4.63	1484.30	2381.8	
02:00	12° 21.521 N	068° 35.901 W	316.2	5.33	1486.3	2110.2	
02:30	12° 23.426 N	068° 35.531 W	46.5	4.93	1489.08	2399.9	
03:00	12° 25.243 N	068° 34.483 W	35.5	5.33	1491.41	2559.0	

Cruise EWC 4		JD 124		R/V Maurice Ewin Science Watch Log			Page 121
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0330	12° 27.249 N	068° 33.681 W	36.3	5.13	1493.73	2718.4	
0400	12° 29.266 N	068° 32.855 W	31.2	5.03	1496.17	2739.4	Change the Duty
0430	12.31.346	068.32.007	32.2	5.13	1498.63	2807.6	
0500	12.33.369	068.31.187	33.9	4.93	1500.97	3093.7	
0530	12.35.405	068.30.363	31.0	5.13	1503.27	3228.4	
0600	12.37.458	068.29.530	34.0	5.43	1505.63	3282.6	
0630	12 39.586	068 28.658	30.7	4.43	1508.09	3290.7	
0700	12.41.606	068.27.837	27.8	4.73	1510.36	3179.4	
0730	12.43.723	068.26.965	32.4	4.83	1512.77	2964.4	
0800	12.45.722	068.26.148	22.2	4.63	1515.13	2645.3	Change the Duty
0830	12 47.650	068.25.368	26.4	4.73	1517.44	2432.4	
0900	12° 49' 39.7	068° 24' 51.0	26.2	4.73	1519.2	2.214,3	
0930	12° 51' 75.3	068° 23' 63.1	26.4	4.73	1522.3	2.026,2	
1000	12° 53' 13.0	068° 22' 86.5	31.2	4.43	1524.2	1.972,3	
1018	12.55.099	068.22.321	37.7	4.53	1526.08	2015.3	Birds 13-17 on Surface
1030	12 55.824	068.22.031	29.1	4.83	1526.88	2030.4	Birds 5 - 7 out of limits
1045	12 56.916	068.21.585	22.6	4.23	1528.19	2083.9	Birds Back w/in Limits
1100	12 57.742	068.21.230	27.7	5.03	1529.17	2077.8	Birds w/ing hard to stay level
1130	12° 59' 32.1	068° 20' 46.4'	28.5	5.03	1531.2	2.292,3	
1132	12° 59' 32.1	068° 20' 46.4'	28.5	5.03	1531.2	2.292,5	Birds 16 - 19 out of limits.
1200	13.01.720	068.19.625	25.1	4.63	1533.88	2759.9	End of Shift - Birds Back on Line
1230	13 03.884	68 18.734	28.0	5.03	1536.41	3280.0	
13:00	13° 05.928 N	068° 17.906 W	34.0	4.53	1538.8	3548.6	
13:30	13° 08.043 N	068° 17.040 W	28.9	4.93	1541.21	3475.9	
14:00	13° 08.729 N	068° 15.202 W	112.7	4.63	1543.6	3542.6	
1430	13 06.691	68 14.723	198.7	5.33	1546.08	3530.1	
1500	13° 04.380 N	068° 15.634 W	195.4	5.23	1548.40	3405.2	
1530	13 02.080	68 16.569	194.4	4.23	1550.84	2946.1	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1600	12 59 833	68 17 500	197.1	4.61	1563.07	2313.1	end of shift
1630	12 57.648	068.18.373	203.3	4.63	1555.20	1942.8	
1700	12.55.455	68.19.271	197.4	4.83	1557.43	1841.2	
1730	12.53.214	68.20.201	201.3	4.63	1559.78	1863.3	
1800	12.51.014	68.21.106	198.7	4.63	1561.95	1959.0	
1830	12.48.787	68.22.034	193.5	4.53	1564.27	2198.9	
1900	12.46.580	68.22.922	196.4	4.93	1566.47	2451.8	
1930	12.44.370	68.23.823	200.1	4.53	1568.69	2764.1	
2000	12 41 977	68 24 815	206.5	4.33	1571.15	3104.1	- end of shift
2030	12 39 830	68 25 718	196.9	4.73	1573.52	3312.3	
2100	12 37 718	68 26 575	195.4	4.83	1575.69	3327.6	
2130	12° 35' 310	068° 27' 527	195	4.73	1578	3257	
2200	12 59 120	068 28.405	195.1	4.53	1580.34	3045	
2230	12 30 409	068 29 358	191.9	4.73	1582.71	2714.2	
2300	12° 28' 659 N	068° 30' 272	196.2	4.8	1585.2	2447.3	
2330	12 26 512	068 31.149	191.3	4.83	1587.32	2416.2	
2400	12 24 398	068 32.005	195.3	5.23	1589.60	2416.2	End of Shift - "A TERN!"
00:30	12° 22.039 N	068° 32.978 W	194.7	5.13	1592.6	2544.6	
0100	12 19.893 W	68° 33.846 W	195.7	4.33	1594.15	1975.0	
0130	12 17 719	68 34 730	202.6	4.93	1596.49	1688.5	
0200	12 15 536	68 35 625	202.2	5.03	1598.91	1602.2	
02:30	12° 13.914 N	068° 36.501 W	202.7	4.73	1601.40	1534.2	
03:00	12° 11.362 N	068° 37.339 W	199.2	5.33	1603.88	1556.1	
03:30	12° 09.323 N	068° 38.173 W	209.1	4.63	1606.41	1505.0	
0400	12.07, 207	068.39.037	201.4	4.93	1609.02	1494.0	Change Shift
0430	12 05.38	068 39.794	204.7	4.93	1611.39	1421.9	
0500	12 03.294	068 40.638	201.3	4.93	1613.91	559.94	

Cruise EWC 4		JD 125		R/V Maurice Ewing Science Watch Log				Page 373
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
0514	12 02.130	68.41.114	200.6	5.03	1615.33	541.30	Hydrosweep shut down, Anthony restarted it.	
0538	12.01.313	68.41.445	199.1	4.83	1616.32	514.51		
0600	11.59.315	68.42.261	199.5	4.83	1618.8	561.11		
0630	11.57.157	68.43.137	194.2	5.03	1621.3	944.01		
0700	11.54.815	68.44.106	193.0	4.73	1624.0	1206.0		
0730	11.52.665	68.44.964	194.2	5.03	1626.4	1316.2		
0800	11.50.536	68.45.841	193.3	4.73	1628.4	1319.2	Change Watch	
0830	11 48.238	68 46 795	197.4	4.93	1631.34	1168.3		
0900	11° 46' 214	068° 47' 615	189.2	5.03	1633.2	1032.3		
926	11 44 144	068 48.461	190.7	5.13	1636	903.51	Gun 15 is off	
930	11 43 906	68 48 561	188.1	4.93	1636.76	897.51		
1000	11 41 659	68 49 480	191.1	5.13	1638.69	812.21	Gun 15 is off	
1023	11 39.897	68 50 198	189.9	4.93	1640.78	745.71	Gun 15 on line	
1030	11 39 495	68 50 369	186.6	5.03	1641.23	727.81		
1100	11 37 344	68 51 237	186.8	4.63	1643.11	548.11		
1110	11 36 464	68 51 604	188.5	5.03	1644.63	454.91	End of Bol 7 - Begin Run out Shots	
1118	11 35 879	68 51 950	188.5	5.03	1644.58	459.01	Gun 10 out	
1124	11 35 370	68 50 050	188.5	5.03	1645.88	353.61	Gun 9 - out	
1130	11 35 089	68 52 161	184.0	5.23	1646.12	336.61		
1132	11 34 867	68 52 260	184.0	5.23	1647.60	330.50	End of Run out shot Bol 7	
1200	11 34 415	68 54 610	299.8	4.93	1648.96	248.41	Change Watch -	
1230	11 36 585	68 56 620	8.2	4.93	1651.26	290.81		
13:00	11° 37.814 N	068° 55.117 W	89.1	5.13	1653.73	418.11		
13:30	11° 37.230 N	068° 53.498 W	116.5	5.13	1656.17	447.21	on line BOL 62	
14:00	11° 36.481 N	068° 51.791 W	115.9	4.83	1658.8	455.01		
1430	11 35 740	68 50 141	115.9	4.63	1661.08	451.01		
1500	11 34 998	68 48 482	117.5	4.93	1663.53	440.41		
1530	11 34 236	68 46 775	113.9	5.03	1666.02	425.51		

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
16:00	11° 33.475N	068° 45.078W	116.2	4.83	1668.4	415.6	Change Shift
1630	11.32.743	068.43.434	115.9	4.83	1672.78	405.51	
1700	11.32.014	68.41.803	116.9	4.63	1673.18	400.01	
1730	11.31.259	68.40.127	116.6	4.73	1675.59	401.61	
1800	11.30.477	68.38.369	115.3	4.53	1678.09	395.61	
1830	11.29.678	68.36.581	114.3	4.93	1680.53	395.01	
1900	11.28.886	68.34.800	114.4	4.43	1682.9	387.11	
1930	11.28.068	68.33.983	115.1	4.73	1685.3	381.91	
2000	11.27.255	68.31.161	116.2	4.73	1687.77	376.41	Change Shift
2030	11.26.438	68.29.387	112.7	4.73	1690.01	384.01	
2058	11 25 666	68 27 642	114.5	4.93	1692.40	393.11	Crossing over intersect Bol 63
2100	11 25 630	68 27 569	113.9	4.93	1692.55	391.11	
2123	11 24 987	68 26 115	111.5	5.03	1694.58	394.61	- End of Bol 62
2124	11 24 987	68 26 115	111.5	5.03	1694.58	394.61	Starting turn to Bol 63 guns 9/10 off
2130	11 24 652	68 25 800	145.1	5.03	1695.15	387.61	
2200	11 22 609	68 26 599	211.7	5.13	1697.71	265.71	
2230	11 21 554	68 28 947	291.1	5.03	1700.28	130.10	
2254	11 23 299	68 29 646	56.8	4.63	1702.20	205.31	#5 shot - start line 63, file 31,000
2300	11 23 598	68 29 330	56.3	5.33	1702.67	234.41	
2300	"					"	Stopping line problem with Spectra shot # 31,021
2304	11 23.831	68 29.102	49.4	5.13	1703.02	258.91	restart line 31024, shot # 29
2309	11 24 106	68 28 888	45.1	5.13	1703.36	279.41	All guns in water
2330	11 25 303	68 27 912	48.5	5.13	1705.14	373.31	
2335	11 25 648	68 27 645	50.4	5.03	1705.56	389.91	Crossing dumpsite Bol-63 - Start
2400	11 27 187	68 26 601	44.1	4.83	1707.33	498.41	Change of watch
0030	11 21 087	68 25 277	45.3	5.13	1709.84	630.61	
0100	11 30 993	68 23 970	38.3	5.43	1712.35	746.31	
0130	11 32 880	68 22 673	41.2	4.83	1714.80	1031.4	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0200	11 34 809	68 21 342	41.2	4.93	1717.29	1375.8	
02:30	11° 36.740 N	068° 20.033 W	36.9	4.53	1719.77	1580.2	
03:00	11° 38.514 N	068° 18.789 W	34.0	4.83	1722.7	1833.2	
03:30	11° 40.371 N	068° 17.510 W	32.8	4.93	1724.6	1873.0	
04:00	11° 42.153 N	068° 16.283 W	34.9	5.03	1729.3	1839.0	Shift Change
04:30	11.41.073	068.14.959	37.1	5.23	1729.6	1779.1	
05:00	11.45.903	068.13.698	32.0	5.03	1732.01	1662.4	
05:30	11.47.661	068.12.477	33.3	5.13	1734.44	1550.8	
06:00	11.49.473	068.11.240	30.7	4.93	1736.99	1304.0	
06:30	11.51.255	068.10.001	32.5	4.93	1739.57	1031.4	
07:00	11.53.165	068.08.686	29.2	4.53	1742.18	820.11	
07:30	11.54.744	068.07.602	30.8	4.93	1744.36	720.01	
08:00	11.56.457	068.06.429	30.2	4.63	1746.8	877.71	Shift Change
0830	11 58 258	68 05 180	33.7	4.73	1749.25	868.81	
0900	11 59 910	68 04 28	35.0	5.13	1751.44	1119.7	
0930	12 01 684	68 02 808	28.9	5.13	1753.93	1711.2	
1000	12 03 681	68 01 436	27.7	4.63	1756.57	1863.2	
1030	12 05 444	68 00 226	34.1	4.93	1758.89	2073.0	
1100	12 07 394	67 58 875	28.9	4.83	1761.47	2317.6	
1130	12 09 336	67 57 537	30.3	4.93	1764.03	2296.3	
1134	12 09 608	67 55 356	33.8	4.93	1764.38	2268.4	Guns 11/12 off
1148	12 10 504	67 56 721	16.4	5.23	1766.03	2275.4	End of Bot 63
1200	12 11 392	67 58 501	355.4	5.23	1766.42	2348.6	End of "A-Ten" Shift
1230	12° 12.606	067° 58.540	290.0	4.83	1769.2	2260.4	
1300	12 12 219	67 57 738	204.4	4.43	1771.64	1927.0	
1330	12° 10.368 N	067° 57.501 W	115.8	4.83	1774.13	2193.6	
14:00	12° 09.041 N	067° 57.337 W	118.2	4.83	1776.3	2199.2	
14:30	12° 07.686 N	067° 55.305 W	118.5	4.73	1778.71	1810.0	

Cruise EW 4 JD 126-127 R/V Maurice Ewin Science Watch Log							Page 26
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1500	12° 06 382 N	067° 53 288 W	125.2	4.63	1780.96	1719.2	
1530	12° 05.074 N	067° 51.267 W	119.0	4.63	1783.25	1519.0	
16:00	12° 03.746 N	067° 49.206 W	119.1	4.43	1785.8	1272.5	Change Shift
1630	12.02.249	067.47.150	123.5	4.73	1787.9	1252.7	
1700	12.01.065	067.45.053	124.5	4.93	1790.38	1003.6	Beginning Turn 8 to 9 ^{Last shot 677}
1730	12.01.770	067.43.287	353	4.70	1792.86	922.3	Islas de las Aves
1800	12.04.847	067.43.424	359	4.83	1795.5	397.01	
1830	12.06.104	067.44.333	276	4.93	1797.7	505.81	
1900	12 04.444	067.45.698	190.8	4.73	1800	479.91	
1930	12.02.171	067.46.133	190.1	4.53	1802.35	1192.1	Streamer straight again
2000	11.59.719	067.46.000	191.0	4.63	1804.77	1804.44	Change Shift
2030	11 57 391	067 47 053	188.4	4.63	1807.12	891.61	Whales sighted outside safety area
2100	11 55 186	067 47 470	192.0	4.53	1809.35	1164.4	
2130	11 52 685	67 47 961	193.1	4.53	1811.93	1488.2	
2200	11 50 334	67 48 421	191.1	4.83	1814.36	1538.9	
2230	11 47 985	67 48 855	193.7	4.73	1816.73	1566.7	
2300	11 45 555	67 49 316	190.6	4.73	1819.13	1593.6	
2330	11 43 220	67 49.755	191.9	4.43	1821.34	1623.5	
2400	11 40 887	67 50 210	189.8	4.53	1823.45	1687.3	End Shift - Birds 25-28 below level
00:30	11° 38.362 N	067° 50.900 W	192.2	4.13	1825.7	1761.9	
0100	11 36 049	67 51 143	193.9	4.53	1828.01	1821.0	
0103	11 35.710	67 51.209	194.9	4.63	1828.39	1825.0	We are not recording.
—	—	—	—	—	—	—	System dead last shot #1697
—	—	—	—	—	—	—	File Number 35974 1081
01:30	11° 33.698 N	067° 51.594 W	194.1	4.33	1830.3	1878.0	
0200	11 31 412	67 61 441	123.7	4.73	1832.68	1913.0	
02:30	11° 31.216 N	067° 49.418 W	85.7	3.53	1834.6	1926.0	
03:00	11° 31.235 N	067° 47.740 W	87.5	3.53	1836.2	1934.0	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
03:30	11° 31.219 N	067° 46.260 W	94.5	2.23	1837.6	1936.0	
04:00	11° 31.140 N	067° 45.160 W	82.5	2.33	1838.6	1936.0	
0430	11 31.630	067 43.841	105.1	2.43	1838.86	1935.0	
0500	11.30.921	67.42.509	87	2.83	1841.1	1939	Streamer still out of water - though Fixed
0530	11.30.829	67.40.618	94.6	3.53	1842.91	1942.0	Changed out streamer section
0600	1130746	67.38.587	87.6	4.43	1844.88	1914.0	
0630	1130.707	67.36.419	84.7	3.93	1846.88	1905.0	
0700	11 30.633	67.34.501	83.8	3.73	1848.75	1922.0	
0730	11 30.519	67.32.413	83.3	3.53	1850.65	1929.0	
0800	11.30.375	67.30.150	86.7	4.13	1852.67	1930	Change Shift
0817	11 30 296	67 28.814	87.0	4.43	1853.91	1932	Bird 23 set
830	11 30 269	67 28.003	90.0	4.03	1854.65	1936	
900	11 30 237	67 25.918	91.9	3.43	1856.52	1946	
930	11 30 246	67 23.981	93.8	3.43	1858.28	1952	
1000	11 30 276	67 22.163	81.6	3.33	1859.96	1949	
1030	11 30 376	67 20.117	88.8	4.83	1861.88	1952	
1100	11° 29' 019 N	067° 19' 031	204°	5.03	1864.15	1952.0	
1130	11 26 978	67 20 460	220.4	4.83	1866.62	1948.0	Continue turn to line 11
1200	11° 25' 068	068° 21' 785	225	5.2	1869.3	1927.	
1230	11 23 154	67 23 217	214.8	4.83	1871.56	1908.0	
1300	11 21 207	67 24 633	214.7	5.03	1873.99	1877.0	
1330	11 19 212	67 26 642	216.8	4.63	1876.42	1852.0	
1400	11° 17.227 N	067° 27.426 W	218.4	4.93	1878.2	1819.0	
1430	11 15 300	67 28 826	212.6	4.73	1881.20	1798.1	
1500	11° 13.421 N	067° 30.223 W	215.2	4.93	1883.57	1775.1	
1530	11 11 409	67 31 652	217.9	5.33	1886.06	1746.2	
16:00	11° 10.777 N	067° 33.547 W	307.8	4.73	1888.56	1729.2	
1600	11 12998	067 33460 N	166	4.83	1890.89	1780.2	

Cruise EWC 4		JD 127, 128	R/V Maurice Ewin Science Watch Log				Page 128
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1700	11 15.218	67 32.682	16.4	4.53	1893	1797.1	
1730	11.17.450	67.31.912	12.9	4.33	1895.38	1827.0	
1800	11.19.547	67.31.155	14.8	4.93	1897.56	1851.0	
1830	11.21.770	67.30.389	19.3	4.63	1899.8	1876.0	
1900	11.24.086	67.29.575	16.9	4.83	1902.22	1901.0	
1930	11.26.320	67.28.795	13.3	4.83	1904.56	1929.0	
2000	11.28.555	67.28.020	1.4	5.43	1906.96	1936.0	Change Shift
2030	11 30 875	67 27 200	10.7	5.33	1909.57	1934.0	
2100	11 33 075	67 26 425	16.2	5.13	1911.99	1871.0	
2109	11 33 885	67 26 155	3.7	5.03	1912.91	1826.0	End of Bol 11 - Turn to Bol 12A
2130	11° 35' 601	067° 25' 939	27.9	5.13	1914.3	1924.3	
2158	11 33 507	67 28 272	188.0	4.63	1916.85	1884.0	Start of line Bol 12A
2200	11 33 355	67 28 291	189.2	4.73	1917.02	1889.7	
2230	11 31 030	67 28 091	176.9	4.23	1919.08	1936	
2300	11 28 685	67 27 895	177.1	4.33	1921.26	1934	
2302	11 28 548	67 27 878	183.1	4.53	1921.39	1941.0	over OBS 232
2330	11 26 360	67 27 682	174.3	4.23	1923.20	1920	
2400	11 24 010	67 27 475	142.52	4.43	1925.59	1894.0	End of Shift
0000	11 23 460	67 27 424	175.1	4.73	1926.17	1886.0	over OBS 233
0030	11 21 585	67 27 253	177.4	4.43	1927.99	1866.0	
0100	11 19 223	67 27 043	179.2	4.63	1930.31	1850.0	
0110	11 18 384	67 26 966	179.9	4.63	1931.17	1828.0	over OBS 234
0130	11 16 862	67 26 828	177.5	4.73	1932.67	1810.0	
0200	11° 14.456 N	067° 26.610 W	175.3	4.73	1935.3	1787.8	
0214	11 13 293	67 26 510	178.5	4.83	1936.16	1775.1	over OBS 235
0230	11° 12.079 N	067° 26.399 W	174.8	4.43	1937.37	1759.6	
0300	11 09 628	67 26 185	181.0	4.53	1939.84	1724.2	
0318	11 08 226	67 26 055	171.6	4.63	1941.18	1708.2	over OBS 236

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Cruise EWC 4		JD 128		R/V Maurice Ewin Science Watch Log			Page 24
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0330	11 07 255	067 25 910	177.0	4.63	1942.11	1699.3	
04:00	11° 04.866 N	067° 25.754 W	174.0	4.53	1944	1599.2	Change the duty
04:21	11.03.150	067.25.596	178.8	4.63	1945.88	1426.5	OBS 237
04:30	11.02.475	067.25.537	176.0	4.83	1946.51	1373.8	
05:00	11.00.031	067.25.320	173.4	4.53	1948.87	1203.0	
05:24	10.58.074	067.25.118	176.3	4.53	1950.9	1081.0	OBS 238
05:30	10.57.670	067.25.101	177.8	4.53	1951.11	1073.1	
06:00	10.55.823	067.24.814	174.2	4.53	1953.36	973.9	
06:30	10.52.889	067.24.681	174.0	4.63	1955.69	874.71	
06:30	10.52.889	067.24.681	-	-	-	-	OBS 239
07:00	10.50.541	067.24.470	175.4	4.63	1957.94	736.31	
07:30	10.48.087	067.24.245	173.5	4.83	1960.28	770.51	
07:32	10.47.910	067.24.229	-	-	-	768.51	OBS 240
08:00	10.45.762	067.24.043	174.2	4.73	1962.48	1008.6	Change Shift
830	10 43 417	67 23 832	172.2	4.73	1964.92	883.61	
838	10 42 834	67 23 781	173.1	4.83	1965.48	879.71	OBS 241
0900	10° 41' 204 N	067° 23' 634 W	170.0	4.53	1967.02	895.32	
0930	10 38 574	67 23 403	172.7	4.63	1968.58	890.61	
0940	10 37 752	67 23 318	170.2	4.73	1970.43	871.71	End of line 12A - over OBS 242
0946	10 37 192	67 23 062	133.2	4.53	1970.79	857.81	End of 12A
1000	10 36 556	67 22 349	136.8	4.93	1971.97	826.11	
1030	10° 34' 970 N	067° 23' 269	275	5.0	1974.3	725.42	
1100	10° 36' 210 N	067° 23' 951	030°	5.2	1976.2	833.25	
1113	10° 37' 245 N	067° 23' 365 W	000	4.7	1977.2	872.3	Begin line 13 Shot 18
1118	10 37 921	067 23 328	1.2	4.6	1978.73	880.71	~ close to OBS 242 (a little after)
1530	10 38 825	067 23 427	349.4	4.83	1979.20	892.61	
1200	10 40 080	67 23 623	352.0	4.83	1981.56	1981.56	- End of Shift
12:21	10.42.834	067.23.778	355.8	4.83	1983.4	877.1	

Cruise EW 4		JD 128		R/V Maurice Ewin Science Watch Log				Page 30
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
12:30	10° 43.525 N	067° 23.843 W	353.3	4.93	1984.6	889.61		
13:00	10 45.887	67 24.054	356	5.13	1986.58	942		
13:25	10.49.910 N	067° 24.351 W	354.1	5.03	1988.2	770.51	Over OBS 240	
13:30	10° 48.292 N	067° 24.292 W	358.3	4.73	1989.09	767.51		
1400	10 50 650	67 24 470	352.7	5.13	1991.52	801.31		
1429	10 53 012	67 24 683	351.0	5.13	1993.95	880.71	over OBS 239	
1430	10 53 058	67 24 688	356.3	4.73	1994.00	884.61		
15:00	10° 55.371 N	067° 24.895 W	359.5	4.93	1996.43	979.81		
15:30	10° 57.828 N	067° 25.116 W	351.8	5.13	1998.94	1086.0		
1533	10 58.075	67 25 135	351.3	4.93	1999.20	1094.9	over OBS 238	
16:00	11° 00.163 N	067° 25.321 W	351.9	5.03	2001.36	1230.8	Change of duty	
1630	11 2.590	067 25.639	350.2	4.93	2003.91	1389.7		
1637	11 03.190	067 25.596	350.6	4.73	2004.55	1439.4	over OBS 237	
1700	11 04.969	067 25.749	350.2	4.93	2006.34	1626.5		
1730	11.07.339	067.25.971	350.5	4.73	2008.76	1700.3		
17:41	11.08.232	067.26.048	352.2	4.73	2009.6	1704.3	OBS 236	
1800	11 09.647	067 26.171	356.6	4.83	2011.11	1725.2		
1830	11° 12.175	067° 26.397	359.5	4.43	2013.61	1768.1		
1845	11° 13.314	067° 26.930	359.5	4.63	2014.90	1775.2	over OBS 234 235	
1900	11° 14.570	067° 26.612	359.6	4.33	2015.89	1792.1		
1930	11° 16.961	067° 26.822	347	4.63	2018.17	1817.0		
1949	11 18.390	067 26.943	3529	4.63	2019.47	1831.0	over OBS 235 234	
20:00	11.19.243	067.27.032	346.8	4.33	2020.4	1848.0	Change Shift	
2030	11 21.591	067 27.236	353.9	4.73	2022.71	1868.0		
2053	11 23.403	067 27.405	353.4	4.83	2024.63	1889	over OBS 234 233	
2100	11 23.879	67 27.422	355.5	4.73	2025.01	1894.0		
2130	11° 26' 32.9 N	067° 27' 6.25	353	4.79	2027.3	1922.2		
2159 2200	11.28.548	67 27 867	353.3	4.93	2029.4	1935.0	over OBS 232	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2200	11 28 564	67 27 870	355.0	4.83	2030	1434	
2230	11 30 941	67 28 072	354.3	4.83	2032	1934	
2300	11 33 233	67 28 276	351.1	4.83	2034	1880	
2305	11 33 630	67 28 312	353.0	4.93	2035.7	1870	over OBS 231
2330	11 35 515	67 28 489	354.	4.53	2037.17	1780	
2400	11 37 724	67 28 686	355	4.93	2039.9	1654.4	End of Watch -
0010	11 38 713	67 28 768	353.7	4.63	2040.47	1611.6	over OBS 230
0030	11 40 274	67 28 908	0.1	4.73	2042.03	1494.1	
01:00	11° 42.909 N	067° 29.125 W	355.4	4.53	2044.4	1312.2	
01:00	11 43 788	67 29 119	358.6	4.83	2045.50	1235.8	over OBS 229
01:30	11° 45.068 N	067° 29.338 W	358.0	4.43	2046.75	1098.8	
0200	11 47 402	67 29 551	358.1	4.83	2049.01	831.11	
0218	11 48 870	67 29 671	353.7	4.63	2050.41	534.31	over OBS 228
0230	11 49 812	67 29 770	357.9	4.43	2051.31	501.21	
03:00	11° 52.243 N	067° 29.971 W	356.6	4.73	2053.5	918.11	
03:28	11° 53.950 N	067° 30.104 W	356.9	4.73	2055.6	580.41	Over OBS 227
03:30	11° 54.634 N	067° 30.190 W	355.9	4.73	2056.0	386.51	
04:00	11° 57.015 N	067° 30.401 W	354.6	4.83	2058.3	477.11	Change of Duty
04:24	11.59.028	067.30.588	354.2	4.53	2060.2	407.21	OBS 226
04:30	11.59.448	067.30.619	357.7	4.83	2060.51	251.61	
05:00	12.01.772	67.30.833	359	4.73	2062.9	298	
0530	12 04.048	67 31.036	359.8	4.53	2065.17	313.01	over OBS 225,
06:00	12 06.341	67.31.241	352.2	4.93	2067.4	337.11	
06:30	12.08.726	67.31.450	353.0	5.03	2069.7	363.91	
06:35	12.09.186	67.31.497	350	4.83	2070.2	367.1	OBS 224
0700	12 11.178	67 31.681	349.4	4.53	2072.08	388.51	
0730	12 13.530	67 31.880	353.5	4.73	2074.3	677.21	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0739	12 14.265	067 31.420	355.2	4.63	2075.05	776.21	over OBS 223
0800	12.15.860	067.32.102	355.5	4.73	2076.6	938.21	Change Shift
0830	12° 18' 335 N	067° 32' 317	352	4.73	2078	1356.2	
0842	12° 19' 333 N	067° 32' 407	355	4.43	2079	1515.1	OVER OBS 222
0900	12° 20' 362 N	067° 32' 509	355	5.0	2080.3	1862.2	
0930	12 23 063	067 32733	356.2	4.53	2083.20	2443.1	
0944	12 24 426	067 32 861	1.6	4.93	2084.42	2956.9	over OBS 221
1000	12° 25' 690	067° 32' 979	388	4.73	2085.3	4796.4	* Mottibeam was not measuring properly.
1030	12 28 154	067 33204	5.0	4.43	2087.81	4678.8	
1047	12 29 502	67 33320	9.2	4.73	2089.08	4687.2	
1100	12 30 424	67 33397	1.7	4.13	2089.94	4691.1	
1130	12 32 852	67 33622	4.9	4.53	2092.28	?	
1151	12° 34' 548	067° 33' 771	4.8	4.73	2093.3	4689.0	Over OBS 219
1152	12° 34' 548	067° 33' 771	4.8	4.73	2093.3	4689.0	Starting Mottibeam. (working well)
1200	12 35 100	067 33 825	8.9	4.83	2094.49	4700.2	Chg. Water
12:30	12° 37.641 N	067° 34.049 W	9.9	4.63	2097.65	4681.0	
12:55	12° 39.660 N	067° 34.231 W	7.1	4.43	2099.0	4505.7	Over OBS 218
13:00	12° 40.009 N	067° 34.263 W	11.9	4.53	2099.41	4513.9	
1330	12 42 418	67 34 482	10.8	4.43	2101.78	4446.5	
14:00	12° 44.763 N	067° 34.647 W	12.8	4.63	2104.18	4311.2	over OBS 217 - MMO shut down
14:30	12° 46.529 N	067° 36:326 W	262.1	4.73	2106.5	4190.2	
15:00	12° 49.764 N	067° 37.569 W	132.1	4.63	2109.2	4383.1	
15:30	12° 42 873 N	067° 36 522 W	129.3	4.93	2111.1	4522.1	
16:00	12° 47.787 N	067° 34.938 W	60.2	4.63	2114.01	4522.9	Change of duty
1614	12° 43.831	067° 34.555	7.3	4.63	2115.34	4391.6	SOL BOL 134
1626	12 44 742	67 34 741	22.4	4.23	2116.17	4321.3	over OBS 217
1630	12 44.994	67° 34 725	17.9	5.03	2116.44	4306.0	

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Cruise EW 4		JD 129-130		R/V Maurice Ewin Science Watch Log			Page 3033
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
17:00	12 47.392	67 34.927	5.5	4.63	2118.8	3999.5	
1718	12 49.820	67 35.050	12.0	4.73	2120.14	3742.9	over OBS 216
1730	12 49.759	67 35.135	9.0	4.73	2121.14	3502.6	
1800	12 52.235	67 35.353	5.5	4.83	2123.4	3274.2	
1830	12 54.702	67 35.524	3.1	4.53	2125.79	3244.6	
1833	12 54.900	67 35.595	6.3	4.53	2125.95	3238.6	over OBS 215
1900	12 56.950	67 35.785	12.9	4.53	2127.98	3463.3	
1930	12 59.317	67 35.994	9.6	4.33	2130.22	3715.4	
1936	12 59.900	67 36.047	6.3	4.53	2130.79	3725.5	over OBS 214
20:00	13 01.735	67 36.210	11.1	4.53	2132.6	3735.2	Change Shift
2030	13 03.900	67 36.404	10.0	4.63	2134.7	3903.3	
2042	13 05.058	67 36.516	13.4	4.73	2135.9	4071.4	over OBS 213
2100	13 06.284	67 36.621	9.59	4.93	2137.2	4128.2	
2130	13 08.649	67 36.829	10.8	4.63	2139.69	3931.4	
2200	13 11.106	67 37.052	8.1	5.03	2142.31	4177.7	*A
2145	13 10.134	67 36.942	9.5	4.83	2140.	4055.	over OBS 212
2230	13 13.396	67 37.246	9.1	5.03	2144.65	4382.1	
2253	13 15.216	67 37.398	7.5	4.8	2146.57	4531.2	over OBS - 211
2300	13 15.725	67 37.455	6.4	5.9	2147.0	4586.3	
2330	13 18.052	67 37.680	8.1	4.93	2149.43	4706.8	
2345	13 19.662	067 37.817	3.8	4.7	2151.3	4860.2	There is a Problem with Hydroweep.
2355	13 20.197	067 37.872	4.2	4.9	2151.6	4863.4	OVER OBS - 210
2400	13 20.352	067 37.887	5.8	4.7	2151.7	4847.2	Change of Duty.
0030	13 22.921	67 38.116	7.2	5.03	2154.36	5107.4	
0100	13 25.308	67 38.331	352.2	4.13	2156.73	5106.4	
0100	13 25.374	67 38.339	358.5	5.13	2156.81	5102.3	over OBS - 209
01:30	13 27.707 N	067 38.543 W	359.4	7.93	2159.15	5104.2	
02:00	13 30.084 N	067 38.757 W	358.7	4.93	2161.55	5091.2	

Cruise EWC 4		JD 130	R/V Maurice Ewin Science Watch Log					Page 34
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
02:04	13°30.452 N	069°38.795 W	3.7	4.83	2161.93	5095.3	Over OBS 208	
02:30	13°32.468 N	069°38.476 W	356.1	4.93	2163.97	5088.1		
03:00	13°34.828 N	067°39.192 W	1.6	5.13	2166.2	5089.1		
03:09	13°35.532 N	069°39.258 W	5.2	5.03	2167.2	5082.2	Over OBS 207	
03:30	13°37.174 N	069°39.403 W	3.2	5.03	2168.9	5084.2		
04:00	13°39.366 N	069°39.602	6.6	5.03	2171.6	5100.3	Change the duty	
04:17	13.40.608	067.39.711	6.2	5.13	2172.4	5090.1	OBS 206	
0430	13 41.625	067 39.802	4.5	4.73	2173.41	5090.1		
0500	13.43.884	067.40.007	4.65	4.93	2176.3	5091.2		
05:24	13.45.684	067.40.166	1.9	4.73	2178.2	5095.2	OBS 205	
05:30	13.46.092	067.40.206	359.6	4.53	2178.7	5101.		
06:00	13.48.381	067.40.396	359.0	5.13	2181.2	5094		
06:30	13.50.766	067.40.619	359.4	5.03	2183.6	5098.3	OBS 206 204	
07:00	13.53.010	067.40.832	3.6	4.83	2186.0	5094.2		
07:30	13.55.367	067.41.041	358.1	5.03	2188.6	5099.3		
07:37	13.55.842	067.41.072	-	-	-	-	OBS 205 204 203	
08:00	13.57.637	067.41.248	357.5	4.83	2190.9	5102.3	Change Shift	
0830	13 59.946	067 41 458	35.4	5.03	2193.47	5099.3		
0843	14 00 924	067 41 540	35.7	4.83	2194.54	5125.7	OBS 204 203 202	
0900	14 02 141	067 41 651	358	5.03	2195.84	5101		
0930	14 04 470	067.41.854	357.	5.03	2198	5106		
0950	14 06 000	067.41.996	355	5.0	2200.11	5099	Over OBS 201 - End line 13A	
1000	14 06 711	067 42 367	319	4.93	2200.81	5098.3	Turning to 12B	
1030	14° 08' 470	067° 44' 056	328	4.93	2203.2	5145.2		
1100	14 10 231	67 43 643	68.2	4.73	2205.81	5106.4		
1130	14 08	67 42	176.5	4.43	2207	5107	Start Bol 12B.	
1137	14 08.163	67.42.222	169.1	4.63	2208	5101	Fix shot spacing from 150 to 50 m.	
							Beginning of line at 50m shot was shot # 38.	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
12:00	14° 06' 468	067° 42' 053	169	4.13	2.210	5.110	Change of Duty.
12:06	14° 06' 000 N	067° 41.987 W	173.1	4.03	2.210.71	5.102	Over OBS 201
12:30	14° 03.950 N	067° 41.818 W	167.7	4.73	2212.3	5.094	
13:00	14° 01.536 N	067° 41.603 W	169.8	4.03	2214.53	5.106.1	
13:09	14° 00.926 N	067° 41.544 W	172.3	4.33	2215.15	5.102.1	Over OBS 202
13:30	13° 59.164 N	067° 41.386 W	179.6	4.23	2216.69	5.102.3	
14:00	13° 56.763 N	067° 41.179 W	180.1	4.03	2218.8	5.108.1	
14:12	13° 55.870 N	067° 41.079 W	170.1	4.13	2219.78	5.100.3	Over OBS 203
14:30	13° 54.434 N	067° 40.962 W	183.1	4.53	2220.2	5.103.2	
15:00	13° 52.052 N	067° 40.756 W	172.8	4.13	2223.16	5.097.6	
15:16	13° 50.766 N	067° 40.626 W	169.1	4.33	2224.24	5.104.4	Over OBS 204
15:30	13° 49.657 N	067° 40.533 W	167.7	4.43	2225.27	5.099.3	
16:00	13° 47.266 N	067° 40.310 W	167.2	4.83	2227.6	5.093.2	Change of duty
16:20	13.45.684	067.40.167	165.5	3.93	2228	5.094.	OBS 205
16:30	13.44.901	067.40.097	169.6	4.53	2229.6	5.092.2	
17:00	13.42.581	067.39.886	165.8	4.23	2231.75	5.099.3	Sea Turtle sighting. 1 Gun, 16200
17:26	13.40.608	067.39.720	162.7	4.53	2233.3	5.092.2	OBS 206
17:30	13.40.428	067.39.679	165.7	4.73	2233.8	5.094.2	
18:00	13.38.060	067.39.483	165.0	4.33	2236.02	5.087.1	
18:30	13.35.636	067.39.257	171.8	4.23	2238.3	5.083.0	
18:31	13.35.532	067.39.251	167.6	4.53	2238.4	5.082.0	OBS 207
19:00	13.33.200	067.39.053	165.6	4.63	2240.50	5.098.3	
19:30	13.30.791	067.38.826	166.4	4.53	2242.8	5.099.4	
19:44	13.30.450	067.38.902	163.7	4.23	2243.1	5.090.1	OBS 208
20:00	13.28.533	067.38.619	169.8	4.43	2244.9	5.092.2	Change Shift
20:30	13.26.165	067.38.407	163.8	4.45	2247.2	5.099.3	
20:40	13.25.374	067.38.342	162.8	4.33	2247	5.112.5	OBS - 209
21:00	13.23.750	067.38.201	159.5	4.53	2249	5.106.4	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2130	13 21 308	67 37 974	164.6	4.83	2251.88	4796.8	over OBS
2144	13 20.292	67 37 888	162.1	4.63	2252.87	4859.9	Over OBS 210
2200	13 18 977	67 37 769	165.0	4.73	2254.11	4789.0	
2225	13 16 917	67 37.592	157.9	4.13	2256.07	4701.0	Gun 11 is broke, so they have to bring 12 + 11 in
2230	13 16 544	67 37 552	160	4.43	2256	4677	
2246	13 15 216	67 37.434	157.1	4.53	2257.71	4499.1	Over OBS 211
2300	13 14 162	67 37.334	157.3	5.03	2258.76	4458.6	
2315	13 12 857	67 37.221	161.5	4.43	2259.99	4265.6	Guns 4 + 12 back in water
2330	13 11 727	67 37 126	162.1	4.73	2261.07	4201.5	
2350	13 10 134	67 36 970	160.3	4.73	2262.62	4028.3	Over OBS 212
2400	13 09 404	67 36 907	164.4	4.63	2263.30	3842.0	
0030	13 06 925	67 36 690	164.3	4.63	2265.69	4110.8	
0055	13° 05.058 N	067° 36.460 W	167.2	4.83	2267.66	4099.1	Over OBS 213
01:00	13° 04.544 N	067° 36.479 W	166.6	4.93	2268.0	4077.1	
01:30	13° 02.153 N	067° 36.259 W	161.8	4.53	2270.2	3720.9	
01:57	13° 59.998 N	067° 36.026 W	159.8	4.63	2272.4	3741.4	Over OBS 214
0200	12° 59.729 N	067° 36.055 W	156.2	4.73	2272.6	3742.5	
02:30	12° 57.315 N	067° 35.824 W	159.9	4.83	2274.9	3506.2	
03:00	12° 54.947 N	067° 35.606 W	166.1	4.83	2277.4	3262.4	
03:00	12° 54.900 N	067° 35.604 W	166.1	4.83	2277.4	3262.4	Over OBS 215
0330	12 52 621	67 35 402	161.3	4.53	2279.47	3276.6	
0400	12° 50.293 N	067° 35.195 W	164.5	4.93	2281.7	3466.3	Change of duty (Hann)
0403	12 49 818	067 35 112	162.5	4.63			over OBS 216
0430	12° 48 008	067 34 987	160.5	4.93	2283.96	3961.1	
0500	12 45 733	067 34 794	157	4.33	2286.22	4318.0	
05:07	12.44.742	167.34.656					OBS 217
0530	12 43 415	67 34 576	158	4.73	2288.61	4503.4	

Cruise EW-04		JD 130, 131	R/V Maurice Ewing Science Watch Log				Page 17 37
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0600	12 41.086	67 34.370	164.9	5.13	2291.12	4564.2	
06:12	12 39.600	67 34.656					OBS 218
0630	12 38.433	67 34.150	172.1	4.93	2293.49	4591.1	
0700	12 36.315	67 33.941	173.1	4.63	2295.44	4716.6	
0721	12 34.580	67 33.792	172	4.63	2297.68	4726.0	OBS 219
0730	12 33.914	67 33.719	174.6	4.93	2299.32	4720.8	
0800	12° 31.576	67° 33.519	171.0	4.73	2300.75	4722.9	Change Watch
0826	12 29.502	67 32.832	177.4	4.93	2300.77	4710.5	OBS 220
0830	12 29.075	67 33.290	174	4.53	2303	4714	
0900	12 26.771	67 33.085	175.2	5.13	2305	4025	Hydrosweep gave incorrect values for 8 mins
0930	12 24.357	67 32.871	174.6	4.73	2308.37	2960	
0931	12 24.426	67 32.865	175.0	5.03	2308.38	2895.7	OBS 221
1000	12 21.904	67 32.658	170.7	5.13	2310.67	2229	
1030	12 19.558	67 32.450	173.1	5.13	2313.08	1545.1	
1032	12 19.344	67 32.430	168	5.03	2313.29	1512.0	OBS 222
1043	12 18.459	67 32.388	170.5	4.73	2314.20	1351.8	Gun 8 is off
1100	12° 17' 321	067° 32' 210	177	4.83	2315.3	1.113.2	
1130	12 14.733	067 32 011	172.8	4.83	2318	819.41	
1136	12 14.268	67 31.976	170.3	4.93	2318.51	749.81	Over OBS 223
1200	12 12.393	67 31.802	175.1	4.93	2320.42	388.01	
12:30	12° 09.980 N	067° 31.580 W	174.6	4.73	2322.85	375.71	
1240	12 09.098	67 31.506	173.0	4.63	2323.81	367.01	over OBS 224
1300	12° 09.519 N	067° 31.366 W	171.5	5.03	2325.41	349.1	
13:30	12° 05.152 N	067° 31.146 W	173.8	4.13	2327.9	321.51	
13:43	12° 04.110 N	067° 31.062 W	176.9	4.63	2329.0	315.8	Over OBS 225
14:00	12° 02.869 N	067° 30.994 W	178.5	5.13	2330.2	306.9	
14:30	12° 30.719 N	067° 00.352 W	176.4	5.13	2332.9	353.6	
1500	11 58 027	67 30 516	173.9	4.93	2335.18	607.81	

Cruise EW 04		JD 132		R/V Maurice Ewing Science Watch Log				Page 39
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
0500	11.54.212	67.19.076	23.4	4.83	2402.9	728.01		
0530	11.56.489	67.18.288	20.9	5.13	2405.2	449.91		
0600	11.58.934	67.17.439	26.8	4.73	2407.8	252.21		
0630	12 01.260	67.16.630	29.7	4.73	2410.7	933.71		
0700	12.03.584	67.15.813	28.0	4.73	2412.5	2411.574		
0730	12.05.828	67.15.022	29.4	4.23	2414.7	2411.9		
0800	12.07.930	67.14.275	24.2	4.53	2416.8	3042.6	Shift Change	
0808	12 07 862	67 14 320	24.2	4.53	2417	3043.2	EOL 15 / start turn	
0830	12 10 330	67 14 190	30.9	4.83	2419.22	5995.1	Turning to line 16	
0900	12° 10' 120	067° 16' 634	238	4.63	2421	2.389.		
0930	12 09 071	67 18 805	209.3	5.03	2424	1698.5		
1000	12° 07' 362 N	067° 18' 721 W	121.2	4.73	2426	1490.		
1019	12 07 282	067 17 104	104.7	4.53	2428	2496	First shot #24 SOL 16	
1030	12 07 239	67 16 428	98.7	4.93	2428	2432		
1100	12° 07' 219 N	067° 14' 322	97.2	4.73	2431	2.755		
1130	12 07 175	067 12 262	91.9	5.23	2433	3987		
1200	12 07 145	067 10 937	95.1	4.73	2435	3519	End of Shift	
1219	12 07 115	67 08 442	93.5	4.93	2437.53	5501.8	CBD is approx 2x what it is expected to be according to bridge	
1223	12 07 107	67 08 230	87.3	4.33	2437.82	3750.2	Richard began work on hydrosweep	
1230	12 07 107	67 07 810	87.7	4.33	2438.29	2958.2	problem with hydrosweep apparently fixed	
1300	12 07 067	67 05 694	86.8	4.83	2440.65	1760.8		
1330	12° 07.027 N	067° 03.468 W	85.0	4.63	2443.1	1606.2		
1400	12° 06.986 N	067° 04.282 W	83.6	5.23	2445.89	1501.2		
1430	12 06 956	66 54 078	83.9	4.33	2447.85	277.71		
1500	12° 06.920 N	066° 56.829 W	80.8	4.73	2450.18	312.91		
1530	12° 06.881 N	066° 54.481 W	84.0	4.63	2452.6	351.81		
1600	12° 06.834 N	066° 52.088 W	90.8	5.03	2455.0	391.51	Change of Duty	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
16:30	12.06.796	66.49.658	90.1	4.53	2457.3	521.41	
17:00	12.06.755	66.47.236	89.5	4.73	2459.9	497.71	
17:30	12.06.708	66.44.826	88.5	4.83	2462.3	602.9	Gun GCS90 is broken
18:00	12.06.661	66.42.335	82.8	4.93	2464.7	686.2	Guns fixed 17:42 Sperm whale
18:30	12.06.612	66.39.923	83.2	4.43	2467.2	1081.2	Ramp down
19:00	12.06.576	66.39.447	86.7	4.23	2469.6	985.5	Starting ramp-up
19:30	12.06.527	66.35.023	90.6	4.53	2471.8	989.5	finished rampup - turtle rampdown again
20:00	12.06.406	66.32.637	109.5	5.03	2474.	1187.1	885
20:30	12 05 762	66 30 414	110.1	4.73	2476	1333	
21:00	12 05 108	66 28 158	105.9	4.83	2478	939.71	
21:30	12 04 374	66 25 726	105	4.73	2481	1625	
22:00	12 03 746	66 23 574	108	4.93	2483	2208	
22:30	12 03 069	66 21 340	109	4.73	2486	2403	
23:00	12 02 496	66 19 353	111	4.93	2488.6	2473.9	
23:30	12 01 825	66 17 101	113.8	4.23	2490.9	2362.5	
24:00	12 01 211	66 15 033	108.3	4.63	2493	2082.5	End of Watch
00:30	12° 00.553 N	066° 12.812 W	112.6	4.33	2495.21	1868.4	
01:00	12° 59.888 N	066° 10.579 W	106.1	4.53	2498.1	2059.1	
01:30	11° 59.225 N	066° 08.349 W	101.6	4.33	2500.7	1367.1	
02:00	11° 58.542 N	066° 06.058 W	103.1	4.63	2502.5	843.21	
02:30	11° 57.889 N	066° 03.830 W	111.4	4.73	2504.9	910.91	
03:00	11 57 234	66 01 651	109.2	5.03	2507.39	96.31	
03:30	11 56 595	65 59 494	111.8	4.83	2509.75	745.81	
04:00	11° 55.973 N	065° 57.375 W	112.2	4.83	2512.6	1045.3	Change of duty
04:30	11.55.362	065.55.311	112.7	4.73	2514.4	1051.3	
05:00	11.54.729	65.53.144	121.7	4.93	2516.8	1155.0	
05:30	11 54 116	65 51 146	123.5	4.53	2519.29	1260.9	

Cruise EW 04		JD 133		R/V Maurice Ewir Science Watch Log				Page 41
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
0600	11 53.519	065 49.133	115.9	4.93	2521.71	1403.9		
0630	11 52 970	65 47.138	117.7	4.23	2524.08	1552.1		
700	11 52 319	65 45 089	114.9	4.83	2526.43	1729.7		
07:30	11. 51.731	65.43. 079	108.3	4.33	2528.7	1990.2		
0800	11° 51' 105	065° 41' 000	106	4.03	2531	2,341	Change of Dty.	
0830	11 50 512	065 39 002	101.2	4.53	2533.41	2997		
0900	11 49 906	065 37 994	104.1	4.93	2535.6	3417.6		
0930	11° 49' 247	065° 34' 844	113	4.5	2538	3940	End of line 46	
1000	11° 47' 311	065° 34' 631	105	5.0	2540	3010		
1030	11 45 207	065 36 236	271	4.83	2542	2801	Turning to line 47	
1100	11 46 047	65 37 1135	31.8	4.83	2545	2831		
1114	11° 48' 228	065° 36' 828	020	4.7	2545	3268	start of line 47	
1130	11° 49' 325	065° 36' 678	028	4.7	2547	3.545		
1200	11 51 494	65 36 396	15.1	4.7	2550	3201	End of Shift	
1230	11 53 801	66 36 106	12.9	4.23	2552.73	3043.1		
1300	11° 56.091 N	065° 35.833 W	15.6	4.73	2555.10	3926.7		
1330	11 58 353	65 35 547	12.4	5.33	2557.61	3960.2		
1400	12° 00.659 N	065° 35.269 W	17.3	4.93	2560.6	3972.2		
14:30	12° 02.868 N	065° 34.994 W	14.4	4.33	2562.38	3929.2		
15:00	12° 05.143 N	065° 34.706 W	13.5	5.23	2564.71	3926.1		
15:30	12° 07.485 N	065° 34.427 W	17.2	4.93	2567.7	4058.1		
16:00	12° 09.771 N	065° 34.141 W	16.4	4.33	2569.5	4058.7	Change of Duty	
1630	12 12.107	065 33.852	11.8	4.73	2571.85	4060.1		
1700	12 14.433	065 33.562	15.8	4.83	2574.19	4005.5		
1730	12 16.770	065 33.271	14.1	4.53	2576.54	3860.4		
18:00	12.19.138	65.32.990	5.7	4.73	2578.8	4057.9		
1830	12 21.599	65 32.685	6.4	4.63	25812.9	4452.2		
19:00	12.24.093	65.32.377	6.9	4.63	2583.6	480.2		

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1930	12 26.488	065 32.084	9.21	4.33	2585.85	4931.7	
2000	12 28.668	65 31.816	10.0	4.43	2587.90	4947.0	
2030	12° 31' 06.7	65° 31' 52.3	00.5	4.7	2590	4948	
2100	12° 33' 44.2	65° 31' 24.0	0.10	4.7	2592	4950	
2130	12 35 896	65 30 929	15.6	4.5	2594	4932	
2200	12 38 154	65 30 642	13.2	4.3	2596	4917.	
2230	12 40 570	65 30 349	7.6	4.73	2599	4911	
2250	12 42 365	65 30 121	6.1	4.95	2601	4911.	Seisnet down but still recording
2300	12° 42' 83.2	65° 30' 06.7	00.9	4.7	2601.6	4914	
2301	12° 42' 83.2	65° 30' 06.7	00.8	4.7	2601.8	4914.	Seisnet System, back on.
2330	12° 45' 16.0	65° 29' 77.7	0.10	4.3	2603	4904	
2400	12 47 767	65 29 463	7.6	4.63	2606	4907	End of Watch
0030	12 50 176	65 29 160	8.94	4.73	2608.71	4916.8	
0100	12 52 522	65 28 871	15.0	4.63	2610.96	4868.0	
0130	12 54 893	65 28 588	16.7	5.23	2613.29	4787.0	
0200	12 57 254	65 28 285	11.9	4.63	2615.70	4697.8	
02:30	12° 59.498N	065° 28.015W	14.6	4.73	2618.01	4577.5	
0300	13 01 878	65 27 730	15.8	4.73	2620.46	4435.7	
0330	13 04 198	65 27 436	14.5	4.83	2622.90	4361.3	
0400	13° 06.470 N	065° 27.556W	13.9	4.53	2625.2	4265.3	Change of duty
0430	13.08.760	65.26.874	8.9	4.83	2627.6	4200.3	
0500	13 11.237	65 26 559	8.52	4.73	2630.04	4132.5.	
0530	13.13.623	65.26.272	9.8	4.73	2632.4	4112.6	
0600	13 16.061	65 25.959	5.7	4.63	2634.74	4055.9	
0622	13 17.703	65 25 142	357.4	4.73	2636.44	4032.3	EOL 47
0700	13 18.082	65 27.897	196.4	4.13	2639.64	4073.3	
0730	13 15 820	65 27 533	167.6	5.03	2642.04	4109.5	
0734	13 15 538	65 27 442	166.3	5.03	2642.39	4117.8	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0800	13 13.531	65.26902	163.1	4.63	2644.35	4112.6	
0830	13 11.303	65.26283	160.5	4.53	2646	4121	
0900	13°08'9.09	65°25'6.43	157	4.7	2648	4181	
0930	13 06.651	65.25009	157	4.53	2651	4229.1	
1000	13 04.414	65.24402	159	4.83	2653	4239	
1030	13°02'08.5	065°23'76.1	159	4.9	2656	4321	
1100	12 59.722	65.23125	164	4.5	2658	4368	
1130	12 57.616	65.22541	157	4.7	2660	4452	
1200	12 55.311	65.21901	164.1	4.53	2663.20	4552.9	change of watch
1230	12 52.985	65.21268	157.0	4.73	2665.58	4642.8	
1300	12 50.640	65.20627	166.0	5.23	2667.98	4702.9	
13:30	12°48.366 N	065°20.000 W	166.1	4.63	2670.4	4771.5	
14:00	12°46.096 N	065°19.382 W	169.2	5.03	2672.6	4835.1	
14:30	12°43.747 N	065°18.745 W	161.5	4.83	2675.4	4840.1	
1500	12 41.596	65.18143	177.8	4.63	2677.73	4845.2	
1530	12°39.302 N	065°17.640 W	163.8	4.83	2680.2	4848.2	
15:50	12°37.687	065°17.155 W	172.7	4.53	2681.8	4832.1	Seisnet back on
16:00	12°37.091 N	065°16.999 W	170.7	4.73	2682.6	4840.2	Change of duty
1630	12.34.838	65.16.373	168.5	4.93	2685.0	4850.4	
1700	12 32.479	65.15741	163.0	4.93	2687.3	4850.4	
17:30	12.30.654	65.15.074	165.3	4.33	2689.73	4851.5	
1800	12 27.603	65.14.441	164.2	4.53	2692.0	4877.4	
1830	12.25.402	65.13.813	166.0	4.33	2694.2	4877.3	
1900	12 23.296	65.13.246	168.2	4.23	2696.31	4832.5	
1930	12 20.921	65.12.602	159.5	4.63	2698.68	4423.4	
20:00	12.18.636	65.11.981	162.4	4.83	2701.	4414.1	Change Shift
2030	12 16.38	65.11.379	163.6	4.73	2703	3838.94	
2100	12 14.079	65.10.738	164	4.73	2705	3662	

Cruise EW 4		JD 134		R/V Maurice Ewir Science Watch Log			Page 144
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
21:30	12 11.693	65 10.102	164.4	5.03	2708.47	3216.0	
2200	12 09 268	65 09 449	164	4.93	2710	2671.6	
2230	12 07 293	65 08 912	166	4.93	2713	2297.9	
2300	12 05 014	65 08 298	161	5.13	2715	2021	
2330	12 02 715	65 07 663	161	4.53	2717	1931	
2400	12 00 483	65 07 050	165	4.73	2720	2024	End of Shift - Seismologist
0003	12 01 92	65 06 966	165	4.93	2720	2064	over OBS 501
0030	11 58 106	65 06 402	165.5	5.03	2722.80	2382.8	
01:00	11° 55.855 N	065° 05.771 W	160.5	4.83	2725.1	2361.6	
01:30	11° 53.585 N	065° 05.156 W	167.8	4.93	2727.5	2270.6	
02:00	11° 51.293 N	065° 04.512 W	167.6	4.73	2730.04	1797.6	
0230	11 48 915	65 03 872	167.3	4.63	2732.36	1396.8	
03:00	11° 46.541 N	065° 03.233 W	172.6	4.33	2734.6	1596.2	
03:10	11° 45.859 N	065° 03.074 W	164.7	4.43	2735.57	1901.1	Over OBS 502
03:30	11° 44.297	065° 02 605	163.2	4.43	2736.1	2244.6	
04:00	11° 42.035 N	065° 01 483 W	168.7	4.73	2739.1	2588.2	Change of duty
4:30	11 39 752	065 01 363	165.8	4.73	2741.04	2582.4	
500	11 37.508	65. 00.736	166.1	4.83	2743.97	3057.3	
530	11 35.274	65 00.131	168.9	4.73	2746.37	2911.5	
600	11 33.060	64 59.526	169.3	4.83	2748.76	2280.5	
06:22	11 31.330	64 59.120	167.3	4.63	2750.46	2269.5	over OBS 503
0630	11 31.004	64 58.965	162.6	4.83	2751.14	2260.5	
0700	11 28.927	64 58.393	164.5	4.93	2753.55	2196.9	
0730	11 26.844	64 57.822	157.2	4.93	2756.04	2068.8	
0800	11 24.734	64 57.247	165.9	5.23	2758.24	1904.06	change of duty
0830	11 22.490	64 56 633	161	4.93	2760	1755	
0900	11 20 28	64 56 025	162	5.33	2763	1545.1	
0930	11 18 115	64 55 436	158	5.13	2765	1345	

Cruise EW 4		JD 135		R/V Maurice Ewin Science Watch Log			Page 45
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0943	11 17 196	64 55 160	163	5.3	2767	1175	over OBS 504
1000	11 15 967	64 54 844	164	5.4	2768	1048	
1030	11 13 781	64 54 250	167	4.9	2770	799	
1100	11 11 519	64 53 630	159	4.8	2773	8485	
1130	11 09 132	64 53 979	166	5.1	2775	272	
1200	11 06 823	64 52 349	159	5.0	2778	139	
1203	11 06 390	64 52 236	158.8	4.93	2779.06	137.91	down to 1 gun due to MMO power ^{power} down
1205	11 05 990	64 52 122	155.3	5.03	2779.47	118.21	3.5 kHz turned down
1224	11 04 734	64 51 754	171.0	4.93	2780.76	110.41	ramp up begins
1230	11 04 392	64 51.674	166.0	4.93	2784.13	101.61	
1254	11 02 521	64 51 164	165.6	4.63	2782.99	98.71	over OBS 505
1300	11 02 120	64 51 057	165.6	4.33	2783.38	99.61	
13:30	10° 59.787 N	064° 50.419 W	162.7	4.63	2785.6	130.41	
14:00	10° 57.467 N	064° 49.789 W	166.5	4.63	2788.1	220.1	
1430	10 55 163	64 49 153	168.2	4.43	2790.40	272.01	
15:00	10° 52.916 N	064° 48.531 W	163.2	4.53	2792.66	266.01	
1530	10 50 527	64 47 884	164.8	4.73	2795.01	277.81	
15:56	10° 535.0 N	064° 47.334 W	164.3	4.53	2797.1	338.41	Over OBS 506
16:00	10° 48.282 N	064° 47.273 W	163.1	4.43	2797.3	346.01	Change of duty
16:30	10.45.980	064.46.673	161.5	4.73	2799.8	473.9	
17:00	10.43.717	064.46.019	165.3	4.63	2801.7	538.61	
1730	10 41.387	064 45.384	162.5	4.63	2804.09	536.11	
18:00	10.38.969	64.44.719	164.2	4.73	2806.4	803.11	
18:30	10.36.710	64.44.095	164.2	4.63	2808.7	1102.3	
19:00	10.34.420	64.43.475	167.4	4.63	2811.03	1369.8	
19:03	10.34.200	64.43.421	166.0	4.33	2811.25	1379.8	Over OBS 507
19:30	10.32.214	64.42.876	169.2	4.63	2813.3	1392.8	
20:00	10:30:623	64.42.280	167.9	4.63	2815.5	1380.8	Change Shift

Cruise EW 4		JD 135 1136		R/V Maurice Ewin Science Watch Log			Page 46	
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
2030	10 27 660	64 41 640	172	4.83	2817	1331		
2100	10 25 340	64 41 003	166	4.6	2820	980		
2130	10° 23' 165 N	064° 40' 442	167	4.5	2822	439		
2200	10 20 601	64 39 863	113	4.43	2825	78.11	End of line 19, turning back	
2230	10° 21' 344	064° 37' 966	358	4.7	2827	103	to 20, shooting 60 sec.	
2300	10 22 796	64 39 335	277	5.57	2829	149.8	Turning to Bot 20-	
2322	10 23.765	64 40.591	325.9	4.73	2831.64	834.41	SOL 20, obs shooting space	
2330	10 24.391	64 40.785	342.0	4.73	2832.34	912.91		
2400	10° 26' 508	064° 41' 317	334	4.7	2834	1081		
0030	10° 28.780 N	064° 41.946	342.7	4.53	2836.9	1359.8		
0100	10 31 648	64 42 573	341.1	4.73	2839.31	1384.8		
0130	10° 33.381 N	064° 43.201 W	346.7	4.93	2841.7	1383.8		
0200	10° 35.695 N	064° 43.832 W	342.2	4.63	2844.21	1213.9		
0230	10° 38.015 N	064° 44.468 W	343.7	4.73	2846.4	899.1		
0300	10° 40.335 N	064° 45.097 W	347.2	5.03	2849.07	610.8		
0330	10 42 676	64 45 737	344.0	4.83	2851.53	476.91		
0400	10° 44.983 N	064° 46.363 W	343.3	4.73	2853.95	507.51	Change of duty	
0430	10° 47.307	064 46.98	347.3	4.93	2856.41	387.41		
446	10 48.534	064 47.334	349.0	5.03	2857.72	332.71	Change of duty Over OBS 506	
500	10° 49.570	064 47.623	346.6	4.73	2858.82	297.71		
0530	10 51.826	064 48.236	352.6	4.53	2861.19	262.31		
0600	10° 54.198	64 48.888	349.6	4.43	2863.57	250.51		
630	10 56 572	64 49.541	348.8	4.43	2865.90	268.81		
700	10 58 873	64 50 163	348.4	4.83	2868.11	158.61		
730	10 01 318	64 50 840	343.3	4.03	2870.36	99.71		
740	11 02 168	64 51 057	346.5	4.03	2871.08	100.61	Gradual turn to left around fishing boats	
751	11 02.868	64 51.497	330.0	4.03	2871.84	106.11	Over OBS 505 - not directly on line	
755	11 03.157	64 51.680	326.9	4.43	2872.11	106.51	Guns 9-12 off	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0800	11°03.395	64 51.834	329.2	4.13	2872.31	106.71	
0830	11°05'409	064°53'236	355	4.7	2874.5	140	
0900	11°07'868	064°53'300	015	4.4	2876.6	174	
0930	11°10'059	064°53'264	353	4.4	2878	341	
1000	11°12'213	064°53'821	357	4.1	2880	342	
1030	11°14'615	064°54'483	345	4.2	2883.3	891	
1100	11 16 856	64 55 087	352	4.1	2885.3	1156	
1103	11 17 196	64 55 188	352	4.1	2885.6	1208	- OVER OBS 504
1130	11 19 148	64 55 723	351	4.2	2887.5	1465	
1200	11 21 503	64 56 355	350	4.1	2889	1630	End of Watch -
1230	11 23 864	64 57 005	349.7	4.53	2891.94	1850.3	
1300	11°26'230	64°57'656	350	4.5	2894	2042	
1330	11°28.579 N	064°58.306 W	349.0	4.43	2896.4	2189.8	
1400	11°30.862 N	064°58.924 W	346.4	4.43	2898.5	2257.5	
1409	11°31.532 N	064°59.090 W	347.1	4.53	2899.3	2270.1	OVER OBS 503
14:30	11°33.155 N	064°58.895 W	70.3	4.63	2900.8	2214.1	dead whale sighted by SJII
15:00	11°33.082 N	064°56.729 W	96.4	4.43	2903.2	1937.8	shut down due to whale sightings
15:30	11°32.520 N	064°54.754 W	150.5	4.93	2905.6	1608.2	
16:00	11°31.016 N	064°56.165 W	286.1	4.83	2908.09	1971.0	Change of Duty
1630	11° 31 497	664° 58.866	772.2	4.53	2910.52	228.4	
1700	11 31 935	065 01.340	268.9	4.43	2912.75	266.5	
1730	11 32 363	065 03 785	266.4	4.43	2914.96	2368.7	
1800	11 32 770	065 06 132	267.5	4.43	2917.10	2344.4	
1830	11 33 195	65 08.625	—	—	2919.10	2244.9	
1900	11 33 499	65 10 796	254.1	4.13	2921.59	2531.7	
1930	11 33.983	65 13.122	277.4	4.53	2923.95	2792.3	
2000	11 34.390	65 15.453	274.7	4.83	2926.33	2596.5	
2030	11° 34' 772	65° 17' 666	273	4.7	2928	2452	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2130	11° 35' 622	065° 22' 556	275	4.9	2933	1884	
2200	11° 36' 050	065° 24' 925	275	4.9	2935	2032	
2230	11° 36' 640	065° 27' 360	275	4.7	2938	1764	
2233	11 36 508	65 27 630	277	5.03	2938 2938	1725	- All Stop - Watches on hold - TBN
0000	11 37.786	65 39.599	273	4.5	2950	1459	
01:30	11° 37' 830N	065° 42.322W	271.5	4.73	2952	1350	
02:00	11° 37.830N	065° 44.600W	271.5	4.73	2954.2	1353.2	
02:30	11° 37.805N	065° 46.752W	270.5	4.73	2956.9	1223.9	
03:00	11° 37.835N	065° 49.180W	261.9	4.33	2959.2	1045.3	
03:30	11° 36' 346N	065° 50.140W	138.0	4.53	2961.2	826.41	
03:39	11° 36' 123N	065° 49.533W	94.5	4.33	2962.2	961.91	Birds 25, 26, 27, 28, out of range.
03:43	11° 36.138N	065° 49.497W	93.3	5.03	2962.63	978.61	All Bird in the range
04:00	11° 36.182N	065° 48.104W	92.9	4.53	2963.83	1300.8	Change of duty
4:30	11 36.178	065 46.061	92.7	4.23	2966.05	1180.8	
500	11 36.138	065 43.990	93.4	4.53	2968.17	1298.8	
530	11 36.189	065 41.811	92.6	4.33	2970.41	1367.0	
600	11 36 082	065 37.611	83.8	4.23	2974.8	1467.9	
630	11 36 084	065 36.810	84.5	4.33	2975.9	1469.3	
700	11 36 086	065 35.271	85.9	4.43	2977.19	1586.2	
730	11 36 070	065 33.309	89.8	4.53	2979.15	1609.2	
800	11 36.076	065.31.002	87.5	4.53	2981.39	1596.2	
830	11 36.084	065 25.00	90.8	4.53	2903.7	1644.3	
900	11 36.106	065 26.250	92.3	4.43	2985.8	2042.5	
9930	11 36 059	65 24 914	91.	4.3	2987	1974	
1000	11 36 037	65 21 575	90.5	4.4	2990	1996	
1030	11° 36' 063	65° 19' 142	90°	4.5	2992	2362	
1100	11° 36' 022	65° 16' 762	95°	4.5	2994	2712	
1130	11 25993	65 14459	88.8	4.4	2996	2898	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1200	11 36 342	65 12 249	71.3	4.33	2999	3287	
1230	11° 37.251 N	065° 09.689 W	68.3	4.53	3001.6	3001.7	
1300	11 38 550	65 07.554	66.3	4.33	3003.8	3485.7	
1330	11° 39.523 N	065° 08.632 W	77.0	4.03	3005.8	3742.4	
1400	11° 40.127 N	065° 03.501 W	82.1	4.53	3008.06	3763.4	
1430	11° 40.587 N	065° 01.297 W	77.5	4.63	3010.39	4094.6	
1500	11° 41.017 N	065° 59.201 W	78.5	4.33	3012.64	1500.2	
1530	11° 41.389 N	065° 57.282 W	78.5	4.63	3014.8	1541.1	
1600	11° 41.204 N	065° 55.503 W	170.4	5.13	3017.4	1516.0	Change of duty
1630	11 38.843	065 54.962	161.9	4.93	3019.55	1484.9	
1700	11 36.551	064 54.361	162.0	5.03	3022.04	1525.0	
1730	11 34.334	064 53.780	162.2	4.93	3024.38	1539.1	
1800	11 31.940	64 53.151	160.7	4.53	3026.85	1646.3	
1830	11 29.592	64 52.52	160.6	5.0	3029.27	1739.7	
1900	11 27.231	64 51.904	161.3	4.93	3031.51	1730.7	
1930	11 24.631	64 51.206	169.4	4.83	3034.08	1626.3	
2000	11 22.221	64 50.585	166.9	4.53	3036.42	1495	Change of Duty -
2030	11 19.980	64 50.000	170	4.63	3038.7	1324.8	Turning to Cse 137
2100	11° 19' 178	64° 52' 157	257	4.7	3042	1366	
2130	11° 19' 173	064° 54' 576	267	4.7	3043	1447	
2200	11 19 205	64 56 928	296	4.23	3046	1422	
2230	11° 21' 119	64° 55' 902	032	4.7	3048	1602	
2300	11° 21.640 N	064° 55.556 W	20.4	4.33	3049.4	1614.2	
2330	11° 22' 446	064° 54' 824	038	2.13	3050	1600	
2400	11° 23' 095	064° 54' 227	040	2.0	3051	1627	
0030	11 23 648	64 53 722	50.9	1.43	3052.29	1615.5	
0100	11 24 110	64 53 156	52.6	1.33	3053.02	1695.5	
0130	11 24 555	64 52.406	47.3	1.63	3053.85	1657.5	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0200	11 24 984	64 51 681	47.6	2.13	3054.65	1666.4	
02:30	11° 27.497 N	064° 52.258 W	343	11.0	3057.5	1758.8	
0231	11 27 762	64 52 860	338.8	10.7	3057.76	1760.8	3.5 kHz turned on
0300	11° 32.720 N	064° 54.322 W	341.6	10.7	3063.6	1564.1	
03:30	11° 37.917 N	064° 56.028 W	347.0	10.5	3068.3	1668.4	
04:00	11° 42.923 N	064° 57.583 W	347.4	11.2	3073.5	1531.0	Change of duty
0500	11° 53.957	65° 01.059	343.6	11.0	3084.79	2133.4	
0530	11° 59.488	65° 02.925	341.7	11.1	3090.3	2251.4	Approaching WPA
0545	12° 02.264	65° 03.641	15.1	9.62	3093.09	2140	Starting Hydrosweep survey
0600	12° 04.627	65° 03.092	14.6	10.1	3095.33	2188	
0630	12° 09.797	65° 01.931	14.0	9.51	3100.36	2894.2	
0700	12° 14.976	65° 00.767	13.9	9.61	3105.38	3627.0	
0730	12° 20.168	64° 59.610	14.5	9.72	3110.42	4736.2	
0800	12° 25.163	64° 58.485	15.5	10.4	3115.28	4743.4	Change of watch
0830	12 31.837	64 56.784	121.7	8.72	3121.81	4569.2	
0900	12 30.930	64 53.825	102.5	9.41	3125.14	4484.5	
0930	12 29.716	64 49.355	107.2	9.8	3130.18	4201.6	
10:00	12 28.506	64 44.928	106.4	10.2	3135.23	4045.	
10:30	12 24.533	64 43.594	174.0	10.2	3140.0	4443	
11:00	12° 19' 59.0	64° 43' 31.0	175	10.0	3145	4294	
1130	12° 15' 06.9	64° 43' 04.9	170	10.0	3150	3400	
1200	12 10 391	64 42 785	171.5	9.71	3155.33	3136.6	change of watch
1230	12° 06.484	64° 41.176	98.4	10.0	3160.25	2386.7	
1300	12° 06.169	64° 36.419	103.9	10.0	3165.33	1388.8	
1330	12° 05.598	64° 31.721	21.1	10.2	3170.38	1272.9	
1400	12° 10.620	64° 30.841	13.5	9.80	3175.35	2611.6	
14:30	12° 15.587 N	064° 29.942 W	13.6	10.0	3180.4	3109.2	
15:00	12° 20.537 N	064° 29.040 W	17.7	10.1	3185.2	3994.5	

Cruise EW 04		JD 138-139		R/V Maurice Ewing			Science Watch Log		Page 151
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments		
15:31	12° 25.121 N	064° 27.578 W	98.3	9.54	3190.3	4173.5			
16:00	12° 24.786 N	064° 23.401 W	102.6	9.91	3144.9	4091.9			
1630	12 24 400	064 19 282	169.8	10.0	3200.04	4010.7			
1700	12 20 244	064 19 730	177.2	10.3	3204.86	3411.5			
1730	12 15 572	064 20 288	180.5	10.3	3210.20	3414.4			
1800	12 10 966	064 20 831	180.4	10.8	3215.35	2895.1			
1853	12 10 519	064 29 242	242.9	10.4	3224.29	2319.1	Stopping hydrosweep survey - turning SW		
1900	12 09 664	064 30 259	220.3	10.4	3225.53	2242.3			
1930	12 05 231	064 33 875	211.1	11.1	3230.97	1181.0			
2000	12 01 559	064 37 951	240.5	11.7	3236.38	1734.7			
2030	11 58 611	64 43 426	199.3	11.3	3242	2467	- Steaming to Waypoint for Deploy of Eq.		
2100	11 53 211	64 44 920	194.8	10.9	3247	2395			
2130	11 47 910	64 46 352	189	10.9	3253	2178			
2200	11 42 437	64 45 597	193	11	3258	1730			
2230	11 38.199	64 48.643	193.7	4.51	3263	1445.0	- Starting to deploy equipment.		
2247	11 36.980	64 48.928	190.0	4.31	3264.2	1432.0	One gun in the water shooting		
2300	11° 36' 392	64° 48.552	110	4.5	3265	1492	Two guns		
23:30	11 35.48	64 46.111	112	5.51	32678	1688	Deploying streamer		
24:00	11 34.712	64 44.123	110.1	5.41	3269.98	1658.4			
00:30	11° 33.780 N	064° 41.706 W	116.9	5.11	3272.66	1569.1			
01:00	11° 32.795 N	064° 39.580 W	110.3	4.71	3274.9	1434.1			
01:01	11° 32.771 N	064° 39.536 W	110.2	4.61	3275.08	1426.1	Finish deploying streamer		
0114	11 32 638	64 38 618	76.5	4.41	3276.04	1375.8	4 guns 12, 5, 20 on, beginning of ramp up		
0118	11 32 663	64 38 355	80.9	4.11	3276.30	1366.8	8 guns in the water (1-5, 14, 17, 20)		
0126	11 32 732	64 37 713	80.2	4.51	3276.93	1362.8	12 guns in the water (1-7, 14, 17-20)		
0130	11 32 763	64 37 457	77.4	4.81	3277.14	1379.8			
0132	11 32 788	64 37 250	79.0	4.51	3277.41	1467.9	15 guns in the water (1-7, 13-20)		
0143	11 32 880	64 36 470	80.3	4.81	3278.22	1368.8	16 guns in the water (1-8, 13-20)		

Cruise EV 04		JD 139		R/V Maurice Ewi Science Watch Log				Page 252
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
0156	11 32 982	64 35 430	81.6	4.51	3279.31	1473.9	17 guns on (1-8, 10, 13-20)	
0200	11 32 990	64 35 211	88.9	4.91	3279.54	1445.9	18 guns on (1-10, 13-20)	
02.30	11° 33.024 N	064° 32.865 W	90.5	5.11	3282.3	1368.8		
0300	11 33 096	64 30 534	87.7	5.31	3284.47	1239.9		
0330	11 33 207	64 28 170	82.2	4.91	3286.99	1020.4		
04.00	11° 33.358 N	064° 26.002 W	82.2	4.91	3289.3	854.21	Chance of doly	
0430	11 33 538	064 23 682	89.0	4.61	3291.88	715.11		
0500	11 34 586	064 21 707	95.1	4.61	3294.22	555.51		
0530	11 35 949	064 19 833	34.6	4.91	3296.65	238.71	SOL 26	
0600	11 38 275	064 19 411	8.2	4.61	3299.04	213.31		
0630	11 40 725	064 19 364	7.0	4.91	3299.98	194.81		
637	11 41 313	064 19 347	12.0	4.71	3302.00	213.01	Seisnet "crashed" shots ~ 169	
700	11 43 139	064 19 326	4.7	4.81	3303.76	191.21		
730	11 45 552	064 19 301	139.48	4.51	3306	138.31		
800	11 47 980	064 19 267	1.8	4.61	3308	167.21		
0830	11 50 463	064 19 245	7.2	4.3	3310	187		
0900	11 52 763	64 19 208	8.5	4.5	3313	147		
0930	11° 55' 336	064° 19' 164	012	4.5	3316	542		
1000	11° 57' 500	064° 19' 138	013	4.6	3317	845		
1030	12° 00 045	064 19 109	15.5	4.21	3320.1	995.51		
1100	12° 02' 580	064° 19' 082	016	4.5	3322	1189		
1130	12° 05' 155	064° 19' 061	010	4.1	3324	1386		
1200	12 07 585	64 19 009	18.3	4.0	3326	2009	Chy shift - Seisnet still out	
1230	12 10 327	64 18 967	16.4	3.8	3328	4081		
13.00	12° 12.836 N	064° 18.938 W	20.4	3.81	3330.4	3086.4		
1330	12 15 417	64 18 900	26.0	3.71	3332.37	3626.4		
14.00	12° 17.908 N	064° 18.865 W	31.9	3.71	3334.31	3749.6		
1430	12 20 599	64 18 813	27.7	3.91	3336.35	3766.9		

Cruise EV 104		JD 139-140		R/V Maurice Ewing Science Watch Log			Page 53
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1500	12 23 263	64 18 782	21.8	4.01	3338.38	3995.3	
1530	12 25 867	64 18 748	22.0	4.11	3340.40	3963.3	
1600	12 28 503	64 18 726	24.5	3.91	3342.31	3571.1	change of duty
1630	12 31.120	64 18 677	18.0	4.21	3344.28	3484.0	
1700	12 33 800	64 18 643	15.6	4.31	3346.34	3385.8	
1730	12 36 285	64 18 617	17.1	3.61	33 48 27	3342.9	
1800	12 38 867	64 18 587	14.0	3.99	33 50 27	3248.8	
1830	12 41.251	64 18 543	15.0	4.01	3352.07	3170.3	
1900	12 43 586	64 18 522	11.9	4.01	3354.25	3146.8	
1930	12 45 998	64 18 478	13.1	3.91	3356.56	3166.1	
2000	12 48 424	64 18 435	7.9	4.31	3358	3176	
2026	12 50 500	64 18 403	2.1	4.31	3360	3184	sun 6 out of water
2030	12 50 932	64 18 412	6.7	4.31	3360.46	3186	
2100	12 53 444	64 18 372	14.0	3.91	3362	3182	
2130	12 55 956	64 18 333	8.1	3.9	3364	3183	-
2143	12 57 100	64 18 317	8.1	4.11	3365	3197	sun 6 back on line
2200	12 58 551	64 18 314	8.6	4.21	3366	3222	
2230	13 01 037	64 18 274	6.17	3.81	3368.6	3229	
2300	13 03 572	64 18 234	8.7	3.61	3370.6	3245.8	
2330	13 06 148	64 18 196	7.8	3.81	33 72.5	3237	
2400	13 08 695	64 18 169	3.8	3.71	3374	3259	Change of duty.
0030	13 11 266	64 18 134	6.3	3.81	3376.56	3283.5	
0100	13 13 776	64 18 095	1.7	3.61	3378.57	3275.4	
0130	13 16 312	64 18 063	11.2	3.91	3380.59	3274.4	
02:00	13° 18.704 N	064° 18.037 W	5.6	3.91	3382.56	3270.3	
02:30	13° 21.196 N	064° 17.999 W	7.2	4.01	3384.6	3255.0	
03:00	13° 23.570 N	064° 17.939 W	9.6	4.41	3386.5	3239.0	
03:30	13° 25.256 N	064° 19.766 W	246.8	4.51	3389.00	3269.2	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
04:00	13° 23.615 N	064° 20.372 W	142.5	4.51	3391.28	3283.5	Change of duty.
0430	13° 23.050	064 18559	144.5	4.61	3393.64	3260.1	
0500	13 21 186	064 18 041	166.9	4.41	3396	3258.0	Stopping live 27 b/c no data is recording over OBS 301
0524	13 19 68	064 17 693	165	4.99	3397.96	3266.2	Power Down All Systems
0530	13 19.285	064 17 603	164	5.01	3398.46	3262.1	
0600	13 17.435	064 17 185	164.1	4.81	3400.85	3263.2	
0616	13 16 392	064 16 897	162.1	5.11	3402.48	3257.8	over OBS 302
0630	13 15 363	064 16 712	166.4	4.71	3403	3521.9	
700	13 13 443	064 16 267	165.5	4.61	3405.88	3249.9	
728	13 11 685	064 15.823	161.7	5.51	3408.32	3242.7	over OBS 303
730	13 11 503	064 15.820	160.1	5.51	3408.41	3246.8	
800	13 09 579	064 15.384	162.2	5.01	3410.75	3226.4	
0830	13 07 621	64 14 939	162	5.01	3413	3201	
0839	13 07 027	64 14 790	162	4.81	3414	3197	over OBS 304
0900	13 05 727	64 14 501	163	4.91	3415	3190	
0930	13 03 851	64 14 047	166	4.81	3417	3182	Recording Again / Gun 11 out / NO Seisnet
0933	13 03 645	64 14 029	162	4.91	3418	3177	- Gun 11 Back on line
0953	13 02 37	64 13 710	167	4.91	3420	3186	- over OBS 305
0954	13 02 225	64 13 693	165	4.81	3420	3182	- Ramp down - 1 Gun Whales King Boat
1000	13 01 929	64 13 632	165	4.91	3420	3180	-
1030	13 00 098	64 13 215	163	4.6	3422	3181	-
1031	13 12 59 931	64 13 177	163	4.6	3423	3172	- Begin Rampup - shot 286 / 13252
1100	12 58 109	64 12 756	161	4.9	3425	3165	-
1101	12 58 57.982	64 12 727	161	4.9	3425	3165	- 11 Guns firing shot 310 / 13276
1105	12 57 716	64 12 661	166	4.71	3425	3167	- over OBS - 306
1130	12 56 124	64 12 303	166	4.8	3427	3148	
1148	12 54 838	64 12 002	162	4.9	3429	3133	- Rampdown to 1 - Dolphins
1200	12 54 104	64 11 854	165	4.61	3430	3124	

Cruise EV 04		JD 140		R/V Maurice Ewi Science Watch Log				Page 155
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
12:16	12° 53.053 N	064° 11.590 W	162.7	4.71	3431.6	3109.0	Over OBS 307	
12:30	12° 52.052 N	064° 11.372 W	162.5	4.61	3432.7	3098.0		
1300	12 50 033	64 10 913	163.7	4.71	3435.15	3086.6		
13:25	12° 48.396 N	064° 10.502 W	161.0	4.31	3437.19	3076.8	Over OBS 308	
13:30	12° 48.072 N	064° 10.468 W	158.3	4.61	3437.51	3068.3		
14:00	12° 46.054 N	064° 10.005 W	159.6	5.01	3439.98	3043.0		
1430	12 44 230	64 09 584	155.4	4.71	3442.39	3038.8		
1437	12 43 739	64 09 463	156.0	5.01	3443.06	3028.6	over OBS 309	
15:00	12° 42.410 N	064° 09.163 W	155.6	4.91	3444.8	3031.5		
15:30	12° 40.220 N	064° 08.735 W	154.9	4.81	3447.3	3029.5		
1555	12 39 079	64 08 401	155.7	5.11	3449.34	3229.5	over OBS 310	
1600	12 38 782	64 08 334	153.0	5.11	3449.74	3247.8	change of duty	
1630	12 36 907	64 07 905	157.4	5.01	3452.27	3297.8		
1700	12 35 005	64 07 462	155.3	4.71	3454.73	3324.4		
1709	12 34.4208	64 07 341	155.6	5.21	3455.42	3340.8	over OBS 311	
1730	12 33 035	64 07 023	153.8	5.01	3457.22	3364.6		
1800	12 30 957	64 06 543	156.1	4.81	3459.05	3298.9		
1818	12 29 762	64 06 271	158.7	4.61	3461.33	3266.2	over OBS 312	
1830	12 29 034	64 06 120	159.4	5.01	3462.26	3326.2		
1900	12 27 155	64 05 682	151.2	5.01	3464.60	3449.1		
1930	12 25.292	64 05 257	157.0	4.91	3467.85	3403.2		
1932	12 25.104	64 05 214	161.5	4.61	3467.28	3397.1	over OBS 313	
2000	12 23 372	64 04 821	157.4	5.01	3469.51	3459.5		
2030	12 21 360	64 04 365	157.5	4.9	3471	3641		
2044	12 20 44	64 04 09	158	4.7	3473	3594	OBS 314	
2100	12 19 462	64 03 925	158.	4.9	3474	3541		
2125	12 17 81	64 03 492	154	5.41	3476	3381		
2159	12 15 788	64 03 084	154	5.11	3479	3298	over OBS 315	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2200	12 15 720	64 03 071	155	5.21	3479	3294	
2230	12 14 149	64 02 709	155	5.21	3482	3192	
2300	12 12 577	64 02 358	149	4.61	3484	3151	
2326	12 11.1276	64 19 704	149	5.01	3487	3107	Crossing over OBS 316
2330	12 11.041	64 02.008	148.1	4.81	3487	3102	
2400	12 09 646	64 01 687	145	5.11	3489	2769	- end of Watch
0030	12 07 811	64 01 324	146.8	5.41	3492.48	2359.6	
0053	12° 06.468 N	064° 00.952 W	139.3	5.21	3494.68	2053.6	Over OBS 317
01:00	12° 06.174 N	064° 00.844 W	142.0	5.41	3495.18	1928.7	
0130	12 04 360	64 00 369	150.5	5.51	3497.47	2098.9	
0200	12 02 540	64 00 070	146.4	5.41	3500.63	1557.0	
0212	12 01 782	63 59 882	147.9	5.21	3501.84	919.81	over OBS 318
02:30	12° 00.781 N	063° 59.664 W	149.9	5.51	3503.31	788.61	
03:00	11° 58.889 N	063° 59.737 W	155.3	5.21	3506.13	333.91	
0314	11 58 140						
03:28	11° 57.150 N	063° 58.782 W	152.9	5.21	3508.7	325.41	Over OBS 319
03:30	11° 56.914 N	063° 58.776 W	151.2	5.41	3508.9	325.41	
04:00	11° 55.024 N	063° 58.341 W	151.5	5.31	3511.7	331.21	Change of duty
0430	11 52.740	63 57.831	157.3	5.41	3514.09	356.21	
0435	11 52 540	63 57 780	160.9	5.31			over OBS 320
0500	11 50.450	63 57 247	161.4	5.41	3516.97	391.21	
0530	11 48.147	63 56.773	164.3	5.51	3519.62	434.41	
0534	11 47.83	63 56.699	162.5	5.51	3520.01	447.71	over OBS 321
600	11 45.808	63 56 254	164.3	5.31	3522.36	607.81	
0630	11 43.575	63 55.740	164.2	5.01	3525.01	609.61	
0635	11 43 170	63 55 644	160.2	5.01	3525.48	614.01	over OBS 322
0700	11 41 309	063 55 225	165.2	5.11	3527.67	626.91	

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Cruise EV 04		JD 141		R/V Maurice Ewi			Science Watch Log		Page 14
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments		
0730	11° 38.998	63 54.688	165.6	5.01	3530.21	5914.71			
0735	11 38.514	63 54.585	165.6	5.01	3530.87	571.31	over OBS 323		
0800	11 36 566	63 54.136	164.4	5.21	3532.87	399.81			
0830	11 36 382	63 53.635	169.9	5.31	3535	226			
0835	11 33 85	63 54.475	169	5.31	3536	156	- OBS 324		
0900	11 31 855	63 53.068	167	4.91	3538	79			
0930	11 29 050	63 52.536	174	5.21	3540	69			
0934	11 29 196	63 52.451	170	5.21	3541	67	- OBS 325		
1000	11 27 204	63 52.016	171	4.91	3543	62			
1030	11 24 973	63 51.507	171	5.11	3545	51			
1035	11° 24' 557	063° 51' 403	174	5.3	3546	49	- over OBS 326		
1056	11° 22' 893	063° 51' 023	174	5.3	3548	44	GUNS 11 and 12 turn off		
1100	11° 22' 607	063° 50' 960	170	5.3	3548.6	43			
1114	11 21 641	63 50 397	114	5.4	3549	40	- Completed turn		
1128	11 21 133	63 49 396	122	4.6	3550	36	- All guns back firing		
1130	11 21 087	63 49 304	122	4.6	3550	36			
1200	11 20 058	63 47 247	118	4.5	3553	35	- Chg of Watch		
1204	11° 19.874 N	063° 50.305 W	121	4.81	3553.9	33	Over OBS 327		
1230	11 18 966	63 45 080	122.6	4.41	3555.83	34.21			
1242	11 18 528	63 44 228	119.2	4.81	3557.09	34.31	ramp up following MMO shut down for whales		
1300	11° 17.897 N	063° 42.470 W	118.7	5.11	3558.21	34.81			
1301	11 17 847	63 42 470	118.7	5.11	3558.21	34.81	cannon powerdown following whale sighting		
1330	11° 16.868 N	063° 40.923 W	123.8	4.61	3560.7	36.01			
1400	11° 15.560 N	063° 39.263 W	122.6	5.11	3563.1	35.11	ramp up begins		
1406	11 15 138	63 39 210	176.5	4.91	3563.67	37.91	over OBS 328, powerdown following whale sighting		
1437	11 12 853	63 39.056	177	5.01	3565.11	36.3	whale still with us		
1444	11 12 308	63 39.028	178	4.9	3566.74	34.2	order to deviate course to Port		
1500	11 11.046	63 38.966	169	5.2	3568.12	33.0	Stresser tension high (5501) Bridge called a few min ago Begin Turn to Port		

Cruise EV 04		JD 191	R/V Maurice Ewing Science Watch Log					58	Page 12
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments		
1508	11 10 393	63 38 693	155.8	4.61	3569.00	33.11	over OBS 329		
15:30	11° 08.969 N	063° 37.936 W	165.6	4.91	3570.6	34.41			
16:00	11° 06.675 N	063° 37.758 W	177.4	4.91	3573.07	33.81	Change of duty		
16:09	11 05890	063 37.719	176.5	5.21	3573.93	33.91	close to OBS 330		
1630	11 04 212	63 37.680	178.1	4.91	3575.67	33.61			
1700	11 01.836	63 37.537	179.7	5.41	3578.16	33.91			
1707	11 01.234	63 37.512	176.6	5.11	3578.77	34.51	Over OBS 331 (close to)		
1726	10 59.606	63 37.422	176.4	5.01	3580.56	34.11	Problem SunTrax 1872- last shot		
1730	10 57.208	63 37.857	181.0	4.81	3583.02	35.81			
1806	10 56.570	63 37.952	190.1	5.01	3583.68	36.41	OBS 332		
1830	10 54.711	63 38.392	186.3	4.71	3585.60	40.41			
1900	10 52.444	63 38.879	192.3	4.61	3587.90	43.91			
1906	10 51.913	63 39.024	191.3	4.51	3588.46	42.11	OBS 333		
1930	10 50.339	63 39.372	193	4.51	3590.11	39.41			
2000	10 47.775	63 39.949	191.3	4.81	3592.69	37.21			
2006	10 47.253	63 42.253	188	4.81	3593	37.41	- OBS 334		
2030	10° 45' 47.5	063° 40' 40.5	190	4.81	3595	33.21			
2042	10 44.502	63 40.322	130	4.91	3596	33.11	- End line 27		
2100	10 44.087	63 38.938	98	4.41	3597	34.4	- Turning to Bol 28		
2130	10 45.622	63 37.728	357	3.51	3599	41.11			
2150	10 47.253	63 42.918	356	4.81	3601	43	- Bol 28A - Start / OBS 334		
2200	10 47.960	63 37.834	357	4.51	3601	43			
2230	10 50.362	63 37.950	358	4.9	3604	43.5			
2246	10 51.711	63 38.016	358	5.11	3605	42	- Lost shots		
2258	10 52.711	63 38.067	353	5.8	3606	44	- 2 guns out / Returning to Restart line		
2300	10 52.819	63 38.081	350	4.9	3606	44	- Not Recording		
2330	10 53.148	63 39.919	198	4.4	3609	40.	- turning to Re-run 28A		
2400	10 50.784	63 40.054	175	4.7	3611	39.5	- Chg of Watch - X/EA!!!		

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
00:30	10° 48.358 N	063° 39.900 W	174.9	4.51	3613.9	39.51	
0045	10 47 241	63 39 510	126.1	4.91	3615.16	39.51	over OBS 334
0100	10 47 170	63 38 372	52.0	4.61	3616.39	39.51	
0101	10 47 261	63 38 244	44.8	4.91	3616.54	39.51	over OBS 334
01:30	10° 49.386 N	063° 37.895 W	356.5	4.71	3618.75	41.61	
0200	10 51 848	63 38 0026	1.5	4.81	3621.15	42.11	
0201	10 51 950	63 38 031	366.2	4.81	3621.26	43.31	over OBS 333
0230	10 54 238	63 38 137	356.6	5.01	3623.81	42.31	
02:58	10° 56.574 N	063° 38.246 W	354.6	4.91	3625.01	35.71	OVER OBS 332
03:00	10° 56.712 N	063° 38.255 W	358.2	4.91	3625.93	36.81	
0330	10 59 187	63 38 340	0.4.2	5.01	3628.34	33.41	
0356	11 01 245	63 38 747	349.3	4.71	3630.38	32.41	over OBS 331
0400	11 01 508	63 38 812	346.7	4.41	3630.66	32.61	
0430	11 03.949	63.39	356.2	4.71	3633.03	33.31	
0450	11 05.588	63.240	359.5	4.81	3635.42	34.01	over OBS 330
0500	11 06.388	63.240	359.5	4.71	3635.61	33.61	
0530	11 08 804	63 39 356	358.0	4.71	3637.83	33.11	
0548	11 10 254	63 39 383	7.5	4.71	3639.23	34.71	Guns 8, 9 + 10 are out due to turning
0552	11 10.550	63.39373	17.7	4.71	3639.52	33.91	over OBS 329
0600	11 11.130	63 39.107	19.4	4.41	3640.11	33.41	
0613	11 12.595	63.38.521	22.2	4.91	3641.63	36.41	Gun 8 Back on
0628	11 13 285	63 38.322	9.0	4.01	3642.33	35.31	Guns 9+10 back on, Guns 11+12 off
0630	11 13 422	63 38 305	7.2	4.81	3642.42	35.41	
0651	11 15.241	63 38.593	331.6	4.61	3644.22	36.5	over OBS 328
0700	11 15.788	63 38.091	329.2	4.61	3644.80	35.21	
0704	11 16.175	63 39 ?	327.8	4.41	3645.57	35.91	All Guns back on + problems with shots
0730	11 17 920	63 40.140	326.3	4.81	3647.06	36.81	assoc. with turn
							home/sci/forms.dir/watchlog.doc

→ check watchstander log

Cruise E104		JD 142		R/V Maurice Ewing Science Watch Log				Page 10
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
0757	11 19.873	63 41.216	336.0	4.31	3649.06	362.1	over OBS 327	
0730	11 20.102	63 41.336	327.9	4.41	3649.29	36.21		
0824	11 21.871	63 42.250	332	4.21	3659	32	- Gun 20 out of water	
0830	11 22.328	63 42.486	329	4.41	3651	36.2		
0900	11 24.469	63 43.603	327	4.8	3659	36	- OBS 326	
0930	11 26.754	63 44.799	321	4.9	3655	36		
1000	11 29.018	63 45.971	331	4.11	3658	36		
1001	11 29.158	63 46.075	331	4.11	3658	36	- OBS 327 325	
1030	11 31.192	63 47.133	329	4.01	3660	71		
1052	11 32.925	63 47.945	326	4.21	3661	87-11	- Gun 20 back in water / Maggie back in	
1100	11 33.585	63 48.366	328	4.31	3662	95		
1103	11 33.850	63 48.523	336	4.61	3662	105	- OBS 324	
1130	11 35.852	63 49.525	327	4.31	3664	233		
1200	11 38.395	63 50.857	331	4.71	3666	449	- End of Watch	
1201	11 38.520	63 50.923	335.9	5.01	3666.95	442.71	over OBS 323	
1230	11 40.886	63 52.152	324.7	4.71	3669.15	742.31		
1257	11 43.256	63 53.395	337.41	4.51	3671.24	724.99	over OBS 322	
13:00	11° 43.428 N	063° 53.480 W	337.2	4.51	3672.39	719.5		
13:30	11° 46.139 N	063° 54.902 W	339.2	4.51	3673.79	643.41		
13:49	11° 47.832 N	063° 55.790 W	343.4	4.71	3675.2	415.61	Over OBS 321	
1400	11 48.780	63 56.272	348.1	4.71	3675.45	414.01		
14:30	11° 51.411 N	063° 57.563 W	2.9	4.41	3678.2	373.61		
14:42	11° 52.491 N	063° 57.992 W	2.0	4.31	3679.07	359.91	Over OBS 320	
1500	11 53.036	63 58.143	5.8	4.21	3680.38	338.51		
15:30	11° 56.641 N	063° 58.730 W	4.31	4.51	3682.6	324.31		
15:35	11° 57.150 N	063° 58.853 W	358.1	4.1	3683.3	324.41	Over OBS 319	
16:00	11° 59.149 N	063° 59.244 W	8.5	4.21	3684.3	368.31	Change of duty	
1630	12 01.662	063 59.853	100	3.91	3686.97	913.91		

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1632	12° 18.09	63 59.869	5.8	4.21	3687.09	929.71	over OBS 318
1700	12° 04.107	64 00.419	5.81	4.02	3689.10	2041.5	
1729	12 06.468	64 00.805	1.1	4.31	3691.17	2253.3	over OBS 317
1730	12 06.610	64 00.975	4.1	5.01	3691.23	2268.3	
1800	12 08.000	64 01.543	4.7	4.21	3693.00	26400	
1827	12 11.12	64 02.013	8.7	4.41	3695.13	3122.2	over OBS 316
1830	12 11.374	64 02.062	4.0	4.21	3695.40	3145.7	
1900	12 13.712	64 02.668	3.6	3.81	3697.44	3182.5	
1925	12 15.780	64 03.066	6.2	4.41	3699.28	3311.2	over OBS 315
1930	12 16.170	64 03.154	4.0	4.11	3699.89	3362.0	
2000	12 18.579	64 03.693	357.0	4.31	3701.71	3469.7	
2023	12° 20' 414	64° 04' 130	359	4.41	3703	3598	over OBS # 314
2030	12° 20' 975	64° 04' 256	000	4.4	3704	3627	
2100	12 23 387	64 04 810	356.1	4.51	3706	3430	-
2121	12 25 104	64 05 201	351	4.5	3707	3401	- OBS 313
2130	12 25 798	64 05 373	357	4.2	3708	3405	
2200	12 28 204	64 05 926	354	4.7	3710	3425	-
2219	12 29 764	64 06 281	358	4.5	3711	3254	- OBS 312
2230	12° 30' 666	064° 06' 485	000	4.5	3712	3298	
2300	12 33 006	064 07 006	358	4.7	3714	3354	-
2316	12 34 420	064 07 340	358	4.7	3716	3330	- OBS 311
2330	12 35 573	064 07 588	351	4.9	3716	3321	
2400	12 37 957	64 08 137	353	4.2	3719	3268	- end of watch
0012	12 39 074	64 08 395	357.7	4.21	3720.28	3189.7	over OBS 310
0030	12° 40' 503N	064° 08.731	359.9	4.61	3721.5	3020.3	
0100	12° 42' 992N	064° 09.292W	353.2	4.31	3723.7	3034.6	
0109	12° 43.737 N	064° 10.501W	352.1	4.41	3724.3	3029.5	OBS 309
0130	12° 45.475 N	064° 09.863 W	352.1	4.41	3725.94	3040.7	

Cruise E 104		JD 143		R/V Maurice Ewing			Science Watch Log		Page 12
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments		
02:00	12° 47.816 N	064° 10.407 W	356.2	4.61	3728.06	3066.7			
02:06	12° 48.397 N	064° 10.503 W	356.3	4.41	3728.8	3076.4	Over OBS 308		
02:30	12° 50.369 N	064° 10.977 W	351.1	4.61	3730.3	3084.6			
03:00	12° 52.840 N	064° 11.548 W	352.4	4.41	3732.6	3107.2			
03:03	12° 53.053 N	064° 11.601 W	354.2	4.41	3732.79	3111.6	Over OBS 307		
03:30	12° 55.267 N	064° 12.103 W	348.4	4.11	3734.8	3143.7			
04:00	12° 57.668 N	064° 12.673 W	354.2	4.51	3736.6	3158.0	Chance duty		
04:00	12° 57.668 N	064° 12.673 W	354.2	4.51	3736.6	3158.0	Over OBS 1306		
0430	13 00.074	64 13.209	352.4	4.11	3739.15	3175.3			
0500	13 02.37	64 13.751	354.1	4.31	3741.33	3180.04	over OBS 305		
0530	13 04.733	64 14.272	354.1	4.21	3743.47	3187.6			
0600	13 07.010	64 14.798	354.5	4.21	3745.62	3193.7	over OBS 304		
0600	13 07.010	64 14.798	354.6	4.21	3745.63	3193.7	Over OBS 304		
0630	13 09.384	64 15.336	354.6	4.51	3747.84	3227.4			
0700	13 11.081	64 17.034	294.1	4.41	3750.06	3256.1			
0730	13 12.189	64 19.323	272.5	4.01	3752.24	3293.8			
0800	13 10.846	64 20.678	155.2	5.21	3754.60	3308.1			
0823	13 09.796	64 19.520	127.4	4.71	3756.52	3284.6	All Guns Back in		
0830	13 09.565	64 19.166	121.0	4.71	3757.01	3277.4			
0900	13° 08' 42.9	64° 17' 34.9	126	4.5	3759	3246			
0930	13° 07' 32.6	64° 15' 55.2	120	4.5	3761	3210			
1000	13° 06' 20.0	064° 13' 7.81	124	4.8	3764	3171			
1030	13 05.074	64 11.979	123	5.0	3766	3150			
1100	13 03.957	64 10.195	123	4.8	3769	3120			
1130	13 02.708	64 08.121	124	4.8	3771	3082			
1200	13 01.468	64 06.247	123	4.8	3774	3036	End of Shift		
12:30	13° 00.213 N	064° 04.219 W	121.7	5.11	3776.9	2988.2			
13:00	12° 58.935 N	064° 02.186 W	120.3	4.91	3779.36	2950.1			

Cruise E104		JD 143/144		R/V Maurice Ewing			Science Watch Log		Page 63
Time	Latitude		Longitude	Cse	Spd	Log	Depth	Comments	
1330	12 57	618	64 00 062	118.0	4.91	3781.89	2899.2		
1400	12 56	335	63 58 609	123.8	5.01	3783.87 3783.87	2809.7		
1430	12 55	078	63 56 009	117.1	4.91	3786.89	2634.1		
1500	12 53	853	63 54 049	119.9	4.91	3789.38	2511.4		
1530	12 52	631	63 52 100	114.3	5.01	3791.92	2245.9		
1600	12 51	431	63 50 185	115.6	4.61	3744.41	2164.1	change of watch	
1630	12 50	155	63 48 139	116.8	5.11	3796.98	1922.7		
1700	12 48	863	63 46 074	115.4	5.01	3799.41	1833.2		
1730	12 47	557	63 43 986	115.5	4.81	3806.85	1826.1		
1800	12 46	284	63 41 957	112.7	4.81	3809.21	1829.1		
1830	12 44	913	63 39 760	116.3	4.81	3806.73	1666.3		
1900	12 43.6	10	63 37.670	119.1	4.71	3809.15	1357.8		
1930	12 42	290	63 35 572	122.0	4.71	3811.57	1087.2		
2000	12 41	014	63 33 538	116.3	4.81	3813.88	969.61		
2030	12 39	693	63 31 422	117	5.01	3816	1059		
2100	12 38	408	63 29 361	120	4.91	3818	1025		
2130	12 37	086	63 27 254	117	4.71	3821	1055		
2133	12 36	956	63 27 047	117	4.71	3821	1055	Gun 13 - out of water	
2200	12° 35' 777		063° 25' 162	120	4.5	3824	1093		
2230	12 34	545	63 23 199	120	4.4	3825	1166	-	
2248	12 33	730	63 21 901	117	4.91	3827	1277	- Gun 13 back in water	
2300	12 33	247	63 21 128	117	4.5	3828	1382		
2330	12 31	929	63 19 021	117	5.1	3830	1786	-	
2400	12 30	730	63 17 104	119	4.9	3832	2512	End of Watch, problem with GPS01	
0030	12 29	376	63 14 864	118.7	4.91	3835.46	2760.0		
0100	12 28	052	63 12 772	118.1	4.51	3837.90	2807.7		
0130	12 26	732	63 10 695	121.4	4.81	3840.17	2836.2		
0200	12 25	466	63 08 696	114.3	4.41	3842.41	2861.6		

Cruise EV 04		JD 144		R/V Maurice Ewi			Science Watch Log		Page 164
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments		
02:30	12° 24.108	063° 17.600	115.9	4.31	3844.6	2895.1			
03:00	12° 22.826	063° 04.490	115.2	4.11	3846.7	2920.5			
0330	12 21 548	63 02 445	115.0	4.41	3848.95	2929.7	problem with GPS fixed		
0351	12 20 694	63 01 090	117.4	4.41	3850.35	2939.9	problem with GPS01		
0352	12 20 558	63 00 888	116.0	4.31	3850.63	2942.0	problem with GPS fixed		
04:00	12° 20.260 N	063° 00.384 W	114.4	4.31	3851.14	2946.0	Chance of dily		
430	12 19 015	62 58 401	116.0	4.41	3853.26	2961.3			
500	12 17.766	62 56.273	106.9	4.51	3855.51	2967.4			
530	12 16.760	62 54.655	108.5	4.41	3857.67	2969.4			
600	12 15 481	62 51 915	116.0	4.61	3859.88	2956.2			
606	12 15 181	62 51.417	117.3	4.41	3860.33	2960.3	over the OBS Line		
630	12 14 182	62 49 798	120.4	4.21	3861.96	2923.6			
700	12 12 875	62 47 700	118.4	4.02	3864.02	2880.9			
730	12 11 629	62 45 675	119.2	4.11	3865.99	2919.5			
800	12 10 386	62 43.696	120.6	4.51	3868.02	2949.0			
0830	12 09 082	62 41 622	121	4.31	3870	2788			
0900	12 07 847	62 39 645	119	4.31	3872	2713			
0930	12 06 583	62 37 628	120	4.41	3874	2726			
1000	12° 05' 238	062° 35' 617	120	4.5	3876	2862			
1001	12 05 238	62 35 617	120	4.5	3876	2862	Guns 9/17 off line		
1030	12 03 988	62 33 475	119	4.7	3878	2788	Guns 9 turn on		
1100	12 02 714	62 31 441	121	4.7	3881	2728			
1130	12 01 443	62 29 404	123	4.8	3883	2298	Guns 17 back on.		
1200	12° 00' 171	062° 27' 341	120	4.7	3886	2043			
12:30	11° 58.857 N	062° 25.263 W	120.6	4.61	3888.56	1819.1			
13:00	11° 57.607 N	062° 23.272 W	123.2	4.71	3890.0	1813.2			
13:30	11° 56.301 N	062° 21.188 W	122.4	4.51	3892.2	2076.8			
14:00	11° 55.074 N	062° 19.215 W	121.1	4.51	3895.52	2265.6			

Cruise E1 104		JD 144 / 145		R/V Maurice Ewing Science Watch Log			Page 65
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
14:30	11° 53.805 N	062° 17.960 W	122.7	4.81	3897.45	2370.7	
15:00	11° 52.598 N	062° 15.273 W	120.1	4.91	3900.31	2227.3	
15:30	11° 51.322 N	062° 13.235 W	119.5	5.01	3902.8	1813.0	
16:00	11° 50.093 N	062° 11.264 W	123.5	5.21	3905.3	1341.0	Change of duty
1630	11 48 843	62 09 267	120.2	5.11	3907.81	503.91	
1700	11 47 584	62 07 255	119.8	4.91	3910.35	369.11	
1720	—	—	—	—	—	—	Problem writing to DLT "Tape Drive Linkdowner"
1730	11 46 321	62 05 237	121.5	5.01	3912.78	377.41	
1800	11 44 985	62 03 114	122.7	4.61	3915.32	499.21	
1830	11 43 798	62 01 222	119.8	4.81	3917.84	785.01	
1900	11 42 755	61 59 600	120.8	5.11	3920.39	769.41	
1930	11 41 567	61 57.660	113.1	4.51	3922.80	750.61	
2000	11 40 444	61 55 862	106.5	4.71	3925.11	728.31	Change Watch
2030	11 39 304	61 54 109	107	4.8	3923	707	
2100	11 38 032	61 52 016	108	4.8	3929	665	
2130	11° 36' 751	061° 49' 953	108	4.7	3932	632	
2134	11 36 568	61 49 685	95	4.7	3932	628	Tail buoy Est. 3Km N. of line
2200	11 35 444	61 47 988	100	5.01	3935	594	
2230	11 34 162	61 46 858	109	4.7	3937	524	
2300	11 32 871	61 43 804	119	5.01	3939	398	
2330	11 31 572	61 41.767	129	4.71	3942.37	306.81	
2400	11 30 412	61 40 936	123	4.5	3944	227	End of Shift
0030	11 29 258	61 39 093	126.7	4.31	3947.10	205.21	
01:00	11° 28.189 N	061° 36.914 W	128.6	4.31	3949.7	191.6	
01:30	11° 27.193 N	061° 34.823 W	130.2	4.51	3951.6	182.31	problem with tape drives - see log
02:00	11° 26.274 N	061° 33.371 W	130.7	4.61	3953.8	181.7	
02:30	11° 25.425 N	061° 32.039 W	139.1	4.01	3956.03	181.61	
03:00	11° 24.578 N	061° 30.641 W	132.3	4.71	3958.2	177.01	

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0330	11 23 680	61 29 268	131.8	4.91	3960.65	175.51	
0400	11° 22.741 N	061° 29.737 W	133.7	4.71	3963.10	173.01	Change of duty
0430	11 21.748	061 26.209	129	4.51	3965.56	170.51	
0500	11 20.801	61 24.715	128.5	4.71	3967.93	170.01	
0530	11 19.829	61 23.176	128.6	4.71	3970.35	170.71	
0600	11 18.805	61 21.547	128.1	5.01	3972.81	165.11	
0630	11 17.775	61 19.919	133.3	5.01	3975.30	160.21	
0700	11 16.742	61 18.306	130.1	5.01	3977.67	159.61	
0730	11 15.655	61 16.566	125.1	4.91	3980.27	150.91	
0800	11 14.690	61 15.030	121.5	4.71	3982.61	148.01	Change Watch
0830	11 13.623	61 13.321	123	4.71	3985	135	
0900	11 12.592	61 11.738	121	4.81	3987	134	
0930	11° 11' 606	061° 10' 186	121	4.8	3989	124	
1000	11 10 568	61 08 526	120	4.7	3992	110	
1030	11° 09' 543	061° 06' 927	120	4.7	3994	106	
1100	11° 08' 506	061° 05' 264	120	4.7	3997	97	
1130	11° 07' 551	061° 03' 751	120	4.7	3999	93	
1200	11 06 2612	61 02 259	121	4.4	4001	85	End of Watch
1230	11 05 645	61 00 734	124.1	4.41	4003.70	80.71	
13:00	11° 04' 771 N	060° 59.361 W	123.0	5.01	4006.02	67.71	
13:30	11° 03.936 N	060° 58.046 W	127.3	5.01	4008.4	61.51	
14:00	11° 03.167 N	060° 56.819 W	119.6	5.51	4010.9	36.11	
14:30	11° 02.296 N	060° 55.741 W	115.5	5.31	4013.6	55.81	
1500	11 01 416	60 54 074	116.6	4.91	4016.08	69.51	
15:30	11° 00.772 N	060° 52.579 W	119.8	4.51	4018.5	96.11	
16:00	10° 59.528 N	060° 51.080	113.5	4.71	4020.9	122.1	Change of duty
16:30	10 58 486	060 49 461	115.3	4.91	4023.30	76.61	
1700	10 57 433	060 47 805	119.2	4.81	4025.57	45.41	Gun 15 off

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1730	10 56.369	60 46.107	119.0	4.71	4027.88	44.01	
1800	10 55.281	60 44.424	128.1	5.11	4030.45	50.01	
1830	10 54.122	60 42.617	121.8	4.81	4032.60	47.81	
1900	10 53.015	60 40.865	122.8	4.71	4034.91	52.31	
1930	10 51.848	60 39.043	127.7	4.71	4037.34	58.21	
2000	10 50.880	60 37.521	130.4	5.01	4039.39	62.51	
2030	10 49.655	60 35.607	130	5.2	4041	66.5	
2100	10 48.440	60 33.788	137	5.01	4044	80.21	
2130	10 47.407	60 32.051	147	5.21	4046	83	
2200	10 46.166	60 30.117	140	5.71	4049	59	
2230	10 45 033	060 30 357	140	5.31	4052	67	
2237	10 44 763	60 27 937	135	5.21	4052	67	- Maggie Becker Water
2300	10 44 051	060 25 815	137	5.10	4054	70	
2330	10 42 824	60 24 903	132	5.3	4057	78	
2400	10 41 756	60 23 224	137	4.91	4059	80.8	- End of Watch
00:30	10 40.588 N	060 21.393 W	135	4.81	4062.5	99.31	
01:00	10 39.466 N	060 19.639 W	129.7	5.01	4065.04	164.81	
01:30	10 38.246 N	060 17.735 W	130.1	5.01	4067.52	255.01	
02:00	10 37.066 N	060 15.867 W	129.1	4.91	4070.01	314.61	
02:30	10 35.871 N	060 13.949 W	130.1	5.01	4072.50	405.31	
03:00	10 34.738 N	060 12.220 W	128.2	5.01	4074.93	464.21	
03:30	10 33.573 N	060 10.346 W	126.4	5.41	4077.4	585.31	
04:00	10 32.354 N	060 08.489 W	127.7	4.61	4079.79	608.71	Change of duty
0430	10 31.160	060 06.617	127.1	5.21	4082.60	658.01	
0500	10 29.986	060 04.782	130.8	5.11	4085.15	668.51	
0530	10 28.800	060 02.915	127.5	4.81	4087.73	709.01	
0600	10 27.567	60 00.999	124.5	4.99	4090.30	732.41	

Cruise 104		JD 146		R/V Maurice Ewing Science Watch Log			Page 28	
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
0630	10° 26.338	59 59.064	123.1	5.11	4092.75	744.41		
700	10 24 442	59 57 440	124.0	5.05	4095.70	769.41		
730	10 23 848	59 55 166	124.1	5.01	4097.64	790.41		
800	10 22 549	59 53.140	1177	4.91	4100.19	811.41		
830	10° 21' 329	59° 51' 210	122	5.0	4102	858		
900	10° 20' 186	59° 49' 297	122	5.1	4105	859		
930	10 18 906	59 47 424	128.5	5.41	4107.53	929.81	XBTS launched between 9:14-9:21	
1000	10 17 792	59 45 852	132	4.6	4109	970		
1030	10 16 608	59 43 856	131	4.6	4112	1026		
1100	10 15 488	59 42 126	128	5.1	4114	1040		
1128	10 14 332	59 40 305	128	4.7	4117	1062	Gun 8 out of water	
1130	10 14 269	59 40 215	131	4.9	4117	1062		
1139	10 13 870	59 39 608	131	4.9	4118	1062	2-Guns out = 7/8	
1144	10 13 663	59 39 290	127	4.9	4118	1076	Gun 7 back on	
1200	10 13 120	59 38 438	129	4.3	4119	1088	End Watch - Gun 8 steel out.	
1214	10 12 476	59 37 442	123.6	5.01	4121.13	1114.1	gun 8 back on	
12:30	10° 11.878 N	059° 36.489 W	126.0	4.91	4122.33	1128.2		
13:00	10° 10.734 N	059° 34.732 W	133.6	4.91	4124.6	1175.8		
1330	10 09 626	59 33 019	128.3	4.71	4127.01	1161.0		
14:00	10° 08.549 N	059° 31.364 W	134.7	4.71	4129.3	1225.9		
14:30	10° 07.544 N	059° 29.782 W	127.4	4.21	4131.7	1155.6		
15:00	10° 06.622 N	059° 28.378 W	134.0	4.01	4133.9	1192.0		
15:30	10° 05.692 N	059° 26.932 W	133.0	4.81	4136.2	1289.0		
16:00	10° 04.695 N	059° 25.383 W	133.8	4.51	4138.6	1273.1	Change of duty	
1630	10 03.734	59 23.890	136.0	5.01	4141.07	1313.0		
1657	10 02 892	59 22 606	133.0	5.31	4143.26	1354.8	Pulling in guns 11 + 12 for turn	
1700	10 02 830	59 22 520	140.2	4.91	4143.39	1358.8	Other	
1702	10 02 732	59 22.380	143.4	4.91	4143.59	1356.0	Start turn	

Cruise: 104		JD 146/147		R/V Maurice Ewing Science Watch Log			Page 69
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1706	10 02.638	59.22.114	123.9	4.51	4141.06	1367	Gun 13 is off
1719	10 02.472	59.21.414	122.8	4.51	4145.02	1394.8	EOL 30
1730	10 02.345	59 20.788	123.2	4.91	4145.88	1420.9	
1800	10 02.917	59 19.030	31.1	4.61	4148.17	1460.9	On turn to line 31
1830	10 05.26	59 20	253.8	4.91	4150.34	1474.9	
1900	10 04.479	59 21.987	214.9	5.11	4152.72	1414.9	
1916	10 03.932	59 22.861	219.6	5.21	4151.02	1375.8	SOL 31
1927	10 03.669	59 23.586	241.8	5.31	4154.90	1337.8	Guns 11 & 12 back on
1930	10 03.646	59 23.753	237.5	4.81	4155.11	1320.8	At waypoint of line
2000	10 03.245	59 26.042	237.5	4.61	4157.45	1196.0	
2030	10° 02' 79S	059° 28' 49S	245	5.3	4159	1086	
2100	10° 02' 831	059° 30' 929	242	5.2	4162	1007	
2130	10 01.937	59 33.364	245	4.0	4164	947	
2200	10 01.439	59 36.227	247	4.8	4167	928	
2230	10° 01' 041	059° 38' 532	245	4.2	4169	895	
2300	10 00.620	59 40.887	246	4.1	4171	838	
2330	10 00.233	59 43.086	239	4.5	4173	759	
00:00	09° 59.791 N	059° 45.549 W	245.3	4.11	4176.2	689.21	Change of duty
0030	9 59 358	59 47 982	245.3	4.51	4178.58	632.61	
0100	9 58 943	59 50 375	253.2	4.11	4180.90	576.01	
0130	9 58 506	59 52 778	253.1	4.01	4183.00	474.01	
02:00	09° 58.103 N	059° 55.125 W	257.3	3.61	4185.11	350.61	
02:30	09° 57.657 N	059° 57.606 W	254.2	4.71	4187.2	269.91	
03:00	09° 57.260 N	059° 59.936 W	258.6	3.91	4189.2	189.31	
03:30	09° 56.817	060° 02.400 W	242.7	4.41	4191.6	154.91	
04:00	09° 56.401 N	060° 04.753 W	250.8	4.21	4193.6	136.71	Change of duty
0430	09 55.980	060° 07.112	256.1	4.41	4195.00	134.61	
439	9 55 851	60 07 844	255.1	5.01	4196.52	125.61	Gun 11 & 12 out of water

Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0500	9 55.487	060 09.518	226.8	4.31	4197.99	87.81	Gun 13 turned off
509	9 55 050	060 09 905	185.9	4.61	4198.61	88.81	EOL 31 / EOT 829
530	9 53.926	60 09.525	139.7	4.51	4200.91	87.41	
600	9 52 588	60 08 590	140.9	4.41	4202.39	89.21	
630	9 51.264	60 07.637	137.7	4.41	4204.59	89.71	
700	9 51.768	60 05.892	60.8	4.51	4206.91	102.90	
730	9 54.296	60 06 078	319.7	4.51	4209.45	144.21	
0800	09° 56' 638	060° 07' 650	327	4.6	4211	133	
0830	09° 58' 550	060° 09' 268	328	4.5	4213	129	
0900	10 00 608	60 10 780	329	4.7	4215	123	
0930	10 02 765	60 12 387	328	4.1	4218	112	
1000	10 05 063	60 14 109	327	4.3	4220	111	
1030	10 07 303	60 15 778	320	4.7	4222	98	
1100	10 09 437	60 17 301	325	4.6	4224	91	
1130	10 11 431	60 18 862	325	4.0	4226	96	
1152	10 13 207	60 20 171	317	4.4	4228	95	Gun 10 down
1200	10 13 706	60 20 539	319	4.1	4228	99	End of watch
12:30	10° 15.863 N	060° 22.151 W	315.1	4.01	4230.82	101.4	
13:00	10° 18.043 N	060° 23.768 W	322.0	4.41	4232.82	102.51	
1330	10 20 216	60 25 402	323.2	4.21	4234.91	101.61	
14:00	10° 22.306 N	060° 26.961 W	319.4	4.21	4236.88	100.71	
14:30	10° 24.493 N	060° 28.600 W	321.1	4.11	4238.9	91.11	
1500	10 26 617	60 30 177	314.7	4.41	4240.95	89.71	
15:30	10° 28.762 N	060° 31.774 W	312.6	4.31	4243.1	69.51	
16:00	10° 30.826 N	060° 33.331 W	308.3	3.71	4245.06	63.71	Change of duty
1630	10 32.000	060 34 940	306.8	4.11	4247.16	60.11	
1700	10 35 191	060 36 580	307.4	3.91	4249.25	59.31	
1730	10 37 070	060 37 993	317.0	4.21	4251.21	54.91	

Cruise EV 04		JD 147/148		R/V Maurice Ewing			Science Watch Log	Page 71
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
1800	10 39.178	60 39 578	318.5	4.71	4253.35	49.41		
1830	10 41.467	60 41.267	322.7	4.41	4255.68	67.71		
1900	10 43.563	60 42.839	316.9	4.91	4257.79	68.11		
1930	10 45.912	60 44.580	316.7	4.81	4260.17	62.71		
2000	10° 47' 777	060° 45' 975	315	4.5	4261	60	- Chg of Watch	
2030	10 50 024	60 47 658	314	4.3	4264	52.4		
2100	10 52.150	60 49 232	308	4.1	4265	42.1		
2103	10° 52' 495	060° 49' 513	308	4.1	4266	43	MAGNETICS SYSTEMS Turn off.	
2130	10 54.318	60 50 869	314	4.1	4267	47		
2200	10° 56' 576	060° 52' 571	319	5.1	4270	63		
2220	10° 58' 058	060° 53' 487	330	4.7	4271	86	- GUNS # 11 and 12 turn off.	
2230	10 58 681	60 54 249	305	4.2	4272	103		
2232	10 58 797	60 54 455	298	4.2	4272	106	- End Line Bol 32	
2300	10 58 310	60 56 554	181	4.0	4274	96		
2330	10 56 447	60 56 887	133	4.2	4276	78		
2400	10 55 760	60 55 313	103	4.3	4278	60	- Magnetics Systems back on	
0030	10° 55.802 N	060° 53.541 W	78.4	4.21	4280.96	57.91		
0037	10° 55.996 N	060° 53.293 W	78.9	4.21	4281.3	61.01	SOT 858 and SOL BOL-33	
0100	10 56 993	60 51 785	72.9	4.81	4283.21	80.31		
0130	10 58 243	60 50 052	77.0	4.31	4285.41	83.11		
02:00	10° 59.444 N	060° 48.364 W	70.6	4.41	4287.5	81.71		
02:30	11° 00.669 N	060° 46.650 W	72.8	4.41	4289.82	79.92		
03:00	11° 01.944 N	060° 44.856 W	62.8	4.61	4292.08	83.11		
03:30	11° 03.160 N	060° 43.141 W	53.8	4.21	4294.2	84.71		
04:00	11° 04.446 N	060° 41.363 W	52.1	4.61	4296.3	89.31	Change of duty	
0430	11 05.673	060 39.647	50.5	4.21	4298.27	90.61		
0500	11 06.972	60 37 825	51.9	4.11	4300.48	82.91		
0530	11 08.367	60 35.878	57.1	4.71	4302.69	80.41		

Cruise EV 04		JD 148		R/V Maurice Ewing Science Watch Log			Page 72
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0600	11 09.801	60 33.885	57.2	4.41	4304.89	80.01	
0620	11 11 069	60 32.758	360	4.41	4306.39	82.11	Gun 13 turned off
0625	11 11 474	60 32.786	334.7	4.11	4306.76	82.91	EOL 33
0630	11 11 813	60 32.934	318.5	4.51	4307.08	81.91	
0700	11 11.283	60 34.918	204.4	5.01	4309.58	77.51	
0730	11° 09' 171	060° 35' 130	140	4.7	4312	80	
0734	11 08 885	060 34 875	128.9	4.61	4312.35	77.61	SOL 34
0800	11 07.910	060 33.225	137.2	4.21	4314.26	82.50	
0810	11 07 511	60 32 534	138	4.1	4315	81	Gun 11 on
0830	11° 06' 768	060° 31' 241	128	4.7	4318	82	
0900	11 05 666	60 29 506	135	4.1	4318	81	
0930	11° 04' 530	060° 27' 620	133	4.7	4321	92	
1000	11 03 434	60 25 818	133	4.7	4323	100	Birds leaving flocks -
1030	11 02 380	60 24 081	133	4.7	4325	111	Birds still on surface 20-11 → Set
1100	11 02 380 1/2	60 24 081 1/2	104	4.1	-	194	Estimated lat/lon - Still shooting
1130	11° 01' 078	060° 20' 991	122	4.5	-	198	- Ramping 1 Gun
1200	11 03 405	60 21 149	311	5.2	5.76	308	Returning to Pwr failure - Bol 34A
12:30	11° 04.743 N	060° 23.417 W	295.1	4.6	8.31	302	
13:00	11° 05.849 N	060° 25.581 W	298.4	4.9	10.62	149.91	
13:30	11° 05.364 N	060° 27.337 W	194.6	3.9	12.96	100.71	
14:00	11° 03.751 N	060° 26.334 W	137.5	4.6	15.15	99.01	
14:30	11° 02.686 N	060° 24.547 W	135.1	4.2	17.49	104.91	
1500	11 01 770	60 23 082	131.0	4.4	19.56	115.41	
15:30	11° 00.762 N	060° 21.403 W	131.4	4.6	21.82	151.81	
16:00	10° 59.759 N	060° 19.748 W	131.5	4.3	23.98	279.51	
16:30	10 58.684	60 17.991	126.3	4.3	26.19	996.91	
17:00	10 57.663	60 16.290	127.4	4.7	28.25	785.41	
1730	10 56 633	60 14.592	126.6	4.2	30.30	859.81	

Cruise EV 04		JD 148/149		R/V Maurice Ewi			Science Watch Log		Page 72
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments		
1800	10 55.526	60 12.782	131.3	4.0	32.56	1080.8			
1830	10 54.441	60 10.993	119.1	4.3	34.76	1472.2			
1900	10 53.397	60 09.254	121.7	4.6	36.87	1405.6			
1930	10 52.236	60 07.348	127.4	4.6	39.21	1343.0			
2000	10 51.167	60.0581	124.1	4.2	41.44	1144.5			
2000 2050	10 50.095	60 03.823	125.0	4.4	43.67	1122.7			
2100	10 49.139	60 02.743	130.7	4.0	45.72	1034.4			
2130	10 48.883	60 00.500	129	4.1	47.93	1038			
2200	10°47'069	059°58'830	121	4.3	50	1067			
2230	10°45'092	059°57'209	126	4.1	52	1008			
2300	10 45.161	59 55.699	126	4.1	54	1106			
2330	10 44.165	59 54.039	124	4.4	56	1105			
2400	10 43.295	59 52.024	127	4.0	58	1103	End of Shift		
0050	10 42.310	59 50.984	127.6	4.5	60.44	1107.8			
0100	10 41.363	59 49.433	131.2	3.5	62.49	1106.8			
0130	10°40.377 N	059°47.780 W	141.3	5.0	64.67	1128.6			
0200	10°39.457 N	059°46.255 W	140.2	4.5	66.85	1131.6			
0230	10 38.525	59 44.739	144.8	4.7	69.23	1130.6			
0300	10 37.656	59 43.323	145.3	4.6	71.46	1143.5			
0330	10 36.790	59 41.885	144.6	4.8	73.72	1153.4			
0400	10°35.973 N	059°40.535 W	141.1	4.3	75.75	1168.4	Change of duty		
0430	10 35.095	059 39.095	143.3	4.4	78.05	1182.2			
0500	10 34.000	059 37.438	143.3	4.0	80.80	1214.0			
0530	10 33.433	059 36.363	144.3	4.3	82.45	1236.8			
540	10 33.153	059 35.895	143.9	4.0	83.70	1243.8	Gun 10 is off		
540	10 32.974	059 35.597	142.0	4.2	83.08	1254.7	Gun 9 is off		
600	10 32.601	059 34.939	134.9	4.5	84.64	1258.5			
603	10 32.409	059 34.737	156.0	4.8	85.08	1256.7	Start turn		

Cruise	04	JD	149	R/V Maurice Ewi				Science Watch Log	Page	23
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments			
610	10 31.962	59 34.470	165.8	4.8	85.89	1260.2	EOL 34A			
620	10 31 639	59 34.405	183.2	5.1	86.70	1264.6	EOL 35			
630	10 32.251	59 34.522	209.3	5.0	87.8	1260.6				
700	10 29.890	59 35.365	202.4	4.3	89.41	1255				
641-647	-	-	-	-	-	-	Shots are missing due to Spectra problem			
730	10 28 528	59 36 255	202.7	5.2	91.78	1230.8				
800	10 27 104	59 37 183	197.2	5.0	94.18	1205.0				
0830	10 25 351	59 38 139	192	5.0	96.6	1196				
0900	10 24 113	59 39 122	194	5.0	99	1178				
0930	10 22 594	59 40 101	197	5.3	101	1148				
1000	10 21 600	059 41 138	197	4.8	104	1186				
1030	10 19 448	59 42 138	203	4.9	106	1077				
10:36	10 18.44	59 42.463	202	5.0	107.31	1065.1	lost ~8 shots due to drive problems			
1100	10 17 757	59 43 228	204	5.0	108	1043				
1109	10 17 237	59 43 555	198	5	109	1031	- Gun 3 off			
1130	10 16 069	59 44 333	200	5	111	1009	- Gun 11 off			
1138	10 15 591	59 44 633	195	5.1	112	993	- Gun 12 off > Prep for turn			
1149	10 14 986	59 44 915	174	5.1	113	982	- End Bol 35			
1200	10 14 382	59 44 867	173	5.1	113	974	- End of Watch - Turning to Bol 36			
1230	10 13 975	59 43 242	65.9	4.9	116.38	998.71				
13:00	10 16.594 N	059 43.530 W	282.6	4.8	118.90	1035.4				
1303	10 16 657	59 43 763	269.8	4.8	119.16	1025.5	over OBS 440			
1330	10 17 959	59 45 923	286.1	5.1	121.29	969.41				
1400	10 19 522	59 48 374	290.1	5.0	123.71	916.41				
14:24	10 20.809 N	059 50.413	297.0	4.9	125.72	870.91	Over OBS 439			
14:30	10 21.138 N	059 50.924 W	284.6	5.0	126.18	857.51				
15:00	10 22.736 N	059 53.424 W	288.5	4.9	128.63	807.21				
15:30	10 24.322 N	059 55.897	283.6	4.8	131.05	780.41				

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Cruise EW 74		JD 149/150		R/V Maurice Ewing Science Watch Log				Page 74
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
15:42	10° 24.973	059° 56.924	288.5	5.2	132.06	774.51	Over OBS 438	
16:00	10° 25.879 N	059° 58.347 W	294.9	5.4	133.55	750.61	Change of duty	
1630	10 27.498	060 00.904	299.7	5.2	136.27	751.81		
1700	10 29.021	060 03.291	298.3	4.8	138.74	684.01		
1730	10 30.530	060 05.622	298.1	5.0	141.18	667.21		
1800	10 32.060	060 08.022	298.5	4.9	143.71	619.41		
1830	10 33.548	060 10.353	291.0	4.8	146.17	580.81		
1835-37							bad tapes + bad shots → check logs	
1900	10 35.021	060 12.662	301.4	4.5	148.67	434.61		
1930	10 36.504	060 14.999	300.9	4.9	151.22	347.81		
1955	10 37.451	060 16.381	300.5	4.9	152.22	320.57	Over OBS 435	
2000	10 38.003	060 17.334	301	5.0	153.66	277.81		
2030	10° 39' 49.5	060° 19' 67.9	296	4.7	156	159		
2100	10 40 937	60 21 932	297	4.8	158	91		
2112	10° 41' 52.7	60° 22' 86.4	297	5.1	159	83	Over OBS #434	
2130	10 42 928	60 24 264	298	5.2	160	79		
2200	10 43 778	60 26 389	298	5.1	163	70		
2230	10° 45' 31.8	060° 45' 31.8	298	5.0	165	67		
2250	10° 46' 82.0	060° 40' 44.2	298	5.0	167	56	Over OBS # 433	
2330	10 48 325	60 33 516	293	4.9	170	80		
2400	10° 49' 80.1	060° 35' 88.5	292	4.5	173	66	Over OBS # 432 / Change of duty	
0030	10 51 357	60 38 290	295.0	4.8	175.97	63.01		
01:00	10° 52 744 N	060° 40 503 W	297.9	4.5	178.40	52.01		
0126 0127	10 54 074	60 42 535	293.1	5.5	180.57	47.81	Over OBS # 431	
0130	10 54 233	60 42 791	290.9	4.9	180.84	43.01		
0200	10° 55.718 N	060° 45.140 W	297.4	4.9	183.33	41.31		
02:30	10° 54.256 N	060° 47.556 W	293.5	4.5	185.81	43.51		
02:4	10° 58.165 N	060° 48.954 W	300.6	4.9	189.27	65.81	Over OBS # 430	

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Cruise EW 04		JD 150		R/V Maurice Ewing Science Watch Log				Page 75
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments	
03:00	10° 58.730 N	060° 49.842 W	305.1	4.7	188.18	87.61		
0330	11 00 30	60 52 402	310.7	4.7	190.63	96.81		
0400	11 02 052	60 55 056	314.1	4.1	193.00	59.81		
0405	11 02.312	60 55.471	312.9	4.1	193.37	54.71	over OBS. 429	
430	11 03 766	60 57.762	301.7	4.1	195.09	54.41		
500	11 05 442	61 00.422	297.1	4.2	197.15	78.71		
0515	11 06.430	61 2.001	296.0	4.1	198.77	86.91	over OBS 428	
0530	11 07.096	61 03.075	297.7	4.0	199.29	90.01		
0600	11 08.745	61 05.645	297.2	4.3	201.22	100.41		
0630	11 10.425	61 08.298	296.8	4.0	203.48	113.01		
633	11 10570	61 08.490	295.6	4.3	203.64	114.81	over OBS 427	
700	11 12 052	61 10.878	291.0	4.3	205.70	125.41		
730	11 13.660	61 13.453	297.4	4.4	207.87	142.51		
749	11 14704	61 15.032	294.5	4.5	209.23	147.11	over OBS 426	
800	11 15 294	61 15.991	294.7	4.5	210.07	151.91		
0830	11° 16' 922	061° 18' 573	289	4.5	212	162		
0900	11 18 475	61 20 025	286	4.6	214	164		
0905	11 18 819	61 21 580	286	4.4	2215	164	- OBS 425	
0930	11 20 131	61 23 655	282	4.8	217	172		
1000	11 21 709	61 26 168	294	4.6	219	174		
1026	11 22 960	61 28 080	301	4.6	220	171	- OBS 424	
1030	11 23 279	61 28 632	303	4.2	221	170	-	
1100	11 24 729	61 30 933	309	4.5	223	180		
1130	11 26 357	61 33 510	301	4.8	226	184	-	
1150	11 27 984	61 41 16	303	5.3	228	188	- OBS 423	
1200	11 27 879	61 35 898	303	5.3	228	188	- End of Watch	
1230	11 29 512	61 38 505	307.6	5.1	231.40	212.61		
1300	11 30 873	61 40 631	305.3	4.6	233.82	233.61		

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Cruise EW 74		JD 150		R/V Maurice Ewing Science Watch Log			Page 76
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1307	11 31 206	61 41 190	308.8	4.9	234.43	266.31	over OBS 422
13:30	11° 32.228 N	061° 42.811 W	312.1	4.70	236.24	344.31	
1400	11 33 588	61 44 947	308.7	4.9	238.67	472.71	
14:30	11° 34.917 N	061° 47.070 W	317.8	5.2	241.23	566.31	
14:39	11° 35.329 N	061° 47.708 W	315.2	4.8	242.03	592.51	Over OBS 421
15:00	11° 36.211 N	061° 49.108 W	318.6	4.7	243.68	625.21	
15:30	11° 37.560 N	061° 51.240 W	327.8	5.0	246.26	656.61	
16:00	11° 38.907 N	061° 53.417 W	317.5	5.2	248.81	691.11	Change of duty
1610	11 39 444	061 54.267	316.7	4.7	249.75	712.01	over OBS 420
1630	11 40 374	061 55.744	317.9	4.9	251.39	729.71	
1700	11 41.872	61 58.141	321.9	4.6	253.9	756.91	
1712	11 42.522	61 59.139	317.2	4.9	254.9	766.90	over OBS 419
1730	11 43.964	62 00.506	313.5	4.6	256.32	788.61	
1800	11 44.84	62 02.863	306.5	4.7	258.67	531.71	
1814	11 42.522	62 03.990	304	5.2	259.79	413.31	over OBS 418
1830	11 46.354	62 05.296	306	4.8	260.70	375.91	
1900	11 47.804	62 07.618	307.4	4.6	265.1	366.41	
1918	11 48.696	62 08.998	304.3	4.6	301.9	546.91	over OBS 417
1930	11 49.377	62 10.121	303.9	5.4	266.05	867.71	- 3.5 kHz died
2000	11 50.790	62 12.369	311.8	5.0	268.44	1696.2	3.5 kHz working.
2014	11° 51' 518	062° 13' 556	310	5.0	269	1818	Over OBS 416
2030	11 52 266	62 14 730	311	5	270	2201	
2100	11 53 684	62 17 021	306	5	273	2369	
2130	11 55 152	62 19 343	307	5	275	2245	
2200	11° 56' 608	062° 21' 013	308	4.7	278	2000	
2230	11 57 967	62 23 837	305	4.9	280	1793	
2300	11 59 361	62 26 071	303	4.7	283	1835	
2313	11 59 996	62 27 031	302	5.0	284	1959	- OBS 415

Cruise EWIN 74		JD 150-151		R/V Maurice Ewing Science Watch Log			Page 27
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2330	12° 00' 974	062° 28' 353	3000	5.0	285	2040	
2400	12 02 092	62 30 431	300	5	288	2510	End of Watch
00:30	12° 03.494	062° 32.700	307.	4.7	290.7	2661.4	
0049	12 04 092	62 33 653	300.8	5.0	291.85	2786.5	over OBS 414
0100	12 04 805	62 34 776	305.9	5.1	293.12	2871.2	
01:30	12° 06.199 N	062° 37.841 W	304.6	4.9	295.71	2682.1	
0200	12 07 602	62 39 245	296.9	5.1	298.14	2717.9	
02:13	12° 08.190 N	062° 40.179 W	298.6	4.8	298.98	2716.9	Over OBS 413
0230	12 08 977	62 41 434	296.5	4.7	300.59	2725.3	
03:00	12° 10.345 N	062° 43.635 W	301.1	5.2	303.06	2934.8	
03:30	12° 11.694 N	062° 45.783 W	298.4	4.9	305.49	2907.7	
03:41	12° 12.289 N	062° 46.724 W	297.8	4.8	306.50	2898.3	Over OBS 412
04:00	12° 13.161 N	062° 48.165 W	299.5	4.8	308.01	2884.1	Change of day
0430	12° 14.643	062 50.543	298.5	4.9	310.50	2927.8	
0500	12 16.054	62 52.830	300.0	5.0	312.86	2949.0	
0505	12 1638	62 53.216	299.3	5.0	313.21	2950	over OBS 411
0530	12 17.926	62 55.192	315.37	4.7	316.5	2966.2	
0600	12 18.939	62 57.480	301.4	5.1	317.84	2954.1	
0630	12 20.393	62 59.828	296.8	4.9	320.43	2944.0	
0652	12 20 472	62 59 960	302.8	4.6	320.57	2938.0	Over OBS 410
0700	12 21.812	63.02.145	302.2	5.0	322.93	2926.8	
0730	12 23.266	63 04.464	351.7	5.3	325.35	2910.6	
0756	12 24.589	63 06.558	303.1	5.0	327.59	2883.3	over OBS 409
0800	12 24.631	063 06.677	297.8	5.1	327.71	2882.3	
0830	12° 26' 209	063° 09' 238	200	5.0	330	2038	
0900	12° 27' 680	063° 11' 600	300	5.0	332	2005	
0919	12° 28' 712	063° 13' 346	300	5.0	334	2779	over OBS 408
0930	12 28 178	63 14 000	296	5.1	335	2764	

Cruise EW 14		JD 157	R/V Maurice Ewing Science Watch Log				Page 78
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
1000	12° 30' 806	063° 16' 664	292	5.8	337	2527	
1030	12 32 332	63 19 115	294	5.7	340	1648	
1039	12° 32' 798	063° 19' 873	290	5.0	341	1539	Over OBS # 404
1100	12 33 776	63 21 422	291	4.9	342	1300	
1130	12 35 275	63 23 868	291	5.0	345	1129	
1200	12 36 792	63 26 330	294	5.2	347	1088	End of Watch
12:09	12° 37.307 N	063° 27.162 W	296.0	5.1	348.3	1051.1	Over OBS. # 406
12:30	12° 38.418 N	063° 28.948 W	295.2	4.8	350.44	1022.5	
13:00	12° 39.910 N	063° 31.392 W	293.2	4.9	352.8	1069.1	
13:30	12° 41.772 N	063° 33.895 W	291.7	4.9	355.3	1004.6	
13:39	12° 41.881 W	063° 34.453 W	293.4	5.0	356.1	1028.4	Over OBS # 405
14:00	12° 43.024 N	063° 36.412 W	299.0	5.0	357.72	1159.2	
14:30	12° 44.620 N	063° 38.959 W	300.1	5.0	360.34	1522.0	
15:00	12° 46.189 N	063° 41.539 W	293.6	5.1	362.92	1793.1	
15:04	12° 46.447 W	063° 41.851 W	293.4	5.0	363.33	1812.0	Over OBS # 404
15:30	12° 47.801 W	063° 44.115 W	294.4	5.1	365.53	1835.0	
16:00	12° 49.293 N	063° 46.523	296.8	5.1	368.05	1840	
1630	12 50 795	063 48 975	370.59	4.9	370.61	2018.0	
1637	12 51.006	63 49 504	303.4	4.8	371.32	2076.0	over OBS 403
1700	12 52.240	63 51.327	302.4	4.6	373.07	2230.0	
1730	12 53.653	63 53.601	301.4	4.7	375.43	2478.3	
1800	12 55.095	63 55.941	307.4	4.7	377.84	2636.8	
1812	12 55.560	63 56.800	308.9	4.8	378.13	2774.4	Over OBS 402
1830	12 56.522	63 58.246	306.3	4.9	380.22	2829.8	
1900	12 57 946	64 00 555	313.8	5.1	382.61	2903.6	
1930	12 59.404	64 02.970	307	4.6	385.07	2959.1	
1944	13 0 127	64 04.081	307.6	5.1	386.27	2975.3	Over OBS 401
2000	13 00 683	64 05.446	296.7	5.2	387.59	3002.6	home/sci/forms.dir/watchlog.doc

Cruise EWP 104		JD 151/152		R/V Maurice Ewing Science Watch Log			Page 79
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
2019	13 01 383	64 07 041	299	4.8	389	3040	Buns 9/10 off of for turn
2021	13 01 383	64 07 212	299	4.8	389	3040	End line Bol 36
2030	13 01 938	64 07 002	323.3	4.9	390.11	3070.4	Turning to line BOL-37
2100	13 03 595	64 07 430	71	4.9	392	3067	Tuning
2123	13 02.956	64 06.039	139.8	4.5	394.21	3034	BOL-37 started. (shot 23-28 before restart)
2129	13 02 546	64 05 741	139	4.8	394	3035	Restart Bol 37 shot 12/47006
2200	13 00 629	64 04 422	137	4.6	397	2989	Shots #23-28, File # 47000-47005
2230	12° 58' 879	64° 03' 244	137	4.2	399	2964	were shot at 175m, wrong.
2300	12 57 189	64 02 103	135	4.5	401	2946	Restarted line again.
2330	12 55 498	64 01 948	135	4.5	403	2915	
2400	12 59 892	63 59 862	132	4.9	406	2848	End of shift
00:30	12° 52.126 N	063° 58.660 W	137.2	4.7	408.5	2759.2	
01:00	12° 50.587 N	063° 57.624 W	139.1	4.8	410.9	2703.1	
01:30	12° 49.044 N	063° 56.595 W	143.7	4.7	412.99	2645.3	
02:00	12° 47.216 N	063° 55.350 W	143.1	4.5	415.52	2536.6	
02:30	12° 45.402 N	063° 54.111 W	141.8	4.7	417.99	2476.3	
0300	12 43 673	63 52 955	146.6	4.4	420.24	2855.1	
03:30	12° 41.865 N	063° 51.734 W	147.3	4.7	422.64	2594.0	
04:00	12° 40.146 N	063° 50.574 W	142.5	4.7	424.88	2357.7	Change of duty
0430	12 38 441	63 49 423	150.3	4.5	427.17	2274.4	
500	12 36 864	63 48 360	146.6	4.4	429.33	2136.1	
0530	12 35 310	63 47 308	143.1	4.4	431.51	2226.2	
0600	12 33 747	63 46 256	150.5	4.4	433.76	2226.3	
0630	12 32 203	63 45 209	140	4.5	435.97	2045.0	
0700	12 30 685	63 44 187	147.0	4.2	438.10	1983.0	
0730	12 29.111	63 43.121	143.8	4.3	440.35	1847.0	
0800	12 27 471	63 42.006	148.8	4.5	442.69	1506.1	
0830	12 25 767	063 40 857	149	4.6	445	1293	

Cruise EW 74		JD 152	R/V Maurice Ewing Science Watch Log				Page 78
Time	Latitude	Longitude	Cse	Spd	Log	Depth	Comments
0900	12 24 065	63 39 717	146	4.4	447	1120	
0930	12° 22' 446	063° 38' 581	146	4.5	449	842	
1000	12 20 861	63 37 557	153	4.4	451	556	
1030	12° 18' 810	063° 36' 444	146	4.5	453	507	
1100	12° 17' 700	063° 35' 445	148	4.5	455	525	
1130	12 16' 070	63 34 318	154	4.7	458	534	
1200	12° 14' 180	063° 33' 340	150	4.5	460	667	
12:30	12° 12.758 N	063° 32.090 W	147.9	4.6	463.10	1780.1	
13:00	12° 11.130 N	063° 30.989 W	145.9	4.4	465.3	2032.6	
13:30	12° 09.400 W	063° 29.823 W	145.6	4.4	467.53	2195.2	
14:00	12° 07.754 W	063° 28.714	146.6	4.1	469.57	2236.1	
1430	12 06 112	63 27 613	151.4	4.3	471.65	2234.3	
15:00	12° 04.647 N	063° 26.613 W	148.9	4.1	473.70	2212.3	
1530	12 03 176	63 25 622	144.6	4.1	475.86	2093.0	
16:00	12° 01.816 N	063° 24.703 W	159.4	4.2	477.87	1943.9	Change of duty
1612	12 01 197	063 24 297	153.5	4.9	478.83	1786.1	The 2 GPS systems now gave the same result
1630	12 00.419	063 23.771	155.3	4.4	480.06	1702.3	
1700	12 59.007	063 22.814	151.4	4.3	482.26	1511.0	
1730	11 57.561	063 21.846	150.0	4.2	484.41	1452.4	
1800	11 56.072	063 20.845	155.0	4.2	486.52	1364.9	
1830	11 54.492	063 19.779	147.1	4.3	488.73	1205.0	
1900	11 53.080	063 18.831	147.1	4.2	490.87	1126.6	
1930	11 51.526	063 17.778	153.0	3.9	492.83	1047.3	
2000	11 49.989	063 16.748	140.3	3.9	494.98	475.91	
2030	11° 48' 547	063° 15' 761	147	4.2	497	893	
2100	11° 47' 167	063° 14' 848	149	3.8	499	837	
2130	11 45 864	63 13 968	151	4.0	500	785	
2200	11 44 574	63 13 095	151	4.0	501	785	

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