U.S. GEOLOGICAL SURVEY

LORANC
NAVIGATION LOG

R.V. ASTERIAS - BUZZARDS BAY
& WEST TO SAKONNET PT.

UNIBOOM SURVEY

1 - 12 OCTOBER 1973
2 - 3 DECEMBER 1974

EQUIPMENT

EG&G UNIBOOM SYSTEM
CATAMARAN w/ TRANSDUCER
TRIGGER ASSY.; HYDROPHONE
EPC MOD 4100 RECORDER
Onan gasoline generator (5 kw)
EPSCO Loran C navigation unit
w/ repeater.

PERSONNEL

J. ROBB
C. OHARA
R. HALL
L. SETLOW
(MASS DIV MINE
RESOURCES)
CAPT. A.D. COLBURN
ASTERIAS

ALSO 19 JUN 1975 (Robb, O'Hara)

ASTR 73OCT #73005
74 DEC #74017
75 JUN #75011

100477

UNIBOOM SURVEY LORAN "C" NAVIGATION

~~USGS OCS CRUISE LEG II GRAVITY~~

1 Oct 73 ASTERIAS – BUZZARDS BAY

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
					Mag			CAPE RACE	DANA		
1	10	73									
			1547		335			37961.6	69851.5		
			1600		"			962.0	846.0		
			1616		"			962.1	839.4		
01	10	73	1630		"			37962.0	69833.7		
			1645		"			962.0	828.1		
			1700		"			962.0	822.3		18.8
			1709	C/C	065			962.0	819.1		15.6
			1715		"			37956.0	69818.2		14.7
			1721	C/C	155			950.4	818.0		14
			1730		"			950.0	821.2		17.7
			1745		"			950.2	826.4		
			1749					950.2	828.1		24.6
			1810		"			949.9	825.2		
			1830		"			950.2	832.2		28.7
			1845		"			37950.0	69837.3		
			1900		155			37950.1	69842.3		
			1916		"			949.9	847.6		
			1927.5		"			950.0	852.2		minus ENV ON
02	10	73	0825		335			37937.9	69849.8		
			0845		"			937.9	841.7		
			0900		"			937.8	835.2		
			0915		"			938.0	829.7		
			0920		"			938.0	827.5		(1)
			0930		"			37937.9	823.6		
			0945		335			938.0	817.4		
02	10	73	0949	C/C	045			937.9	815.9		(2)
			1001		"			927.0	813.0		
			1002	C/C	155			926.2	813.0		809
			1006		"						

ALL COURSES MAGNETIC !

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							Start line #1 Cape Race Zone 37,962
							WOODS HOLE BELL ABEAM 1546
							End line #1 On route to start line #2
							Start line #2 Cape Race Zone 37,950
							5/0 1722
							System shutdown - broken stylus on EPC ship slowed (CIRCLE
							System back on - Resume line #2
							END line #2 Off MBL beach
938							Start line #3 - Quissett harbor Buoy R "2" START LINE ~ 1/4 m NE of Cape Race Zone 37,938 msec
							~ 1/8 mile WSW of Bell Buoy "7" ABEAM STBD.
							End line #3 ~ 100m NE of R "2" Nun Buoy 1 1/2" ABEAM PORT Angelica Point
926							~~Start line #~~
							Start line #4 Cape Race Zone 37,926.0 Pleasea PT
							~ 1/4 m SW of Can Buoy # "11" Abeam Port - The Bow Bells

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
02	10	73						CAPE RACE DANA			
			1015		155			37925.9	69817.3		
			1030		"			926.2	822.9	19.4	
			1045		"			926.1	827.7		
			1100		"			925.8	832.9	27.9	
			1115		"			926.4	838.4		
			1126		"			925.9	841.8		
			1130		"			926.0	843.2		
			1133	C/C	020			37926.0	69844.2		
			1145		"			917.5	840.4	37.4	
02	10	73	1150	C/C	335			914.4	838.7	35.7	
			1159		"			913.9	835.2	32.2	
			1215		"			914.0	829.2		
			1228		"			914.1	824.1		(45)
			1230		"			913.9	823.0	44.5	
			1244		"			913.9	817.8		(46)
			1252		"			913.9	814.8	11.3	
			1308		"			914.0	815.0	11.5	
02	10	73	1313		"			37913.8	69813.2		(47)
			1324	C/C	060			914.0	808.6	80.6	
			1327		"			911.6	808.2		(48)
			1330		"			909.1	808.2		
			1333		"			906.2	807.9		
			1335		"			904.3	807.8	3.8	
			1337	C/C	190			902.8	807.6		
			1340		"			904.0	808.7		
			1344		"			905.6	810.1		
			1347.5		"			907.2	811.5		(49)
			1351	C/C	090			908.7	812.8		
02	10	73	1400	C/C	155			37901.9	64813.5		(50)

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							~1/4 mile NE of buoy Nun "4" - abeam STBD
							End line #4 off Gunning Point - On route to line #5
							Start line #5 north of Gifford ledge. Gifford Ledge - Cape Race Lane 37,914 usec
							~1/4 mile SW of Chappaquoit PT. Bell buoy R "2" ABEAM STBD ~½ m
						✓	abeam both Buoy QR FL "1" and Cleveland East Ledge Horn
						✓	~150 m SW of RB Gong buoy - abeam stbd
							System shutdown - lost a stylus on EPC recorder
						✓	System back on - steady on continuation of line #5
						✓	~1/4 mile SW of Centerboard Shoal Buoy R "2" ABEAM STBD
							End line #5 - on route to Buoy "3" Converse Point - Start line 5a
						✓	~200 feet E of Can Buoy "3" ABEAM PORT - Crossing Sippican Hbr
							Line 5a
							" "
							Line 5a still crossing mouth of Sippican Hbr.
							c/c 500' off the Cliffs - end line 5a start line 5b SOUTH HEADING
							ORf Butler Point
						✓	~500' W of Bird Island Tower - abeam to port
							Heading toward Bird Island Reef Bell Buoy "13" On route to start line #6
						✓	Start line #6 - turn 100' S of Buoy "13" Bird Island Reef Cape Race Lane 37,902 usecs

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS MAG COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
								CAPE RACE	DANA		
02	10	73	1415	[redacted]	155			37902.2.	69819.0.		
			1430	"	"			902.2.	824.4.	20.9	
			1453	"	"			902.2.	832.6.		
			1457	C/C	000			902.1.	833.0.		
			1500		"			900.6.	831.2.	28.2	
			1516		"			37893.3.	69825.2.	21.7	
			1519		"			892.5.	824.3.	20.8	
			1523	C/C	335			891.2.	822.9.	19.4	
			1530	C/C	000			891.0.	820.2.	(51)	
02	10	73	1533	C/C	335			890.3.	819.3.	15.8	
			1545		"			890.1.	815.0.		
			1600		"			889.9.	809.8.	805.8	
			1612		"			889.5.	805.8.		
			1615	C/C				889.9.	804.9.	(52)	
			1626	C/C	087			881.9.	802.6.	(53)	
			~~1628~~		"						
			1630		"			37879.2.	69803.0.	799	
			1635		"			875.5.	803.2.	799.2	
			1640		"			871.4.	803.8.		
			1645	C/C	198			867.3.	803.7.		
			1650		"			870.1.	805.2.		
			1655		"			37873.2.	69806.6.		
			1700		"			876.5.	808.1.		
			1705		"			879.9.	809.9.	6.4	
			1710		"			882.8.	811.4.	7.9	
			1711	C/C	199			883.7.	812.3.		
								~~883.0.~~	~~813.2.~~	(54)	
			1715					883.0.	813.2.	809.7	
			1720					881.8.	814.7.	11.2	

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							Line 6 ends off beach north of Little Island.
						N 6	End line #6 @ ~ ½ m NE of Can buoy "1" off W Falmouth Hbr.
							On route to Nyes Neck Buoy "1" FL 4 SEC to start Line #7
							Unibogm hung up on lobster pot
							Cleared + system GO
						✓	Course correction to avoid Southwest Ledge - heading toward ~100' SW of Nun Buoy "8" abeam to STBD - heading North to start line #7
							Nun Buoy "8"
							Start Line #7 near Southwest Ledge - Cape Race Zone 37, 890 usec
						✓	Course adjustment for traffic avoidance
						✓	End line #7 ~ ¼ mile SE of Great Hill Point on route to Nun Buoy "4"
							Turn 50' E of Nun Buoy "4"
							↖ Start Line #8
							On route to QK FL. Buoy "1" off ~~Stony~~ Point Dike
							1711 Buoy #"1" abeam port
						✓	Course change - heading toward Scraggy Neck
							↳ ~50' SW of buoy "1"

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS Mag COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
02	10	73	1725		144	4.5		37880.5	69816.6	13.1	
			1730					37880.0	817.8	14.3	
Line #9			1731	C/C	253	4.5		879.9	818.1	14.6	
			1735					882.5	818.9	15.4	
			1740					887.3	819.1	15.6	
			1745					891.8	819.1	15.6	
			1752					898.0	819.1	15.6	
			1755					37900.5	819.1	15.6	
			1800					905.3	819.4	15.9	
			1805					909.3	819.2	15.7	
			1810					913.7	819.7	16.2	
			1815					918.6	819.5	16.0	
			1820					922.7	819.5	16.0	
			1832					932.0	819.5	16.0	
02	10	73	1840					37938.1	69819.3	15.8	
			1850					946.0	820.1	16.6	
			1856					951.4	820.1	16.6	
			1900					953.6	820.5	17.0	
			1910					961.1	820.9	17.4	
			1913					963.7	821.3	17.8	
				FINISHED FOR THE DAY							
03	10	73	0856		335			37974.2	69851.3		
			0902					973.9	849.1		
			0909								

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							Start [illegible] @ 1731 OFF Scraggy Neck
							~1857 Nye's ledge Fl G Bell Abeam 500' stbd
							~100' [illegible] E of Nye's ledge buoy "[illegible]" ABEAM STBD
							End Line #9 ~ 1/4 mile E of Cormorant Rock marker ABEAM TO STBD
							Start line #10 ~ 1/8 m off NW part of Naushon Island Cape Race Lane 37,974.0 usec - line running between the Weepecket Islands & Weepecket Rock
							System shut down - Problem with paper advance On route toward Naushon Island to restart line #10

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS MAGNETIC COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
03	10	73						CAPE RACE	PAWA		
			1004		335			37974.2.	69852.6.		
			1015		"			978.1.	848.2.		(3)
					"						
			1026		"			973.9.	843.7.		(4)
			1045		"			973.8.	836.5.		(5)
			1053					973.7.	833.3.		
			1103		335			973.8.	833.7.		
			1117		335			974.0.	828.2.		
			1130		"			974.0.	823.8.		
			1145		"			974.0.	817.8.		
			1153	C/C	247			974.0.	814.7.	10.7	
03	10	73	1156		"			37976.9.	69818.8.		
			1159		"			979.8.	815.0.		
			1201		"			981.8.	815.5.		
			1203:30	C/C	070°M			983.8.	815.9.		
			1206		070			982.5.	815.2.		
	12	09	~~1200~~	C/C	345° mag			978.5.	815.2.		
			1213		"			978.2.	816.1.		
			1217		"			977.5.	817.8.		
			1220		"			976.8.	818.9.		
			1225		"			976.1.	820.8.		
			1231	C/C	205			975.7.	822.3.	18.8	
					"						
			1243		"			983.3.	826.2.	22.7	
			1247	C/C	155			985.9.	827.7.		(6)
03	10	73	1250		"			37985.8.	69828.6.		
			1302		"			986.0.	833.1.		
			1313		155			985.8.	837.6.		(7)

OPS

12 KHz | 3.5 KHz | CSP | MAG | GRAV. | SONO. | STA.

COMMENTS AND OBSERVATIONS

1004 off channel between Naushon & Uncatena Islands

Restart Line #10 ~ ½ mile West of Uncatena Island
On route toward Weepecket Rock

1013 → ½ mile SW of Weepecket Rk Buoy W "8" Abeam to STBD

1026 ~ 4/10 mile NE of Buoy BW "W1" Gong - Abeam to Port

~~1028~~ 1045 → ~ .95 mile NE of Buoy R "8" Gong - Abeam to Port

Start of circling to avoid traffic ahead - will come back onto line
Back on line #10

[1110 changed clock setting - speeds of ship may show apparent change.]

End Line #10 ½ mile off land in Nasketucket Bay - Start line 10a heading toward Naushon Point to SW crossing Nasketucket Bay behind West Island.

Still surveying in Nasketucket Bay

[redacted] c/c 180° Turn - run 10a back - heading toward Brant Is.

c/c headed out around West Island

(1230 clock reset again)

heading toward Buoy R "2" Bell SSE of Rocky Point to start line #11 Cape Race Zone 37, 986 usecs

Start line #11 ~ ½ mile NNE of R "2" Bell Buoy
< ½ mile NE of R "2" abeam to STBD

~ 100 yards SW of Gong Buoy R "8" Abeam to Port

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
03	10	73						CAPE RACE	DANA		
			1315		155			37986.6	69838.6		
			1332		155			985.8	84.5		
			1345		11			986.3	879.9		
			1346:30	C/C	220			986.2	850.3		
			1400		4			997.1	853.7		
			1401	C/C	155			997.9	854.0		
			1402	C/C	335			997.9	854.3		
03	10	73	1416		11			37997.8	69849.9		
			1430		11			37998.0	69844.4		
			1445		11			37997.7	69839.2		
			1500		11			37998.1	69834.0		
			1515		11			37997.9	69828.9		
			1519	C/C	264			998.2	827.2	2	3 8
			1522		11			38001.3	827.2		
			1525		11			003.5	827.1	2	3 6
			1527		11			38005.7	69827.0		
03	10	73	1530		11			008.5	827.0		
			1535					012.7	826.6		(8)
			1540					017.3	826.4		
			1541					018.2	826.3		
			1545					021.5	826.1		
			1551					026.7	825.7		
			1553	→				029.0	825.7		(9)
			1555					38030.7	69825.6		
			1600					38035.0	69825.7		
			1606					38041.2	69825.5		
			1615					38048.5	69825.1		
			1617					38049.9	69825.0		
			1623		043			047.7	824.6		

997

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							End line 11 200 yards off Big Weepecket Is - on route to start line #12
							Turn toward Nanshon Island to start line closer
							Start line #12 200 yards off Nanshon Is Cape Race Lane 37,998 usec
							End line #12 Start Line #12a ~ 4/5 mile S of Rocky Pt - West Is.
							1519: 0.9 mi S of West Island; 0.4 mi SE of West Island Ledge.
							Abeam to starboard buoy 2A 450'
							~200 yards S of Mosher Ledge Buoy "4A" (R"4A)? ABEAM STBD
							~75 yards N of Flashing Buoy "5" black gong. ABEAM TO PORT
							~100 yards N of Phinney Rock Can Buoy "9" ABEAM TO PORT
							Buoy Black gong "9" abeam Starboard 1606
							End line # 12A, circle while adjust catamaran off Round Hill Pt.
							Start line 12B ~100 yards SE of White Rock

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS MAG COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
								CAPE RACE	DANA		
03	10	73	1625		043			38096.0	69829.0		
			1630		11			042.0	823.1		
			1633		11			039.9	822.4		
			1638		11			034.7	821.1		
			1650		11			026.3	818.8		
			1700		"			38017.6	69816.6		
			1710		11			009.3	814.1		
			1720		11			000.9	812.0		
			1725	C/C	196			37997.2	69811.7		
			1730		11			38000.2	813.3		
			1740					38006.3	69817.1		
			1741					38007.1	69817.1		
			1750					38012.9	69820.4		
			1752					38013.6	69820.5		
Good	by		1756					015.2	821.7		
03	10	73	1800					015.3	823.4		
			1809					38015.1	69826.7		
			1810					38015.2	69827.0		
			1820					38015.0	69826.4		
			1825					38015.1	69827.6		
			1830					38015.0	69829.0		
			1850					38015.4	69836.6		
			1900					014.9	839.4		
			1910					015.2	843.4		
			1920					014.8	846.7		
			1930					38014.9	69851.0		
			1940					38014.8	69854.2		
			1942					015.0	855.5		

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							1625 large rock outcrop off port.
							~1/8 mile NW of Middle Ledge Nun Buoy "2" Abeam to STBD
							~100 yards NW of Inez Rock Can Buoy "11" abeam to STBD
12 B							End line 12 B c/c 196° mag start line 12 C
12 C							off Western shore of Scouticut neck.
							2 channel buoys abeam line bisecting 2 channel buoys abeam ~1/2 mile stbd.
							1750 Black rock day marker abeam port ~3/4 mi.
							1752 Pallet Rock N"8" abeam ~1/2 mile. ~~[illegible]~~
12 C							End line 12 C Start Line 13 ~500 yards W of Nun "8"
13							Cape Rose June 38,015.0
							1757 Henrietta Rock N"6" abeam ~300 yds Port.
							Change belts on recorder, circling
							Resume line
							1826 R Bell "4" 500' abeam stbd.
13							End line # 13 ~1/4 mile NW off Kettle Cove, Naushon Island
							Shut down for the day

037

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
04	10	73						CAPE RACE	DANA		
			[illegible]					38	69		
			0852		335			38 027.2	69 856.3		
			0900		"			026.8	853.4		11.6
			0915		"			026.9	848.0		
			0930		"			027.0	841.8	13	
			0945		"			027.2	836.4	14	12
			1000		"			027.3	830.6		
			1012		"			027.1	826.1		
			1015		"			027.0	824.9		
			1018		"			027.0	823.9	15	11.3
04	10	73	1022		"			38 027.0	69 822.2	16	
			1030		"			027.3	819.5		
			1045		"			027.0	814.9		
			1051 c/c		299			027.2	811.8		
			1100		"			033.1	814.3		
			1110		"			040.0	817.9		
			1115		"			043.8	820.0		
			1117 c/c					045.2	820.7	17	
								0			
								042.5	815.1		18
								040.7	811.5		
			1235					041.1	815.4		
			1236		090			040.9	815.5		

039

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
						14	Start line # 14 ~ [redacted] NW off Rams Head - Nauhon Is. off Nauskon I. S. of Kettle Cove.
							~50 feet NE of Bell Buoy (A) "BB" ABEAM TO PORT
							~ [redacted] Buoy FL G 4 SEC "1"
							0946 FL G "1" 0.2 mi Port. abeam to STBD
							~ 2/10 mile NE of Phinney Rock Buoy C "9" abeam to port
							(1011.7) Phinney Rock buoy abeam 0.2 mi. Port.
							~ 1/10 mile NE of Church Rock Warn Buoy "6A" abeam to port
							~ 200 feet SW of ~~Decatur~~ Rock Warn Buoy "8" " " STBD Decatur
						14 14A	End line # 14 ~ 1/8 mile off Mosers PT Start line 14a
						14A	~50 feet E of Keel Rock Buoy C "3" End line 14a
							Ship stationary in water - Experimenting with EPC (Filter settings)
							Will proceed into Cuttyhunk Channel Buoy - South Dartmouth to refuel vessel.
							Abeam of Breakwater Tower entrance
							Refueling Dock
						14 b	Commence Line 14 b en route to starting point of Line # 15

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
04	10	73						CAPE RACE	DANA		
			1238		155			38 039.0	69 816.0		
			1246		"			039.4	818.7		
			1300	C/C	170			039.5	823.9	19	
			1307		"			041.5	826.5		
			1312	C/C	120			042.9	827.9	20	26.6
			1318	C/C	155			039.1	830.1		
			1330		"			039.0	834.5		44.6
			1345		"			039.3	839.8		
			1400		"			039.1	846.1		42.6
			1415		"			039.0	851.9		41.5
			1430		"			039.2	857.6		
04	10	73	1433	C/C	270			38 039.1	69 858.7		
			1439					043.5	858.3		
			1440	C/C	300			044.1	858.3		
			1445		"			047.1	856.6		
			1448.5	C/C	260			048.3	856.0		
			1452.5	C/C	335°			38 051.5	698 55.6		
			1502					050.8	852.6		
			1515					050.6	848.3		
			1530					051.2	843.1		39.6
			1945					051.0	837.7		
			1600					051.0	832.3		28.8
			1610					051.2	828.6		21
			1613	C/C	278°			051.0	828.1		
			1615					052.9	821.7		22

051

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
		14b					End line 14b
		15					Start line 15 ~ 1/4 mile SE of Ricketson Pt, South Dartmouth
							~25' W of Gong Buoy "9" steam to port - heading forward Num Buoy "16" - course correction to avoid Great Ledge
							~ 100 feet W of Num Buoy "16" steam to port - on route to reoccupation of line 15 track
							Back on correct track of Line #15
		15					End Line #15 ~ 1/4 mile off Naushon Island near Robinsons Hole - Start line 15a - will take us across Robinsons Hole on route to start of line #16
							slight course correction to avoid shallow water - still of Pasque I on route to start of line #16
							slight course correction to obtain records names Pasque I
		16					C/C start line #16
							"R 4" BELL ABEAM OFF PORT ≃ 1/4 MILE
		16					C/C 278° MAG BEGIN LINE 16A TO SOUTHWEST. END LINE 16
							"CAN 7" BUOY ABEAM OFF STARBOARD ≃ 1/8 MILE?

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
04	OCT	73						CAPE RACE.	DANA		
			1627	C/C	155			38062.6.	69825.9.		
			1630		11			062.6.	826.8.		
			1634		11			062.4.	828.1.		
			1645		11			063.3.	832.7.		
			1700		11			063.1.	837.8.		
			1715		11			063.1.	843.9.		
			1716		11			063.4.	844.7.		
			1730		11			063.9.	849.1.		
			1747		11			062.8.	855.3.		
			1749.5	C/C	090			062.9.	856.6.		
			1753					060.1.	856.9.		
			1756					057.8.	857.1.		
			FINISHED FOR THE DAY								
05	10	73	1224		335			38074.5.	69857.3.		
			1230		11			074.7.	855.2.		
			~~1246~~					~~074.8.~~	~~550.5.~~	NG	
			1300					074.9.	843.9.		
			1346					075.2.	838.0.		
			1733					075.0.	832.0.		
			1735					075.0.	830.9.		
			1435		079			38087.0.	69848.2.	94.1	

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							1620 Radome on Round Hill Pt abeam Stbd.
						16A 17	C/C 155° BEGIN LINE 17 ; END LINE 16A NW SALTERS PT OFF SHORE ~ 1/4 MILE (1627 1/4 mi NE of Salters Pt.)
							ABEAM CAN BUOY "5SP"; ~~1/2~~ 700 meters MILE OFF STARBOARD ?
							STRONG CURRENT IN THE AREA - HARD TO MAINTAIN LINE
							~1/8 mile NE of Stony Buoy "6" abeam to STBD
							1744 Lone Rock Buoy abeam Stbd. ~ 1/2 mile.
						17 17A	End line 17 - start line 17A (short jaunt across the North entrance of Quicks Hole - then homeward bound
							(1749.5 ~.2 miles off North Pt, Nashawena Island abeam)
						17A	End line 17a ~~north Pt, Nashawena Island, abeam.~~ ~ off Pasque Island in Quicks Hole
						18	Start line #18 ~ 1/8 mile off Nashawena Is. in sight between North Point + Knox Point - Cape Race Lane #38,075 use
							Sea Plate 3.275
						18	End line tentatively due to sea condition ~ 1/4 mile off
							Strong wind from SE Mishaum Pt; Heading back across to lee of Cuttyhunk & Penikese Islands
						19	Start line #19 ~ 1/4 mile NNE of Penikese Island Dana Lane #69,848.0 Bearing NE
							Line runs ~ 2 miles off the Elizabeth Islands - NW side

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
05	10	73						CAPE RACE	DANA		
			1440					38081.2	69848.0		
			1448		079			072.0	848.2		
			1500		"			059.1	848.1	44.6	
			1515	33	"			042.8	848.0		
			1530		"			026.0	847.6		
			1545	30	"			010.9	847.9		
0			1600		"			37996.0	69848.1		
05	10	73	1615		30.4			981.1	848.0		
			1624		079			972.0	848.0		
			1630		"			966.4	848.0		
			1646		"			950.7	848.0		
			1700		"			937.2	848.0		
			1703		079			933.7	848.1		
			FINISHED FOR THE DAY								
06	10	73	0900		105			37960.0	69859.7	2	
								~~953.3~~	~~861.5~~		
at the helm			0910					953.3	861.5		
			0920					946.3	863.4		
			0930					940.1	865.5		
			0932.50		0259			938.5	866.1		
			0947				24.1	951.7	866.0		
			1000					964.0	866.0		
			1015				29.9	978.6	866.2		
			1030					993.9	866.1		
			1045				54.0	38009.5	69866.3		
			1101					025.0	866.2		
			1118					041.3	866.0		

866

1440 071.2 2.4
1442 78.0 9.2
0448 072.0

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							~1/10 M NW of Nun Buoy #8 abeam to STBD
19							End line #19 ~1/4 mile off Racing Beach
20							Start line #20 ~25' S of Buoy Gong "1" Woods Hole Area buoy - abeam to port - heading ESE off Nobska Pt.
							Continue line #20 - down Vineyard Sound

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE (MAG)	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
06	10	73						CAPE RACE	DANA		
			1130					38052.4	69866.0		
			1141					063.5	866.3		
			1148.5					061.9	866.5		
			1200					071.2	866.4		
			1215					083.3	866.3		
			1230					095.2	866.0		
			1245					107.3	866.0		
			1300					118.9	865.9		
			1306					123.4	865.8		
07	10	73						CAPE RACE	DANA		
			1032.5		335			38075.3	69857.2		
			1040.5					38075.2	69854.7		
			1042.5					075.2	69854.3		
			1049					074.8	69851.6		
			1100					074.7	69847.6		44.1
			1115					075.5	69841.7		
			1130					075.3	69836.1		32.6
			1144 C/C		265			074.9	69830.0		
			1156					080.5	69830.6		
			1154					083.9	69830.6		25

OPS							COMMENTS AND OBSERVATIONS
	12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.
							Shut down system - broken stylus EPC - Robb stuck his finger right into it. Stylus changed - back on line
20							End line 20 off Cuttyhunk ~1½ mile S of the island in Vineyard Sound
18/2							Line #18/2 ~ ~~48~~ 1/10 mile off Nashawena w/ light between northpoint & knox point Cape Race Lane # 38,075 slowed down for traffic coming off port bow. Resumed normal speed
18/2							End 18/2 ~~starting 18A~~ approx 1/4 m. SE. of Mishaum Pt. (Smiths neck) Commence line 18A. Crossing Slocums River Estuary on Rte. to Barney Joy point. On Rte. to start line #21.
							APPROX. .55 n mi. SSE OF "NUN" BUOY "2" A Beam Stbd.

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							Shut down system - broken stylus EPC - Robb stuck his finger right into it. Stylus changed - back on line
20							End line 20 off Cuttyhunk ~1½ mile S of the island in Vineyard Sound
18/2							Line #18/2 ~~48~~ 1/10 mile off Nashawena w/ light between northpoint & knox point Cape Race Lane # 38,075 slowed down for traffic coming off port bow. Resumed normal speed
18/2							End 18/2 ~~starting 18A~~ approx 1/4 m. SE. of Mishaum Pt. (Smiths Neck) Commence line 18A. Crossing Slocums River Estuary on Rte. to Barney Joy point. On Rte. to start line #21.
							APPROX. .55 n mi. SSE OF "NUN" BUOY "2" A Beam Stbd.

~~WASH~~ WASH +

GMT DAY	GMT MO	GMT YR	GMT TIME	TIME ZONE ±	SHIPS COURSE (mag)	SHIPS SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	NAVIGATION LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
07	10	73						CAPE RACE	DAWN		
			1157	C/C	155			38086.1	69830.1		
			——→								
			1215					38087.2	69837.0	(26)	
			———								
			1230					38087.0	69842.8	(27)	
			1245					38086.7	69848.6		
			1256					086.6	69853.0		
			1257					086.9	69853.4	(28)	
			1300					087.1	69854.4		
			1306.5	C/C	297			087.3	69857.3		
			1309					088.6	69856.6		
			1315					38091.6	69855.1		
			1320					094.3	69854.3		
			1323.5	C/C	250			096.2	69853.6		
			1325					38097.2	69853.6		
			1325	C/C	335			38099.1	69853.8		
			1330					38099.0	69852.7		
			1345					38099.4	69847.4		
			~~1352~~ 1353					38098.8	69844.3	(24)	
			1400					38098.6	69841.6		
			1415					38099.2	69836.9		
			1430					38098.9	69830.8		
			1436.5	C/C	195			38098.9	69827.9		
			1440.5					38100.9	69829.4		
			1441					38101.4	69829.5		
			1443	C/C	079			38079.8	69830.0		
			1445					38098.2	69830.0		
			1450					38093.0	69830.3		
			1455					38088.0	69830.2		

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							18A End line 18A start line 21 .65 mi. E off Barney Joy Point.
							21 Now following Cape race lane 38,087
							NB NE of "GONG" Buoy "3A" A BEAM Stbd.
							near Mishaum Ledge
							NE of Bell R "4" A BEAM Stbd.
							[redacted] bell # "7" SW of Due East of Penikese
							21 End line 21 beginning line 21A
							21A
							Middle Ledge obstruction Buoy
							21A End line 21A begin line 22
							22
							Bell Buoy R "4" (4/10 mi. SW of it) Stbd. beam.
							22 End line 22 begin line 22A
							22A
							22A End line 22A Begin line 23
							23

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS Mag. COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
07	10	73						CAPE RACE	DANA		
			1500					38083.1	69830.4		
			1515					38067.7	69830.5		
			1529					38053.3	69829.9		
			1545					38039.1	69830.1		
			1600					38024.8	69830.2		
			1602					022.8	830.0	30	
			1615		24			010.7	830.4	26.9	
			1620					010.7	69830.2		
			1630					38000.8	69830.6		
			1638		28.2			38993.0	69829.9	71	
			1646				37985.6	~~37985.6~~	69829.8		
			1700		52.2			37971.0	69829.5		
			1715					37956.5	69830.6		
			1730		29.2			37941.8	69829.8	?	
			1733.5					37939.1	69830.1		
			1745		26.3			37929.0	69829.9		
			1754.5		55.5			37920.3	69830.1	?	
			1800					37915.5	69830.3		
			1815					37901.8	69829.8		
			1824					37894.1	69829.6		

Cape Race OK

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
							~1/4 mi Bell Buoy (Red) Port Fix R "4" next to The sand spit
							~4/10 mi SE of Negro Ledge Bong Buoy "13" abeam to port Circling so R66 can work on Curly. Curly back on.
							~ 1/4 mi. SE of Bell ~~Bong~~ Buoy R "2" abeam to port.
							[redacted] South 1/2 mi. SE of Bell Buoy "7" near Ra Reef. Abeam to port. THIS LINE
							~1.5 mi Cleveland ledge light ~ ½ mi SE of Cleve-L Light. abeam port.
23							End line 23.

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS mag. COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
08	10	73						CAPE RACE.	DANA		
								38112.0			
					335			LINE			
			1007.3			38	1148	38112.0	69854.7		
			1015					38112.4	852.1		
			1030					112.1	846.7		
			1045					112.1	841.3		
			1100					112.0	835.5		
			1115					112.0	829.7		
			1119					112.0	826.4		
			1127	c/c	205			113.0	82[illegible].0	26.0	
			[illegible]								
			1130					38115.9	69828.1		
			1139	c/c	155			38122.4	69831.1	34	
			1145					38122.0	69833.7		
			1200					38122.1	69838.6		
			1212.5					38122.3	69843.6	35	
			1215					38122.5	69844.0		
			1230					38121.6	69849.6		
			1245					38121.7	69855.5		
			1246	c/c	240			38121.5	69855.8		
			1250					38125.4	69856.4		
			1300					38135.4	69857.4		
			1305.5					38141.0	69858.3		
			1307	c/c	335			38141.2	69858.0	36	
			1315					38141.3	69854.4		
			1330					38142.2	69847.7		
			1345					142.2	840.9		

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
24							Start Line #24
24							End line #24
25	N	2					Fix on way to buoy from horseneck beach. Buoy 1/10 mi. off. Starting line #25 (38122.0 Line).
							1/10 mi SW of Bell Buoy R "28" (COXENS LEDGE) Abeam port
25							End line #25
							Fix on heading 240° mag.
							Started turn just a little before buoy R "2" STP Ref
26							Begin line 26 38142

X

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
08	10	73		~~mo~~	mag.			CAPE RACE	DANA		
			1348		015			38141.5	69839.6		
	13	55	1~~455~~					38139.5	69838.2		
			~~1458~~					~~38140.7~~	~~69838.7~~		
	14	~~55~~	~~1458~~	1358	c/c ~~[illegible]~~ 079			38140.8	69839.0		
			1400					38138.9	69839.0		
			1415					38125.1	69838.9		
			1430					38110.9	69838.9		
			1445					38097.0	69838.7		
			1448					38093.9	69839.1	37	
			~~1457~~					~~38097.6~~	~~69838.8~~		
			~~1500~~					~~38~~	~~69~~		
			1457					38097.6	69838.8		
			1500					38095.0	69839.0		
			1502					38092.9	69838.7		
			1515					38080.4	69839.1		
			1530.5					38064.3	69839.0		
			1545					38050.6	69838.9		
			1600					38036.4	69838.9		
			1615					38021.8	69838.9		
			1630					38007.1	69839.0		
			1645					37992.1	69838.9		
			1650					37986.5	69838.9	39	
			1700					37977.5	69838.8		
			1715					37963.4	69838.7		
			1725					37953.9	69839.5		
			1730					37949.2	69838.8		

OPS: 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
26							going slow near position of wreck. End line 26 Turning to pick up line 27
27							Start line 27 69839.0
							1447 69839.1 ~~38093.9~~
							"3A" Bell Buoy Gong - Misham ledge 1/10 mi. SW. Curly turned off. We are now circling. Needle broke; new ribbon being replaced.
							Back on course. 1457 69838.8 38093.9 at 1501
							Buoy "3A" Abeam Misham ledge 1/4 mile port
							Noticed that Remote system wasn't giving same reading as master set. Seems as though remote unit is doing unusual amount of searching.
							Red Buoy 1/4 mi. "8" "Gong" abeam port.
							RB "Nun" off Woods Hole

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS mag. COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES	MINUTES	LONGITUDE ± DEGREES	MINUTES	TYPE	QUAL.
08	10	73			079			CAPE RACE		DANA			
			1747					37 ~~34~~ 933.3		69838.6			
			1800					~~3~~7921.3		69838.5			
			1808.5					37913.2		69838.6			
10	10	73			284			CAPE RACE		DANA			
			1104					69837.4		38131.5			
			1107.5		284			69836.9		38133.9			
			1110					69836.3		38136.0			
			1115.5					69835.0		38140.0			
			1120					69834.4		38143.3			
			1125.5					38147.3		69833.4			
			1130					38150.5		69832.5			
			1135					38154.0		69831.3			
			1140					38157.5		69830.6			
			1145					38161.0		69829.4			
			~~1200~~	1150				38164.5		69828.5			
			~~1205~~	1155				38168.0		69827.7			
			1200					38171.6		69826.7			
			1205					38175.2		69826.3			
			1210					38179.2		69825.4			
			1215					38182.7		69824.7			
			1220					38186.5		69824.0			
			1225					38190.4		69823.1			
					~~055~~								
				C/C	063								

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
27							End ~~[illegible]~~ line #27. Systems shutting down.
28							Fix. ~~Beginning~~ HEADING TOWARD line #28. Taking readings every 5 min. because we are not using L "C" lines for navigation. Begin line #28
							I have made and error and put S_1 and S_2 in the opposite positions in book, will correct at next reading.
							hydrophone shortened, records appear cleaner.
28 28A							End line 28 Beginning line 28A

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS mag. COURSE	SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
10	10	73			~~254~~			CAPE RACE .	DANA .		
					~~058~~						
					065						
			1230					3818 6.6 .	6982 2.7 .		
			1235					3818 2.2 .	6982 2.6 .		
			1240					3817 7.9 .	6982 2.5 .		
			1245					3817 3.8 .	6982 2.0 .		
			1250					3817 0.2 .	6982 1.6 .		
			~~1255~~	254.5 (005)				3816 6.2 .	6982 1.2 .		
				•							
			1300					3816 4.2 .	6981 9.5 .		
			1305					3816 2.7 .	6981 8.0 .		
			1307		Turn to			3816 1.8 .	6981 7.3 .		
				c/c 130							
			1310					3816 0.8 .	6981 8.1 .		
			1315					3815 9.8 .	6981 9.6 .		
			~~1320~~					~~3815 8.4~~ .	~~6982 0.3~~ .		
			1318	c/c 155				3815 8.4 .	6982 0.3 .		
			1330					3815 8.1 .	6982 4.7 .		
			1345					3815 8.0 .	6983 0.2 .		
			1400					3815 7.8 .	6983 5.0 .		
			1401					3815 7.9 .	6984 0.4 .		
			1430					3815 7.1 .	6984 5.5 .		
			1443					3815 7.9 .	6984 9.9 .		
			1500					3815 7.9 .	6985 4.7 .		
			~~1515~~								
			1607					3815 7.9 .	6985 6.9 .		

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							line 28A
							Although course change we are still on line 28A
28A							Crd line 28A, beginning line 29 on course 130
29							(Fix) we are not actually on a lane line.
							Course change to 155, following Cape Race 38158.0
29							EIUD LINE 29, generator knocking higher rpm than really called for. Pull gear.

X NOTE

GMT DAY	GMT MO	GMT YR	GMT TIME	TIME ZONE ±	SHIPS mag. COURSE	SHIPS SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	NAVIGATION LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
11	10	73						CAPE RACE	DANA		
								37960			
			0918		335			37961.9	69861.9		51.9
			0930					37961.8	69857.7		47.7
			0945					37962.1	69853.1		
			1000					37962.0	69848.4		
			1015					37962.1	69843.6		
			1030					37962.2	69838.3		34.8
			1045	c/c				37962.5	69833.7		
	10	15	1~~100~~	105	(280)			37962.2	69831.6		28.1
			1100					37969.6	69830.7		20.7
			1110					37978.1	69829.5		19.5
			1112	~~c/c~~ c/c	079			37976.6	69829.4		19.9
			1115					37974.2	69829.7		19.
			1125					37966.3	69830.6		20.0
			1135					37958.6	69829.8		19.8
	11	43	1~~145~~	c/c	340			37952.1	69829.9		19.9
			1150					37951.7	69827.4		17.4
			1157.5								
			1200					37950.5	69823.6		13.6
	↓		1201.25					37950.2	69823.2		13.2
			1205.25					37949.7	69821.7		11.7
	↑		1210	c/c	160			37949.3	69819.7		09.7
			1220					37950.5	69824.4		14.4
			1226	c/c	070			37951.4	69827.3		17.3
	X		1230					37947.8	69827.0		17.0
			1240	minus				37938.3	69826.4		16.4

15 sec.

OPS	COMMENTS AND OBSERVATIONS
	Rerunning line 1. Now being called ~~[illegible]~~ 1/2
1/2	The line on L "C" will be 37962.0 Cape Race.
	Begin line 1/2
1/2	End line 1/2 begin line 1/2A
1/2A	End line 1/2A begin line 30 on 079°
	Fix on new line
	~~We have decided to run Dana 59829.~~
	We are running between buoys.
30A	Course change to 340. heading ~~into~~ Mth Mattapoisett Hbr, or line 30A.
	Buoy abeam port (#1)
	Buoy C "3" close abeam port
	Buoy "4" abeam port
	Buoy "6" abeam ~~ft~~ stbd.
30A	~~Course~~ End line 30A new heading 160 Turn 1300 RPM
	Change course to 070 (beam stbd. #C "1") Resume
30	line 30 Running at 1100 RPM.
	(Mun) Red Buoy #2 abeam port.

DANA
OFF BY +10 μsec

GMT DAY	GMT MO	GMT YR	GMT TIME	TIME ZONE ±	SHIPS COURSE (mag)	SHIPS SPD	NAVIGATION FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	NAVIGATION LONGITUDE ± DEGREES ± MINUTES	NAVIGATION TYPE	NAVIGATION QUAL.
11	10	73						CAPE RACE	DANA		
			1242		067			37936.2	69826.0		16.0
			1250					37928.4	69826.0		15.0
			~~1300~~		345			37922.7	69824.3		14.3
			1256.5								
			1301					37922.1	69822.6		12.6
			1305					37920.8	69820.6		10.6
			1314					37919.0	69817.2		7.2
			1326					37921.3	69821.5		11.5
			1331		075			37922.5	69824.1		14.1
			1340					37914.3	69824.1		14.1
			1342					37912.2	69824.0		14.0
	1353		~~1358.5~~		066			37901.9	69823.9		13.9
			1405					37890.2	69822.8		12.8 9.3
			1413				37883.6	~~80~~ 56.	69822.2		12.2 8.7
			1415					37881.7	69821.9		11.9
			1416					37880.9	69821.9		11.9 8.4
			1421.5					37876.5	69821.7		11.7 8.2
			1430					37868.7	69821.1		11.1 7.6
			1441					37857.7	69820.2		10.2 6.7
			1447					37852.1	69819.8		9.8 6.3
			1421.25 ←		1451.25			37848.5	69819.5		9.5 6.0
								CAPE RACE	DANA		
12	10	73	0910		153			38153.4	69879.1		16.1
			0912					38152.8	69878.8		
			~~0915~~					~~38~~	~~69~~		
			0920					38153.0	69876.0		

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
						30	Fix on new course 067 - still on line 30.
							Turn on buoy #1 ~~Bow Bells~~ Bow Buoy - several yards off boat abeam port.
						30B	Turn to line 30B Aucoot cove.
						30B	End line 30B - heading back toward line 30.
							~~Bow bells abeam stbd. course change to~~
							Bow bell, Buoy #2 abeam stbd. course change to 075
						30	Resume line 30. Still running ~1100 RPM.
							light buoy center port shoals - 2/10 mi. abeam port.
							Bird Island bell #3. 5 yd. abeam port. still on line 30.
							Buoy #1 abeam stbd.
							Buoy #2 abeam stbd.
							abeam port ~~abeam~~ Hog I, ch. Beacon #4
							slowed down to 350 RPM - going over shallow area, slowly increasing speed
						30	End line 30. Systems being shut down.
							~~Begin line 31~~ Fix
						31	Begin line 31

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS ~~COURSE~~ mag. ~~SPD~~	FIX TIME	NAVIGATION LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
12	10	73					CAPE RACE	DANA		
			0930				38153.3	69873.5		
			~~0944~~ 0932				38	69		
			0934.5				38153.3	69872.0		
			0945				38153.2	69868.8		
			1000				38153.3	69864.6		
			1006				38153.3	69862.8		
			1015				38153.7	69860.4		
			1030				38153.4	69856.0		
			1034				38153.3	69854.5		
			1045				38153.1	69851.3		
			~~1048~~				~~38153.3~~	~~69848.2~~		
			1057				38153.3	69848.2		
			1100				38153.3	69847.0		
			1115				38152.4	69841.8		
			1130				38152.8	69836.2		
			1145				38152.7	69830.9		
			1145.5 c/c	110			38152.9	69830.7		
			~~1150~~							
			1153				38148.3	69832.5		
			1200				38144.2	69833.7		
			1205 c/c	155			38141.1	69834.9		
			12							
			1213				38141.9	69838.9		
			1219				38142.2	69840.2		
			1230				38142.5	69844.6		
			1244 c/c	283			38142.0	69849.9		

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
			ON 31				
							L "C" jumped 2 msec. but then came back to course. no signal came on then went out.
							Red black vs off Reef South of Cuttyhunk
							.9 mi. Buzzards Tower .9 m. abeam port.
							Buzz Bay whistle #1 1/4 mi. abeam Stbd.
							Problem w/ generator. Probably wet but O.K. now
			31 31A				End line 31; now on 31A
			31A 31B				End line 31A; start 31B. 1/4 m. WSW of C "1" Line 31B IS AN EXTENTION OF LINE 26. "Line 26 was 142, we are now running ~142."
							Increased speed to 1100 RPM's.
			31B				End line 31B start line 32 steady on. WRT Buoy abeam port <1/10 m.

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS mag. COURSE SPD	FIX TIME	NAVIGATION LATITUDE ± DEGREES	MINUTES	LONGITUDE ± DEGREES	MINUTES	
12	10	73					CAPE RACE		DANA		Skywave
			1255				38	151.5	69	48.3	
			1305				38	157.5	69	46.9	
			1315				38	163.8	69	46.0	
			1325				38	170.1	69	44.8	
			1336				38	176.4	69	43.4	
			1345				38	181.1	69	42.0	
			1355				38	185.8	69	40.2	
			1400				38	188.1	69	39.5	
			1407.5	C/C	~~093~~ 155		38	193.0	69	38.0	
			1415				38	193.2	69	39.8	
			1430				38	192.9	69	45.3	
			1434				38	193.1	69	46.7	
			1550		079		38	120.0	69	30.2	Dana OK
							38	119.2	69	30.4	
			1600				38	111.0	69	31.1	
			1615				38	096.6	69	31.1	
			1618				38	093.2	69	31.0	
			1630				38	080.8	69	31.2	
			1635				38	075.1	69	31.9	
			~~1700~~								
			~~1714~~				~~38~~	~~044.2~~	~~69~~	~~18.9~~	
			1714				38	043.7	69	19.1	

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							Down to 1000 RPM.
						32	End line 32, Begin line 33 Following Cape Race 38193.0
						33	End line 33. Turning off uni boom; Heading Toward Run "2" off Gooseberry neck.
						34	Begin line 34 off Gooseberry neck. Running Dana line 69830. 1000 RPM.
							(following seal to stream gear smoother Now increased RPM's to 1050 from 1000 to attempt
						34	End 34 heading into harbor where we'll start line 35.
							~~Begin line 35 69819~~
						35	Begin line 35 69819, Systems shut down. Could not run this last line due to Problem with EPC Curley Recorder. The +28V Light would not come on and messed made the Curley inoperatable.

2 DEC 1974 ASTERIAS - BUZZARDS BAY
Robb, Edwards, Briggs, Amberter, Jennings

CAPE RACE DANA, INDIANA

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
02	12	74	1433	LOCAL				37 921.2	69 844.0		
			1450					37 935.8	69 843.7		
			~~1500~~					37 946.9	69 843.7		
			1501								
			1510					37 954.9	69 843.7		
			1520					37 963.5	69 844.0		
			1530					37 972.6	69 844.1		
			1540					37 982.0	69 844.0		
			1551					37 991.6	69 843.6		
			1601					38 001.0	69 844.2		
			1610					38 009.5	69 843.7		
			1620					38 017.5	69 843.9		
			1630					38 026.3	69 843.7		
			1633					38 029.1	69 844.1		
			1641					38 033.9	69 843.7		
			1651					38 041.2	69 843.9		
			1701					38 048.9	69 843.7		
			1710					38 056.3	69 843.9		
			1720					38 063.6	69 843.6		
			1720.45						~~43.8~~		
			1730					38 071.0	69 843.8		
			1740					38 078.4	69 843.8		
			1750					38 085.9	69 844.0		
			1800					38 092.5	69 843.9		
								~~93.7~~	~~844.0~~		
			1802:20					38 094.1	69 844.0		
			1811					38 099.8	69 843.5		
			1820					38 106.3	69 844.0		
			1830					38 113.6	69 844.6		

OPS 12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	COMMENTS AND OBSERVATIONS
36							STARTING LINE 36 - near Wood Neck ~~Beach~~. FOLLOWING
							LINE 69-844-0 (DANA, INDIANA) 1000 R.P.M.
							TIME - NAV. MARK
							TIME + NAV. MARK
							" " "
							" " " STILL ON LINE #36
							" " "
							" " "
							" " "
							" " "
							" " "
							" " "
							change RPM TO 700 (from 1000)
							change RPM to 900 still on #36
							maintaining 900 RPM, still on 36
							"
							"
							Buoy abeam port
							gony R6
							maintaining 900 RPM, line 36
							"
							"
							Buoy abeam starboard (#4)
							"
							"

CAPE RACE

DANA, INDIANA

GMT DAY	MO	YR	TIME	TIME ZONE ±	SHIPS COURSE	SPD	NAVIGATION FIX TIME	LATITUDE ± DEGREES ± MINUTES	LONGITUDE ± DEGREES ± MINUTES	TYPE	QUAL.
02	12	74	1834					38115.9	69843.9		
03	12	74	1010					37980.5	69825.6		
			1013								
			1021					37972.3	69825.5		
			1027					37967.	69824.9		
			1041					37956.1	69825.1		
			1050					37949.0	69825.2		
			~~1056~~								
			~~1100~~ 1056								
			1101					37940.7	69825.3		
			1105	+30				37937.2	69825.1		
			1110					37933.9	69824.9		
			1120					37926.0	69825.0		
			1126					37921.4	69825.4		
			1131					37917.9	69825.0		
			1136	+30				37913.9	69825.3		
			1141					37910.5	69825.4		
			1148					37905.0	69824.8		
			1200					37899.6	69824.9		
			1209					37893.4	69824.7		

OPS							COMMENTS AND OBSERVATIONS
12 KHz	3.5 KHz	CSP	MAG	GRAV.	SONO.	STA.	
							bearing 282 magnetic, 1/2 mile from Coxen's ledge buoy ~~B22~~
			36				end of line # 36
							3 DEC 74
			38				LINE 38 - off West Island (69825) ~~6 mile due east~~ of West I. tower.
							on line 38
							RECORDER SHUT DOWN TO FIX STYLII - ~2 MIN LOST
							~~LOST~~ recorder back on and running on line 38
							Cormorant rock day marker off port beam at 1/2 mile distance
							NAV. MARK
							NAV. MARK
							SHUT DOWN RECORDER TO CZECH STYLII - THERE ARE
							SOME KEY TIMING PROBLEMS ~ 1 MIN. LOST
							NAV. MARK
							FL 4 SEC. BELL # 7 . 1/4 MI. OFF STBD. BEAM.
							NAV. MARK
							RED BUOY (FLASHER) "2 B" . 50 YDS. OFF STBD BEAM
							RED BUOY (FLASHER) "2A" - 50 YDS. OFF ~~STBD~~ PORT BEAM
							CLEVELAND LEDGE LIGHT IS 1/4 MI. OFF PORT BEAM
							NAV MARK
							NAV. MARK 4/s FROM 900 R.P.M. TO ~550 RPM.
					1200		INCREASE SPEED TO 800 RPM.