C. OHARA R/V ASTERIAS 8-79

AUGUST 15, 1979 - AUGUST 28, 1979

R.N. OLDALE

UNIBOOM SEISMIC MASSACHUSETTS BAY

C. OHARA
D. ESKENASY
L. DEKAY

ASTR 79024 8-79 100649

MASS. COOP

Bight Of Mass Bay - Asterias Barom 30.03

OPS: 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							Depart Woods Hole - on route to Provincetown
							1840 (EST) arrive at buoy SE Ptown stream hydrophone + boomer start recorder, test gear aim for point A, take gin survey
							1846 (Asterias time) Boomer going
							1900 - time + Loran, Still enroute to Loran MB-1
							1915 (OK - cruising) Still noisy record
							1926 Contrast .5 Threshold .7
							gain 5.6 print (-)
							1/2 sec/rev 1/4 sec sweep
							Filters { High pass 400 Low pass open
							2000 stop in middle of Line pull gear, head back to Provincetown Arrive Ptown 2200
							17/8/79 0700 August 17, 1979 Friday - return to Ptown for hydrophone + coords w/ RNO
							0745 head out to buoy 13844.0 25471.5 enter point to Loran C
							New phones tried through both amps. Neecho amp required special patch through Nick's battery box to allow clean interface. Also tried with 2 pin makeshift connector to both amps (this cut out the unknown patch cord but may have been less effective) Tried direct to recorder. All above gave either nothing but the outgoing pulse or noise w/o reflectors across the record. Also tried reversing amp to filter but this attenuates signal so can only get bottom returns. Lo cut @ 600 eliminates interference seen the day before. For same area when we replaced w/ old phone

GMT DAY	MO	YR	TIME (EST)	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION		
17	08	79	1020				25529.0	13887.8	
	Lin 1		1030				25534.8	13893.5	
			1045				25543.7	13902.2	
			1100				25552.7	13911.4	
			1115				25561.9	13920.6	
			1130				25571.8	13930.5	
			1145				25580.4	13938.8	
	Lin 2			c/c	arrive at pt #5				
			1150				25579.6	13935.9	
			1200				25575.9	13928.5	
	Lin 3		1212	c/c	BOL 3		25572.0	13920.3	
			1215				25568.4	13917.4	
			1230				25559.5	13908.3	
			1245				25549.6	13898.4	
			1300				25539.7	13888.5	
			1315				25530.1	13879.0	
			1330				25521.3	13869.9	
			1345				25512.8	13861.0	
	BOL 4		1400		c/c to lin 4		25504.2	13852.5	
			1405		resume steaming				
60°	BOL 5		1415		c/c to lin 5		25510.7	13847.6	
	BOL 5		1430				25521.2	13856.8	
			1445				25531.2	13867.1	
			1500				25541.7	13877.7	
			1515				25555.2	13888.3	
			1530				25562.6	13899.1	
			1544		end lin 5		25572.6	13908.9	
					begin lin 6				

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	

we get adequate record.

1020 start survey again

~~at~~ aim for where we ended last night - no, aim for pt. B bec. we are already on line.

1025 try to synch clocks

1145 arrive pt. B, ~~B~~

c/c head for pt C, Begin Line 2

bent tips on belt, have to resynch recorder

1212 arrive at pt C

c/c BOL 3 aim for D

1325 - some noise again, record still not great

[go from D to E 25511.0 13847.6 (line 4) ✓
then E to F 25572.4 13908.9 (line 5)
then F to G (2 miles) 25598.1 13911.1]

1400 c/c BOL 4 aim for E

pull boomer in to clean salad

1405 boom again

1415 arrive, EOL 4, BOL 5 aim for F

1500 avoid buoy (lobs + pot) temp. swerve

1544 EOL 5 shut recorder for belt adjustment

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION		
17	08	79	1600				25586.2	13910.3	
			1615		C/C EOL 6		25598.0	13911.0	
			1618		belt change				
			1625		BOL line 7		25592.0	13904.3	
			1630				25588.2	13900.6	
			1645				25577.5	13889.8	
			1700				25567.0	13879.4	
			1715				25556.9	13869.4	
			1730				25547.3	13859.6	
			1745				25537.6	13850.4	
			1800				25527.8	13840.5	
			1804		EOL 7		25525.3	13838.0	
		C/C			BOL 8				
			1810				25528.1	13835.2	
			1815		EOL 8		25531.8	13833.1	
					BOL 9				
			1830				25541.8	13842.5	
			1845				25552.4	13853.0	
			1900				25562.5	13863.2	
			1915				25572.8	13873.8	
			1930				25583.3	13884.7	
			1945				25593.3	13894.3	
			2000				25602.8	13903.9	
Papa Δ			2005		resume hrly		Close		
			2006		EOL 9 BOL 10		25604.7	13905.8	
Lima			2012				25609.7	13905.0	
			2015				25611.5	13904.6	
			2020				25614.6	13904.0	

OPS: 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							G to H 25525.1 13837.9 H is on Stell. bank
							H to I 25532.0 13833.0 new I, also Stell Bank
							(1618 Shutdown for belt change)
							1625 recorder up
							1815 BOL 9 head West to J 25604.9 13906.0
							(⑩ J→K 25614.8 13904.0 ⑪ K→L 25555.7 13845.5 then home?)
							2000 est paper change (slow speed)
							2005 resume speed, recorder on
							2006 EOL 9 BOL 10 recorder on+off. Chuck working on belt, belt △
							2020 EOL 10 BOL 11

GMT				TIME ZONE	SHIPS		NAVIGATION		
DAY	MO	YR	TIME	±	COURSE	SPD			
17	08	79	2035				25603.0	13893.3	
			2045				25595.2	13885.8	
			2105				25585.1	13875.4	
			2115				25575.0	13865.0	
			2130				25564.2	13854.0	
			2141.50		C/C BOL 12		25555.7	13845.6	
			2143				25556.2	13843.0	
			2200				25564.3	13837.8	
			2204.15		Begin MB-13		25566.4	13832.5	
			2210				25570.6	13836.2	
			2220				25576.2	13842.4	
			2235				25585.6	13851.7	
			2245				25592.1	13858.4	
			2300				25602.7	13868.6	
			2315				25612.8	13879.1	
			2330				25622.7	13889.1	
			2338		Begin MB-14		25627.6	13894.2	
			2345				25633.2	13895.0	
			2357.35		Begin MB-15		25643.1	13897.5	
18	08	79	0000				25642.7	13896.4	
			0015				25631.7	13885.2	
			0030				25621.4	13875.0	
			0045				25610.9	13863.8	
			0100				25599.6	13853.4	
			0115				25588.8	13842.5	
			0130				25577.8	13831.4	
	EOL-15		0135.45		C/C BOL 16		25573.9	13827.6	

at end of line 11, either home or onto pt M
Pt. M, then N, then O, then P
W→E L→M = 11, North M→N = 12 short, E-W N→O = 13 long, North O→P = 14 short

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							2020 begin line 11 aim for point L (25555.7, 13845.5
							cont line 11
							C/C 2141.50 aim pt M (25566.6, 13832.5) end line 11, begin line 12
							C/C aim at N (25627.7, 13894.4) end MB-12, begin MB-13 2204.15
							~2208 record blows up - no changes in anything
							END MB-13 - C/C - BEGIN MB14, steer toward O (25643.3, 13897.8)
							End MB-14, C/C, Begin MB-15 steer toward P (25573.8, 13827.5)
							0135.45 END MB-15, C/C, Begin MB-16, steer to Q (25593.4, 13836.1)

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION		
18	08	79	0145				25580.7	13829.2	
June 16									
EOL 16 →			0201				25593.2	13836.0	
			↑						
	BOL 17								
	cont'd		0215				25602.6	13845.1	
	June 17		0230				25612.1	13854.9	
			0245				25622.0	13864.7	
			0300				25632.4	13875.0	
			0303	belt change			25634.4	13877.8	
			0306	resume record			25636.4	13879.1	
			0315				25642.6	13885.6	
			0330				25653.2	13895.6	
	June 17		0345				25663.2	13906.0	
			0400				25674.3	13916.9	
			0420				25688.3	13931.2	
EOL 17			0423	c/c BOL 18			25689.9	13933.1	
~~BOL 18~~			0430	June 18			25696.3	13935.6	
			0445				25709.1	13940.2	
			0500				25722.6	13945.3	
EOL 18			0505	c/c BOL 19			25729.0	13947.6	
			0520				25721.1	13939.1	
			0530				25713.9	13932.3	
			0545				25702.8	13922.2	
			0600				25692.4	13911.9	
			0615				25681.3	13901.8	
EOL 19			0630	c/c	BOL 20		25670.1	13891.1	
			0640				25672.2	13885.0	
EOL 20			0645	c/c	BOL 21		25673.6	13882.5	

OPS: 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							Pt Q → Pt R 25649.5 13893.0 line 17
							but create R' bec. of direction we all headed.
							R' will be much nearer to the coast
line 17							✓ R' = 13933.0 25690.0 OK, on course 0210
							(line 18 = R' → S 25729.2 13947.7)✓
							(line 19 = S → T (new) 25670.0 13891.0)
							0240 Chuck is playing w/ recorder, seeing if he can clean up the record
							Continuing line 17
							0303 belt change, recorder off
							0306 recording again
							0400 all well, recorder has been spreading for a while.
							0420 took readings; approach end of line prepare for line 18, pt. S 25729.2 13947.7
							0423 EOL 17 BOL 18
							prepare for line 19, pt T (new) 25670.0 13891.0
							0507.45 end line 18 Begin line 19 from S to T
							0630 end line 19, Begin Line 20 T → U
							0645 end line 20 Begin line 21 U → V
							head for pt V
							KN-10 TDs
							KN-27 TDs

Drive down the hatch at the belt change

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION		
18	08	79	0650		line 21		25677.0	13884.2	
			0700				25684.0	13891.4	
			0720				25697.6	13905.1	
			0730				25705.3	13912.8	
			0740		Δ BELT		25712.9	13920.0	
			0743		BACK ON		25715.2	13922.3	
			0745				25716.7	13923.8	
			0800				25728.6	13934.9	
	EOL21		0809.30	C/C	line 22		25735.7	13942.3	
			0815				25738.8	13940.7	
	EOL22		0820.45	C/C	Δ paper B/line 23		MISSED FIX ON C/C		
			0825 30		back on		25740.2	13936.4	
			0830		synch recorder		25737.2	13933.6	
			0845				25726.5	13923.1	
			0853		Adjust Belts				
			0855		Synch recorder				
			0900				25715.5	13912.6	
			0915				25704.8	13902.3	
			0930				25694.6	13891.8	
			0945				25684.3	13882.9	
	EOL23		0953	C/C	BOL 24		25679.4	13877.6	
			1000				25682.2	13874.3	
			1015				25688.4	13866.9	
	EOL24		1018 30	C/C	BOL 25		25689.7	13865.1	
			1030				25698.1	13872.0	
			1045				25709.0	13882.9	
			1100				25720.0	13893.8	
			1115				25731.3	13904.6	
			1130				25742.0	13916.0	

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							20 ~~T~~ to U U = 25673.5, 13882.2 ✓
							21 U to V V = 25735.9, 13942.4 ✓
							22 V to W W = 25741.7, 13937.9 ✓
							23 W to X X = 25679.3, 13877.6 ✓
							24 X to Y Y = 25690.0, 13865.0 ~~Y ✓ Must be reset -- I changed the line done~~ OK
							turn page
							for further information as we approach
							0700 steaming along line 21 Hollister GP Cores
							EOL 21 c/c BOL 22 steer to W
							EOL 22, c/c, BOL 23 steer to X Down paper change
							Recorder tank on steer Line 23
							EOL 23, c/c, BOL 24 steer toward Y
							0953
							1018 Begin line 25, head for Z

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION		
18	08	79	1146		C/C	BOL 26	25753.8	13927.4	
			1155				25758.9	13923.9	
EOL 26			1158		C/C	BOL 27	25760.5	13922.6	
			1200				25760.1	13921.3	
			1215				25750.7	13911.9	
			1230				25741.3	13903.0	
			1245		↑ gain to 35 dB		25732.0	13893.7	
			1300				25722.3	13884.7	
			1315		Adj bell		25713.1	13875.5	
			1320		synch recorder		25709.7	13872.8	
			1330				25703.2	13866.2	
EOL 27			1339		~~C/C BOL 28~~ slow		25698.1	13861.4	
			1355		BOL 28		25702.7	13857.9	
			1400				25705.9	13855.6	
			1404 30		KN-10		25707.8	13853.6	
EOL 28			1408		BOL 29		25709.8	13852.1	
			1415				25705.6	13847.6	
			1424 30		KN-27		25699.5	13841.5	
			1430				25697.1	13837.3	
EOL 29			1435	C/C	BOL 30		25694.6	13834.3	
BOL 30			1444	C/C	BOL 31		25701.1	13839.9	
			1447 30		KN-27		25699.4	13841.0	
BOL 31			1456.15	C/C	BOL 32		25696.2	13844.1	
			1505				25703.0	13849.5	
			~~1510~~		KN-10		~~25707.9~~		
			1511				25707.9	13853.4	
EOL 32			1516	C/C	BOL 33		42°24.49'	70°34.91'	
			~~1515~~				over		

Mark GPC on paper

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	

Y → Z Z = 25753.8 13927.5 ✓

Z → ZA ZA = 25760.7 13922.5 ✓

ZA → ZB ZB = 25698.2 13861.2 ✓

ZB to KN-10 (ZD) = 25708.0 13853.5 ✓ no c/c * mark GPC KN-10

KN-10 → ZBA, ZBA = 25710.0 13852.0 ✓

ZBA to KN-27, KN-27 = 25699.3 13841.3 ✓ no c/c * mark GPC KN-27

KN-27 to ZBC, ZBC = 13839.0 25~~702.0~~ 697.5 ✓

ZBC → ZBD, ZBD = 13840.0 25701.0 ✓

ZBD → KN-27 = 25699.3 13841.3 ✓ no c/c * GPC KN-27

KN-27 → ZBE = 25698.0 13843.0 ✓ X

ZBE → KN-10 = 25708.0 13853.5 ✓ no c/c * GPC KN-10

KN-10 → ZBF = 25710.0 13856.0 ~~ok~~ BAD

ZBF → ZBG, ZBG = 25707.0 13859.0 ~~ok~~

Now go from ZBG to ZF, on our regular course

ZF = 25766.4, 13917.0

1146 Begin Line 26

1158 End L.26, B.O.L. 27, head for pt. ZB

? Is paper moving slower today? The

? five minute spacings are shorter than last night.

(Yes, about 0830 this morning)

1339 Recorder off, belt changed, ~~[illegible]~~ salad removed

from boom or Recorder on again at about 1349

slow 1354 Resume speed 1355 synch recorder

1404.30 KN-10 ; 1424.20 KN-27

line 30 doglegs to get us set for next line I screwed up the TDS at ZBC and ZBD

1516 c/c 42°24.43' 70°34.91'

head for pt. ZBG then pick up ZF

25766.4 13917.0

GMT				TIME ZONE	SHIPS		NAVIGATION	
DAY	MO	YR	TIME	±	COURSE	SPD		
18	08	79			heading for pt ZF from			
							42°24.49' and 70°34.91'	
	EOL 33 ~~18~~							
Line 34			1524	C/C	BOL 34		25709.0	13860.8
			1530				25713.2	13864.9
			1545				25724.8	13876.0
			1600				25736.2	13887.7
			1615				25746.7	13897.5
			1630				25758.5	13909.3
			1640		End Line 34		25766.2	13916.9

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	

After much ado about Hollester Cores we have crossed OPCs KN-10 and KN-27 twice each, & then lost ourselves
We followed Lat & long down to 42°24' and now have resumed our E-W lines
So now, at 1524, BEGAN LINE 34
EOL 34 @ 1640'
Head for Boston Harbor 1645 (maybe on steam)

Sunday 19 Aug 79

New Day

0800 depart Boston Harbor

On route to start of line MD-35

~ 2 hour steam

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION	
19	08	79	1029		BOL	35	25770.6	13916.1
			1044				25776.8	13908.4
EOL 35			1047		BOL	36	25778.8	13907.4
			1100				25777.2	13898.3
			1115				25762.1	13887.5
			1130				25753.0	13887.3
			1135		Synch		25749.9	13873.8
			1145		Δ Belt		25744.2	13866.5
			1147:30		back on		25742.6	13864.7
			1150		synch		25741.0	13862.9
			1200		resynch		25734.6	13856.0
			1215				25725.6	13845.7
EOL 36			1229 30		BOL	37	25717.2	13835.5
							.	.
			1244		slow to correct Wave		.	.
EOL 37			1255		BOL	38	25728.5	13830.4
			1301				25732.3	13837.2
							.	.
			1312		VELOCITY AMP THROWN OFF BENCH			
			1316:15				.	.
			1330				25749.0	13852.3
			1345				25757.9	13862.0
			1400				25766.8	13871.2
			1415				25775.7	13881.1
			1430				25785.4	13891.1
EOL 38			1438:40		BOL	39	25790.7	13896.9
			1445				25792.6	13892.9
			1500				25797.5	13883.0
EOL 39			150215		BOL	40	25798.2	13881.7
							.	.

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							Start line MB-35 (ZG: 25778.8 13907.3)
							EOL MB-35 BOL MB-36 (ZH 25717.1, 13835.5)
							EOL MB-36 BOL MB-37 (ZI: 25723.6, 13840.2)
							Head to ZK
							ALL OK
							Con't line MB-38
							Steer to ZN BOL 39 EOL 38
							EOL 39

UNIBOOM BOMBAST-8-79

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION	
19	08	79	1502:15		BOL 40		257798.2	13881.7
			1515				257788.5	13871.7
			1530				257778.0	13860.5
			1545				257767.6	13850.3
			1600				257757.1	13839.6
			1615				257746.6	13829.2
	EOL 40		1621:30		BOL 41		257742.2	13824.7
			1630				257732.2	13813.5
			1645				257737.6	13810.9
			1654		Adj Belt		257733.2	
	EOL 41		1654:45		BOL 42		257733.2	13802.7
							257736.2	13807.8
			1715				257745.6	13815.0
			1730				257755.0	13825.2
			1745				257765.4	13834.8
			1800				257775.2	13845.0
			1815				257784.7	13855.3
	EOL 42		1825:45		BOL 43		257791.8	13863.1
			1830				257792.1	13860.0
	EOL 43		1839:20		BOL 44		257792.5	13852.5
			1845				257788.2	13848.8
			1900				257777.6	13837.4
			1915				257767.0	13826.4
			1930				257756.6	13815.7
			1945				257746.3	13804.8
			1949		○ Belt rec. off		257743.6	13801.7
			1951:30		Back on		257741.9	13800.3
			2000				257736.4	13794.5
	EOL 44		2002:30		BOL 45		257735.0	13792.7

ZQ

UNIBOOM BOMBAST-8-79

OPS: 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							Steer to ZM, BOL MB-40. Heading EAST. (25742.3, 13824.5)
							EPC Recorder down - paper + belt change
							EPC " on - Start line MB-41
							Recorder down for belt adj ~ 20 sec.
							BOL 42 (25792.0 13863.5 : ZO)
							EOL 42 BOL 43 (ZR: 25792.4 13852.8)
							EOL 43 BOL 44 (ZQ: 25734.9, 13792.7)
							Δ to spreading
							Recorder Belt change
							EOL 44

GMT				TIME ZONE	SHIPS		NAVIGATION	
DAY	MO	YR	TIME	±	COURSE	SPD		
19	08	79	2002	2:30	BOL	45	25735.0	13792.7
			2015				25730.7	13783.3
			2030				25725.8	13772.3
	EOL	45	2033		BOL	46	25725.8	13770.6
			2045				25732.2	13778.0
			2100				25742.6	13788.8
			2115				25753.2	13800.2
			2130				25763.1	13810.3
			2145				25773.0	13820.7
	EOL	46	2200				25783.1	13831.3

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							BOL 45 (ZT: 25725.1, 13770.6)
							℄ BOL 46 (ZS: 25783.2, 13831.2)
							Call it a day - On route to Gloucester for the night

GMT				TIME ZONE	SHIPS		NAVIGATION	
DAY	MO	YR	TIME	±	COURSE	SPD		
20	03	79	0811		BOL 47		25784.5	13828.8
			0815				25784.1	13825.7
EOL 47			0822:30		BOL 48		25783.2	13819.8
			0830				25778.2	13814.4
			0845				25768.5	13804.0
			0900	△ Belt			25759.5	13793.7
			0901:45	Back on			25758.4	13792.5
			0915				25749.7	13783.9
			0930				25741.0	13774.3
			0945				25732.3	13765.0
EOL 48			0955		BOL 49		25726.6	13759.0
			1005				25726.3	13752.9
EOL 49			1015:45		BOL 50		25726.7	13747.0
			1030				25736.0	13756.6
			1045				25746.1	13767.3
			1100				25756.0	13778.0
			1115				25765.4	13789.1
			1130				25775.5	13799.5
EOL 50			1141:30		BOL 51	C/C	25783.1	13807.4
			1150				25782.5	13802.4
			1200				25780.9	13795.2
EOL 51			1202:40		BOL 52		25780.8	13793.6
			1205				25779.5	13792.1
			1215				25773.4	13785.8
			1230		△ Belt		25764.6	13776.1
			1235:30		Back on		25761.3	13772.6
			1245				25756.0	13766.8
			1306				25747.8	13757.8
			1315				25739.1	13748.9
			1330				25730.8	13739.1

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							Out of Gloucester, Begin line 47 (ZV 25783.4, 13819.7)
							Change Belt Back on
							0955 end line 48, begin line 49, head for ZX (25726.8 13746.8)
							1015:45 end line 49, Begin line 50 (ZW: 25783.1, 13807.6)
							BOL 51 (ZZ: 25780.9, 13793.4)
							BOL 52 (ZY: 25725.1, 13733.1)
							EPC down belt change

25760
758

LINE MB52

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION	
20	08	79	1339		BOL 53		25725.2	13733.3
			1345				25728.7	13732.3
EOL 53			1355:30		BOL 54		25735.8	13731.8
			1400				25738.8	13735.0
			1415				25749.3	13746.5
			1430				25760.0	13757.6
			1445				25770.4	13769.6
EOL 54			1459:30	C/C	BOL 55		25780.3	13780.6
			1500				25780.7	13779.9
			1515				25773.3	13769.2
~~EOL 55~~			1530	~~C/C~~	~~BOL 56~~		25767.0	13760.1
EOL 55			1544:30	C/C	BOL 56		25760.1	13750.0
			1600				25760.3	13761.1
			1615				25759.9	13772.6
			1630				25759.7	13784.1
			1645				25759.8	13795.6
			1700				25759.8	13807.0
			1705:30				25759.8	13809.1
			1715				25759.8	13816.5
			1730				25759.9	13828.1
			1745				25760.1	13839.4
			1800				25760.1	13850.8
			1810				25759.8	13858.2
EOL 56			1812:15	C/C	BOL 57		25760.0	13859.7
			1815				25758.8	13861.3
			1830				25751.1	13867.0
			1845				25743.8	13873.8
			1900				25736.8	13878.5
			1915				25729.7	13884.4
			1930				25722.3	13890.3

OPS: 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							C/C BOL 53 (AZA: 25736.0, 13732.0) EOL 52
							C/C BOL 54 (AZA: 25780.0, 13780.2)
							1458 BOL 55 25760.0 13750.0 endpoint
							line # endpoint
							56 ✓ 25760.0, 13860.0
							57 ✓ 13900.0 25710.0
							58 ✓ 25590.0 13870.0
							59 25534.8 13895.5
							rerun to start → 60 → 25497.0 13857.5
							C/C start line MB-56
							1700 slow for paper + belt Δ
							1705.30 resume recorder, line 56, speed up
							1715 light, clock synch seems to work (false alarm)
							start line MB-57

GMT				TIME ZONE	SHIPS		NAVIGATION		
DAY	MO	YR	TIME	±	COURSE	SPD			
20	08	79	1945				LINE 57 cont	25714.6	13896.1
EOL 57	~~2053.45~~			d/c			~~BOL 58~~	~~13899.8~~	~~25710.2~~
	19	~~53~~	2053.45	d/c			BOL 58	25710.2	13899.8
			2000					25704.7	13898.5
			2015					25692.1	13895.8
			2030					25678.9	13892.6
			2045					25665.6	13889.3
			2100		Δ Belt			25651.3	13885.3
			2102		Back On			25649.6	13884.8
			2115					25637.1	13881.8
			2130					25622.7	13878.5
			2145					25607.9	13874.4
			2200					25593.0	13870.7
			2203					25590.1	13870.0
BOL 58			2205		BOL 59			25588.7	13870.8
			2215					25581.7	13873.6
			2230					25571.8	13878.5
			2245					25561.9	13883.1
			2300					25551.6	13887.8
			2315					25541.2	13892.2
EOL 59			2325		Returning	MB-1		25535.3	13895.6
			2330					25531.8	13892.0
			2345					25520.0	13880.4
			2400	↓					
21	08	79	0000		MB-1 cont			25508.3	13868.5
			0015		END Survey			25497.2	13857.7

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							(~~Back~~ to 13900.0, 25710.0)
							(Next to 25590., 13870.0)
							1953.45 c/d Begin 5-8
							EOL 58 BOL 59 (25534.8, 13895.5)
							EOL 59 ~~Return~~ RERUN PART OF Line 1 (25497.0, 13857.5)
							0830 Depart P-Town - on route to Woods Hole

GMT				TIME ZONE	SHIPS		NAVIGATION
DAY	MO	YR	TIME	±	COURSE	SPD	

Prepared turning points

OPS: 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS						
							A	25497.0	13857.5	1	ZE	25699.3	13841.3 KN-27 GPC
							B	25580.5	13939.0	2	ZF	25766.4	13917.0
							C	25572.0	13920.0	3	ZG	25778.8	13907.3
							D	25504.2	13852.6	4	ZH	25717.1	13835.5
							E	25511.0	13847.6	5	ZI	25723.6	13840.2
							F	25572.4	13908.9	6	ZJ	25784.6	13901.5
							G	25598.1	13911.1	7	ZK	25790.8	13897.1
							H	25525.1	13837.9	8	ZL	25729.3	13834.8
							I	25532.0 ~~25549.2~~	13833.0 ~~13851.7~~ new old	9	ZM	25742.3	13824.5
							J	25604.9	13906.0	10	ZN	25798.3	13881.6
							K	25614.8	13904.0	11	ZO	25792.0	13863.1
							L	25555.7	13845.5	12	ZP	25733.2	13802.6
							M	25566.6	13832.5	13	ZQ	25734.9	13792.7
							N	25627.7	13894.4	14	ZR	25792.6	13852.8
							O	25643.3	13897.8	15	ZS	25783.2	13831.2
							P	25573.8	13827.5	16	ZT	25725.1	13770.6
							Q	25593.4	13836.1	17	ZU	25726.4	13758.9
							R	25690.0 ~~25649.5~~	13933.0 ~~13893.0~~	18	ZV	25783.4	13819.7
							S	25729.2	13947.7	19	ZW	25783.1	13807.6
							T	25670.0 ~~25606.4~~	13891.0 ~~13826.1~~	20	ZX	25726.8	13746.8
							U	25673.5	13882.2	21	ZY	25725.1	13733.1
							V	25735.9	13942.4		ZZ	25780.9	13793.4
							W	25741.7	13937.9		AZA	25780.0	13780.2
							X	25679.3	13877.6		BZA	25736.0	13732.0
							Y	25690.0 ~~25686.9~~	13865.0 ~~13861.2~~ resid point				
							Z	25753.8	13927.5				
							ZA	25760.7	13922.5				
							ZB	25698.2	13861.2				
							ZC	25705.0	13856.0				
							ZD	25708.0	13853.5				

KN-10 GPC Hollister

note corrections

GMT				TIME ZONE	SHIPS		NAVIGATION
DAY	MO	YR	TIME	±	COURSE	SPD	

RERUN MB-1 FROM 25534.8, 13893.5 to P-town.

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	

GMT				TIME ZONE	SHIPS		NAVIGATION
DAY	MO	YR	TIME	±	COURSE	SPD	