

FILE

I.O.S.

**R.R.S. JOHN MURRAY
CRUISE 4/74 (2nd leg)**

MARCH – APRIL 1974

**CURRENT METER AND DEEP SEA TIDE GAUGE
RECOVERY CRUISE**

CRUISE REPORT NO. 9

1974

**NATURAL ENVIRONMENT
INSTITUTE OF OCEANOGRAPHIC SCIENCES
RESEARCH COUNCIL**

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Institute of Oceanographic Sciences,
Wormley, Godalming, Surrey.

INDEX

	<u>Page</u>
Scientific Staff	1
Ship's Officers	1
Narrative	2
Table 1 Comparative Omega and Decca Readings	4
2 Mooring Positions and Search Areas	6
Figure 1 Cruise Track	
2 1000 Metre Mooring Configuration	
3 Shelf Mooring Configuration	

Scientific Staff

J.W. Cherriman
D.I. Gaunt (Pr. Sc.)
D. Grohmann
M.J. Morgan
R. Spencer
A. Kerr (I.O.S. Bidston)

March 24th Fishguard

April 1st Barry

Ship's Officers

Captain	P.H.P. Maw
Ch. Off.	C.M.G. Adams
2nd Off.	J.J. Moran
3rd Off.	J.T. Morse
Ch. Eng.	P.J. Byrne
2nd Eng.	P.E. Stone
3rd Eng.	C.J. Phillips

The Principal Scientist takes this opportunity of thanking scientists, officers and crew for their willing co-operation during the cruise. The supply of OMEGA charts from the Hydrographic Charting Section at Taunton is also appreciated.

NARRATIVE

The ship arrived one day early at Fishguard enabling water to be taken on, and sailing to be brought forward 24 hrs. Leaving Fishguard at 0830/24 the new RVB PES fish was streamed and the Bidston C.T.D. surface temperature system rigged. Watchkeeping was started and maintained on the C.T.D. recorder, systematic echo-sounding was not required, and short five minute records were taken on each watch to check the fish. During passage Omega readings were taken and plotted relative to Decca. It was hoped that the Omega would be a useful back up to the Decca if mooring recovery had to be undertaken at night. The positions obtained from the Omega system were most accurate relative to Decca at midday, giving a difference of approximately two miles. During the cruise two of the Omega stations were not transmitting for periods of several hours. Fortunately Decca performed extremely well except for the usual loss of signal at sunrise and sunset.

The tadpole transducer was streamed at 1630/25 and during the final run in to the 'Pingree' mooring position alternate transmission and listening was carried out. Results were negative, and to ensure that release had not occurred out of listening range of the PDR fish the towed hydrophones were streamed. The area was searched until 1950/25 when overside gear was recovered. The 'Pingree' mooring was the most vulnerable from the point of view of being trawled by fishermen.

To enable a check to be made on the navigation of the ship, passage was made overnight to the Deep Sea Tide Gauge position. The tadpole and hydrophones were streamed at 0730/26 although Decca was varying the depth was correct and transmission was made. Faint pinger signals were resolved at 0743 and the gauge was sighted on the surface at 1009. The tide gauge was recovered and checked for corrosion. First inspection indicated that the sulphuric acid anodising of the sphere and centre ring had prevented the type of pitting corrosion that had occurred in the high strength aluminium alloys previously. This was verified at a later date when the sphere was opened and cleaned.

The tide gauge had a 100% data return and first investigation shows that the record appears to have a relatively small drift and will produce useful data.

Passage was set for the 'Gould' mooring with the assurance that the ship could be positioned by Decca to within one mile of a given position. Transmission started at 1300/26 and the mooring was all inboard by 1437/26. The two Bergen current meters had operated successfully and useful data was obtained.

Passage was set for the 'Pingree' mooring and on arrival a search pattern covering an area of several miles was made. Alternate transmission and listening from 1800/26 to 1845/27 was again negative, and it must be assumed that the

mooring had been dragged by a fishing trawler. (Several were seen working in the area). No attempt was made at dragging for the mooring due to the close vicinity of a submarine cable.

Weather conditions were good apart from fog and time was available to drag for the French tide gauge not recovered on the Discovery 58 and 59 cruise. The modified active arm grapnel was used and an intensive search was made of the area. During the dragging operation it became apparent that the PDR fish system was not working correctly. Good results were obtained using the hull transducer and the Bidston tracker amplifier and valve Mufax (see separate report by R. Spencer). Dragging commenced at 0900/28 and carried on until 1345/29. A large area was covered with no indication either on the dynamometers or the operation of the grapnel that the nylon recovery line had been caught. From previous attempts it is reasonable to assume that the 1 cm dia. recovery line has been broken.

On completion of the dragging operations the PDR fish was recovered and passage set for a final attempt to locate the 'Pingree' mooring. This was again not successful and the CTD surface temperature system was rigged and passage set for Barry.

Temperature measurements were taken from 2020/30 to 0000/1st April.

The ship docked at Barry on the early morning tide 1st April.

TABLE 1

OMEGA NAVIGATION LOG

DATE	GMT	PROPAGATION CORRECTIONS AREA			LOP 1 STATION PAIR A/D			LOP 2 STATION PAIR B/D			DECCA			
		PAGE	STATIONS			PPC	UNC	CORR	PPC	UNC	CORR	RED	GREEN	PURPLE
			A	B	D									
24.3.74	1400	13	-11	+7	-12	+01	749.77	749.78	+19	913.55	913.74	-	I 30.36	I 60.86
	1600	13	-12	+5	-10	-02	751.08	751.06	+15	912.48	912.63	-	I 33.83	H 52.90
	1700	13	-14	+4	-10	-02	751.17	751.15	+14	911.93	912.07	-	I 35.63	G 62.45
	1800	13	-17	-3	-13	-04	751.40	751.36	+10	911.54	911.64	-	I 38.18	F 71.28
	1900	13	-28	-16	-18	-10	751.71	751.81	+02	911.15	911.17	-	I 42.11	E 79.50
	2000	13	-32	-33	-26	-06	751.81	751.75	-07	910.68	910.61	-	I 46.47	E 56.82
	2100	13	-35	-49	-32	-03	751.88	751.85	-17	910.68	910.71	-	J 33.35	D 64.80
	2200	13	-37	-67	-36	-01	752.43	752.42	-31	909.66	909.35	-	A 40.42	D 52.96
	2300	13	-34	-72	-42	+08	753.22	753.30	-30	909.31	909.01	-	B 32.67	C 72.22
	25.3.74	0000	13	-34	-75	-49	+15	753.64	753.74	-26	908.74	908.48	B 3.68	D 34.35
0100		13	-34	-75	-49	+15	753.71	733.86	-26	908.23	907.97	B 11.00	D 36.89	C 51.47
0200		13	-29	-79	-58	+29	754.18	754.47	-21	907.70	907.49	B 18.63	E 36.22	B 76.17
0300		13	-28	-79	-60	+32	754.68	755.0	-19	907.24	907.05	C 1.37	E 45.54	B 72.01
0400		13	-29	-79	-60	+31	755.08	755.39	-19	906.76	906.57	C 7.82	E 31.84	B 68.86
0500	13	-26	-76	-60	+34	755.41	755.75	-16	906.25	906.09	C 11.37	F 32.91	B 65.41	

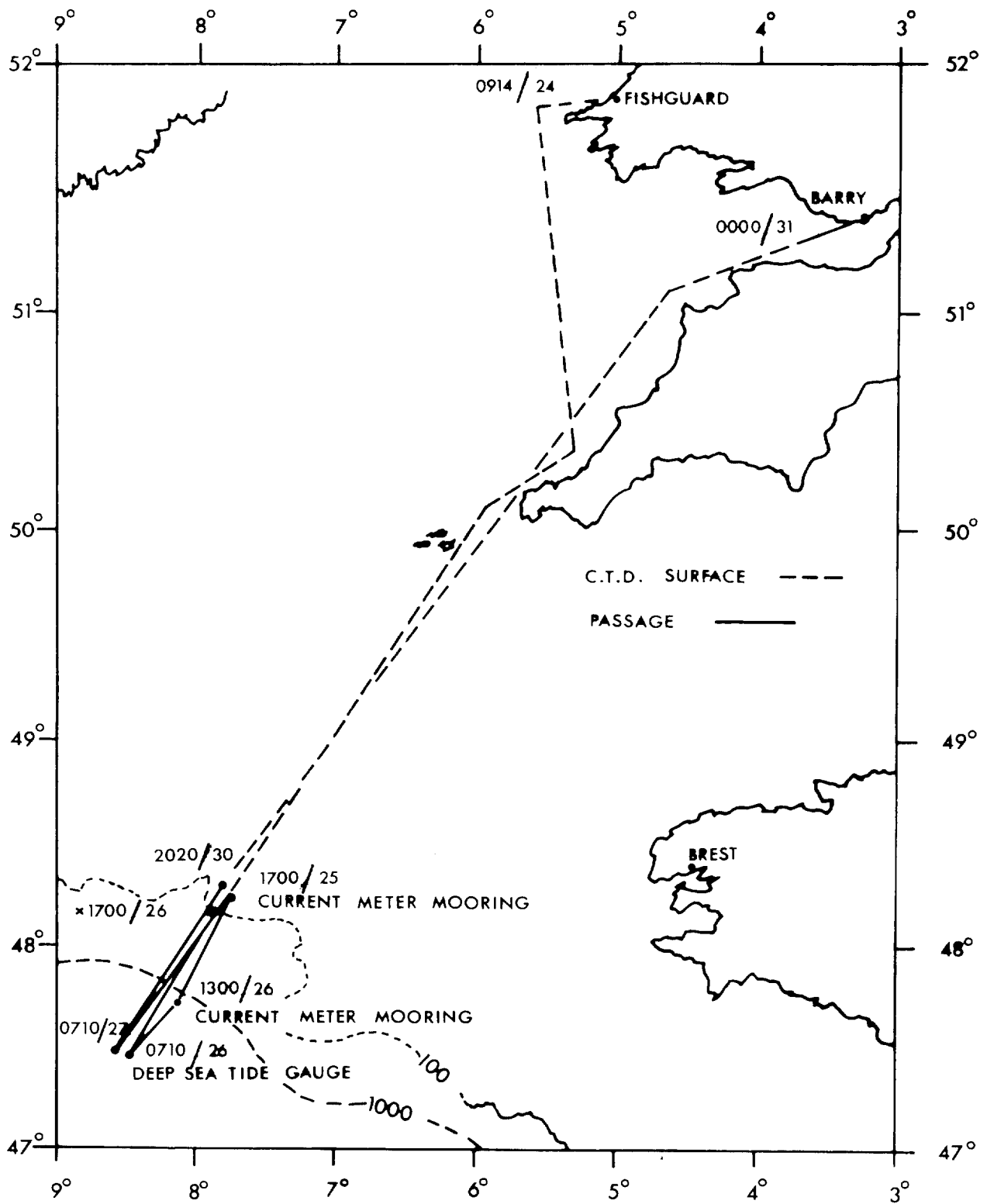
DATE	GMT	PROPAGATION CORRECTIONS AREA				LOP 1 STATION PAIR A/D			LOP 2 STATION PAIR B/D			DECCA		
		PAGE	A	B	D	PPC	UNC	CORR	PPC	UNC	CORR	RED	GREEN	PURPLE
25.3.74	0600	13	-12	-71	-60	+ .48	755.87	756.35	- .11	905.86	905.97	C 21.11	F 32.68	B 62.90
	0700	13	-11	-62	-48	+ .37	756.51	756.88	- .14	905.40	905.26	D 3.69	F 32.17	B 59.90
	0800	8	-11	-51	-39	+ .28	757.22	757.50	- .12	904.92	904.80	D 09.59	F 32.48	B 58.47
	0900	8	-9	-35	-32	+ .23	758.00	758.23	- .03	904.36	904.33	D 15.24	F 32.82	B 57.08
	1000	8	-8	-13	-25	+ .17	758.75	758.92	+ .12	903.66	903.78	D 19.25	F 34.13	B 56.88
	1100	8	-10	-7	-19	+ .09	759.59	759.68	+ .12	903.16	903.28	D 23.26	F 34.76	B 56.21
	1200	8	-10	0	-11	+ .01	760.41	760.42	+ .11	902.74	902.85	E 2.46	F 35.50	B 56.05

STATION A AND D NOT TRANSMITTING

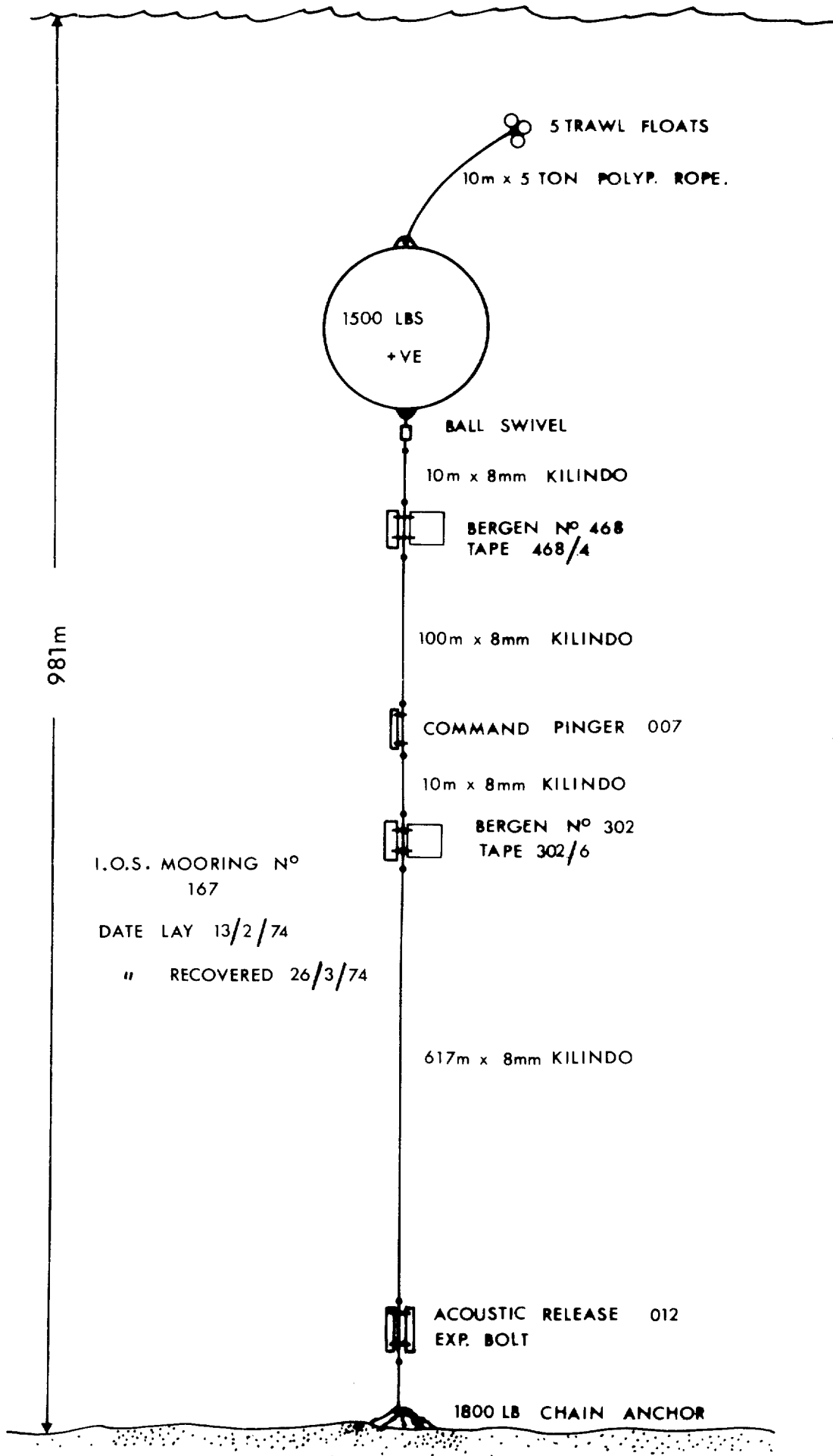
TABLE 2

MOORING POSITIONS

Deep-sea Tide Gauge	47°27'N	08°27'W
1000m Mooring	47°43'N	08°06'W
Shelf Mooring	48°13'N	07°46'W
Seach Area	48°15'N	48°11'N
	07°44'W	07°48'W
French Tide Gauge	47°28'N	08°34'W
Search Area	08°38'N	08°32'W



R.R.S. JOHN MURRAY 4/74 FIG. (1)



981m

5 STRAWL FLOATS

10m x 5 TON POLYP. ROPE.

1500 LBS
+VE

BALL SWIVEL

10m x 8mm KILINDO

BERGEN N^o 468
TAPE 468/4

100m x 8mm KILINDO

COMMAND PINGER 007

10m x 8mm KILINDO

BERGEN N^o 302
TAPE 302/6

I.O.S. MOORING N^o
167

DATE LAY 13/2/74

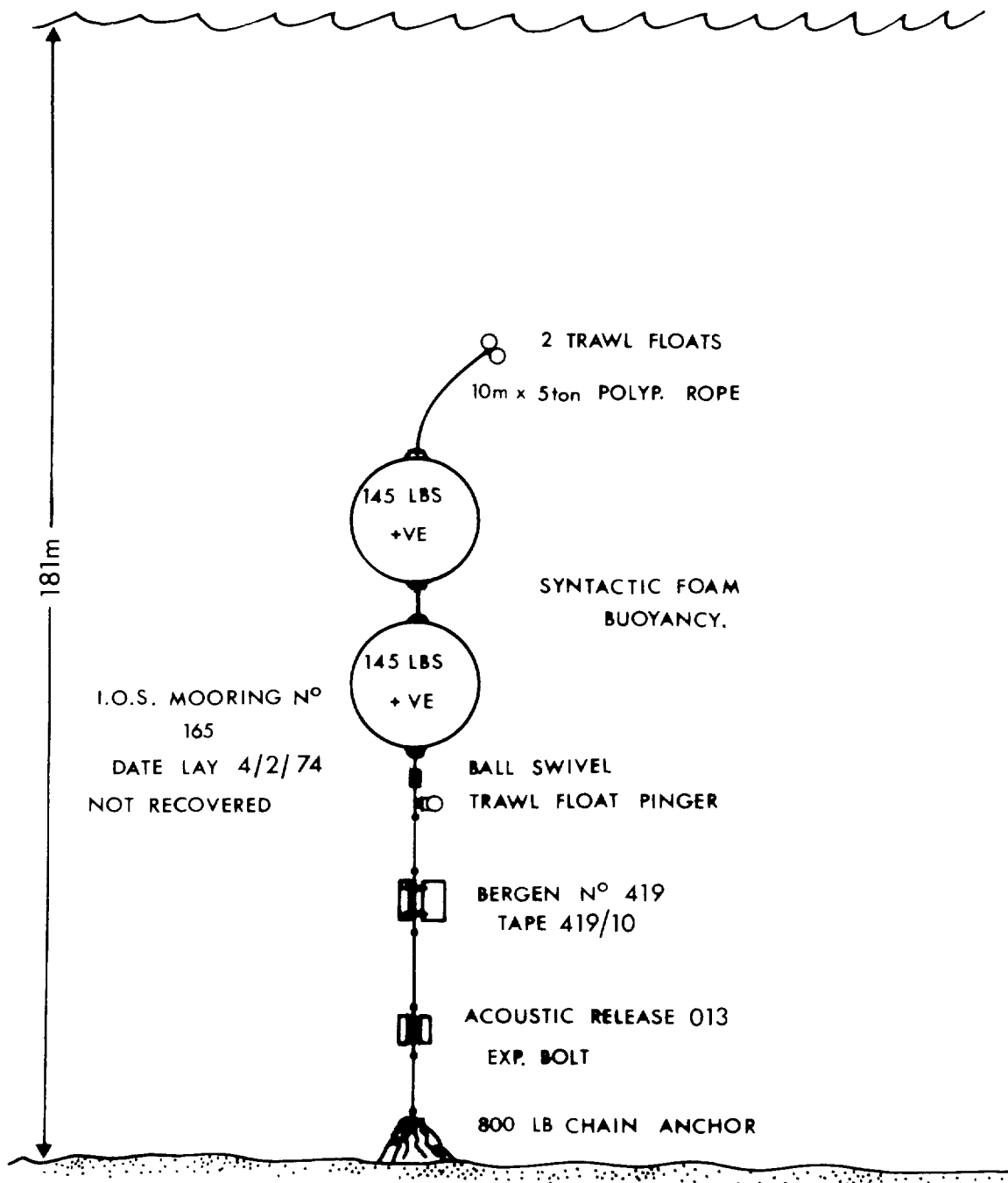
" RECOVERED 26/3/74

617m x 8mm KILINDO

ACOUSTIC RELEASE 012
EXP. BOLT

1800 LB CHAIN ANCHOR

1000m MOORING FIG.(2)



SHELF MOORING FIG.(3)