Station No. 322/A. Date 3.9.75

		o <u></u>	POSITION			IND	Weath.	1	WAVES		Corrected	TEMPER	RATURE	CLC	OUD	lime from
Time	Log	Lat.	Long.	_ Method of	Dir.	Speed	and Vis.	Dir.	Period	Height	Barometric Press. mbs.	Dry Bulb	Wet	<b> </b>	Amt.	REMARKS AND GEAR USE
			8	Determination	from	Kts.		from Cao	secs.	ft. 7%.		Bulb	Bulb	· · ·	Vendelana variational (il a 1000)	
05 rO		56°01'34	O7°39·3	SM				24.7	A							On plane:
0243.								21-10	354	6633		Annual Annua	manadalocalo de manada de la composição			Coner over.
0246								2112	3756	68.39	.,					Core on boltoni.
02La																Core, Wo.
0258		AND THE PROPERTY OF THE PROPER						20·								Cover avos.
<u> Alco</u>		56°01.3	07°3A.4	Sw.				2008	37.60	60.39	······					Cover on be Horn.
0306		Table Committee														Cole, up.
0300																Cass dos.
0312		<b>%</b> .3						2103	3730	6862.						Cover on bottom
627.																Come up
<u> </u>								2110	3740	SSS.						CONR OVER
0327.								21-10	37-60	62 K	*******************************					Cover on botton
0333											-					Come up
OSS																Cop. aver.
0362								2-17	37.44	69-20						Cone on botton
03.17.																Coner up
9269																Cokey aver.
0353			La L					21-0-6	37.42	69:36			Constitution and the Constitution of the Const	Sempero con Productivo		Cover on bettern
								The state of the s						25 TAKKESTON GENERAL SE		

#### Cruise Report of Proceedings

#### RRS Challenger Cruise No. 12B/75, 2-10 September 1975

1) The primary objectives of the cruise were to sample the deep-sea and outer shelf macro- and meio-benthos, midwater plankton and bathyal demersal fish populations, in order to continue a study of seasonal changes in these communities, and to provide material for a pilot study of heavy metal dispersal in deep water.

#### 2) Geographical Area

Shelf Station: 56°01.5° N, 07°39.2° W, depth 148 metres.

Fish Trawling Station a): 56°21° N, 09°11.6° W: 750 metres.

b): 56°28-21 N, 09°20-19° W 1000 metres.

Deep Station: 55°03.5° N, 12°03.5° W; depth 2875 metres.

### 3) Sea and Weather Conditions

Good. Winds mainly SW-NW, 1-7.

#### 4) Conduct of Cruise

Challenger sailed on schedule from Dunstaffnage at 1700 hrs on 2 September, approximately 8 hours after arriving there at the completion of Cruise 12A. The Shelf Station was reached at 0240 hrs the following day. After successfully completing the benthic coring work with the Craib Corer, the Shipek 70 mm deep sea camera, on loan from I.O.S. Barry, was then tested at 150 m depth on the Shelf Station. The flash unit failed owing to a short circuit of the watertight flash plug connector due to the entry of seawater. The ship sailed for the trawling position

Station No. 323/A. Date 3- 56+7 /75

_			POSITION		W	IND	Weath.		WAVES		Corrected	TEMPER	RATURE	CLC	QUC	DEMARKS AND STAR US
Time	Log	Lat. 🙏	Long.	Method of Determination	Dir. from	Speed Kts.	and Vis.	from	Period secs.	ft.	Barometric Press. mbs.	Dry Bulb	Wet Bulb	Туре	Amt.	REMARKS AND GEAR US
30 m			am disposate obdata assess	La Contrado Cada Caractería de La Cada Cada Cada Cada Cada Cada Cada C		And the state of t		J	Decer A	- =				NOTING BUT THE REAL PROPERTY OF THE PROPERTY O		
)35°i.	•••••			DECCA												Corer up.
24.11	·····	56 01.9	U) 39·5	ide.				20.9€	37.45	69·×		SAMORE CONTRACTOR CONT		ansana and an and an and an		CORER ON BOTTOM.
17.								70.85	37-33	60.43						Confor up.
22.								w29	37.47	69.55		nacional de la companya de la compan				wer 0/13
26.		MANUAL REPORT OF THE PROPERTY						20.90	3741	69.55						
3 (		an escanto como la mante.										To a second seco	н			CORER I/B
34										BOUND CONTRACTOR						CORCR O/B
*36		N. D. J.						2031	37.47	6956		NATION CONTRACTOR AND				CORER ON BOTTOM
45	*******	and the second s	i i									MACHINE MACHIN				CURER 0/B
47		56 01.9	07 39.06					n (0.0)	37.37	69.60		accession on the control of the cont				(ORER ON BOTTOM
<u>۶</u> ۷.				•												CORER I/B
							1									CORER O/B
55 58	•	1 H 2 H				- <b> </b>		h- 01	37-38	10.58						LORER ON BOTTOM.
	· · · · · · · · · · · · · · · · · · ·	SAMPHOLOGICA CONTRACTOR CONTRACTO						20.70	121.7.3	01.18		eracianismo		CONTRACTOR		
0504						<u> </u>		L								CORER I/B
0504 550 500)								20-	3243	رددا				**************************************		corer ofo.
0.500)								21.08	37.43	69.73						CORER ON BOTTOM.
0514					pa carried and a								All and a second			CORER I/B.
		Action and an article and a second	Management of the control of the con		DESCRIPTION OF THE PROPERTY OF			ORIGIN (STREET, STREET, STREET					ta a la desperó para personante.		A CONTRACTOR OF THE CONTRACTOR	
								THE STREET							An equipment of the contract o	

on the Hebrides Slope, arriving at 1306 hrs. Two hauls were made with the otter trawl, one at 750 and the other at 1000 metres depth, and the work successfully completed on schedule at 2254 hrs.

Challenger then steamed for the Deep Station arriving at 1336 on 4 September. It was decided to launch the 2-metre "Stramin" net, rigged up with a RMT 2 net, and to attempt the long, deep haul required. A successful sample was obtained after an eight-hour tow, and this was immediately followed by another cast, this time an oblique haul, which was completed at 0040 hrs 5 September, obtaining another good haul despite a torn net.

This was followed by an attempt at an epibenthic sled haul. Unfortunately, although there was no indication of anything wrong during the 1-hour-long bottom tow, the sled itself was not recovered on winching back the wire. Both the weak link and (most surprisingly) the safety strop had parted company with the shackle and swivel assembly on the end of the main wire.

It was then attempted to lay the deep water mooring using a dhan buoy. Unfortunately, the 2-mm wire supplied had not been tightly spooled onto the drum. After catching up and snagging many times the Master decided it too dangerous to continue spooling it out from the hand winch fitted, and the operation was abandoned at 1136 hrs 5 September.

Station No. 373 A (con7.)

Date 3/9/75.

	_		POSITION		W	ND	Weath.		WAVES		Corrected	TEMPER	RATURE	CLC	OUD	REMARKS AND GEAR USE
Time	Log	Lat. 💉	Long. 🕡	Method of Determination	Dir. from	Speed Kts.	and Vis.	Dir. from	Period secs.	Height ft.	Barometric Press. mbs.	Dry Bulb	Wet Bulb	Туре	Amt.	REMARKS AND GEAR USE
								1	ECCA A	1						
્રક્રિ								<b>.</b>						• • • • • • • • • • • • • • • • • • • •		coace offs.
051\$ <u>.</u>								20.95	37.40	69.69						CORCE ON BUTTOM.
0513.																corce 1/B. /0/B.
<u>0527</u>	*							70.86	37.30,	19-95						CORER ON BOTTOM.
05 <b>3</b> 4					<b>.</b>											CACR I/B
0537.																corer 0/B
e439.								20 80	37.2	70.02						CURER ON BOTTOM
QY.¥ <b>G</b> ,																CORCR I/B
0552	,i.															CORER 0/3 WITH W.B. att
ంక్రంక్ .		5602.5	<i>5</i> 7.39:2										••••			CORCA GTC. I/B
0670.																CAMERA O/B.
0 <b>\</b>																CAMERA I/B
••••						32L	-7	ay.L	STI	į.	<u>C</u>	ka		SE	O.	
Co.		56 2110	40 <sup>2</sup> (3-1,					1	41:4	1 5		CALL CONTRACTOR CONTRA		.00		a station Abhast
1326.		56° 21.0	\$.11°100					16:57	U 72	n. (c. 106)		Table in Street Cale				Alexander on states
(3)7.								16.53	41.78	76 G6				١٧ĸ		Cod and outlood
1350								H <sub>a</sub> rily	4108	75-bu	····	COLUMN CONTRACTOR CONT		\$#		Cook away
351	A CONTRACTOR OF THE CONTRACTOR							H. +08	\$0·1.4	75.80	ONG	A COLOR DE LA COLO		66		bourng out.
			And the second s					HO?	108	75.80	Q1 Q	ACCONTINUES OF THE PARTY OF THE		6 t-		paying aut.

The multiple corer was then readied for lowering, and eight dips made completing at 0140 hrs 6 September with a recovery of 26 cores out of a possible 32. A reversing thermometer assembly mounted on the corer was tested for the first time and provided bottom temperature data.

Two hauls were then made with the anchor-box dredge, completing at 0300 hrs after satisfactory samples had been obtained. These were followed by two more successful drops with the multiple corer. This was followed by trials with the spade corer. Although promising samples were obtained on some early lowerings, some obviously failed owing to slack in the wire after the corer bottomed hitching up with projecting parts of the corer assembly, and modifications had to be made.

This provided an opportunity for another multicorer dip followed by a 2-metre/RMT2 oblique haul in night-time, these hauls being completed at 0405 hrs 7 September. These were followed by a single trial with the Shipek 70 mm camera, borrowed from I.O.S.

Barry, mounted on the multicorer framework and lowered to the bottom. This was unsuccessful owing to the leaking plug — to which no repair or modification was possible while at sea.

Trials then continued with the spade corer until 1023 hrs followed by a daylight 2-metre/RMT2 oblique haul which was completed successfully at 1328 hrs.

Station No. 324 TRAWL. Date 3/9/75. Time from TEMPERATURE CLOUD **POSITION** WIND WAVES Corrected Weath. REMARKS AND GEAR USE Time Barometric Log and Dry Bulb Wet Bulb Method of Dir. Speed Dir. Period Height Press. mbs. Type Amt. Lat. Long. Determination Kts. from QECC A SPEED. Corlibto paying and 2 Actaining Co 4016 5031 1431 320 ...1504 10.79 39.82 52.56 1515 330 10-68 39-68 53-60 1536 10-26 39-58 SE-31 340 1564 9.84 39.62 55.66 350 350 1'2 1604 9.60 39.36 56.63 57 8.75.39.05 57.88 350. 7.9 38.7 159.4 1752 350 Proceeding W. to next st I 1801

There was the sufficient time in hand for four more spade corer dips, successful core samples being obtained on each occasion, and completing the scientific work at 2253 hrs 7 September.

#### 5) Equipment Performance

Because the starb'd trawl wire had been logged as having been cropped to remove kinks, it was necessary to remove a similar length from the port wire and to splice in a new eye before we could start trawling. This was accomplished despite the added difficulty of the wire having a lefthand 'lay'.

The wire metering gear was found to even less reliable on this cruise then on previous SMBA biological cruises. It appeared to fail quite unpredictably and, on occasion, restarting spontaneously.

The multiple coring operations were delayed and complicated by the failure of the ship's main wire metering system so that wire pay—out rates, recovery rates and the amount of warp—out could not be monitored. We are grateful for the efforts of the Chief and Second Engineer to rectify the fault although they were unable to find the trouble and the equipment finally started working again for no apparent reason.

The state of the scientific workshop continues to be a source of intense frustration, especially when repairs have to be made to gear quickly in order to avoid wasting valuable shiptime. We are, however, all relieved that the cruise was

Date 3/9/25 · Time from

REMARKS AND GEAR U	DUD	CLC	ATURE	TEMPER	Corrected		WAVES		Weath.	ŇD	WI		POSITION			
REPIARNS AND GEAR O	Amt.	Туре	Wet Bulb	Dry Bulb	Barometric Press. mbs.	ft.	Period secs.	from	and Vis.	Speed Kts.	Dir. from	Method of Determination	Long. 🥡	Lat. N	Log	Time
	anadamanida negresor		ing.	Spa	4	3B ·	CLA	94								£1.
V/ HOVE TO IN 1000M.					*******	5	Α.	3				SMNAJ	69 17-3	56 34.5		1827
THENING TO 180		•••••				58.62	39-17	9.21								25.
COM , SHOOT NET .						≤ %·52	39-17	9-23					~			1835.
Net tanglet retrieve	Annual Annual Control of the Control							~	WWW.							1900.
511007ING NET.						57.40	39.32	9.66.				SATNAJ	0918-2	5635.55		1930.
DOORS AWAY INC. SED	and the state of t				***************************************			7.83								1948.
		***************************************	Ų.	<u>S</u>	えのひ		34.1						204 14.3	J6°32 · 0		2008
Completed surging on			All	<b> </b>	145	1				1				56°28.9		2043
astrone training a			<i>!!!!</i>		185	77.8		12.8	6		ļ 					2032
				ACCUMANTA AND AND AND AND AND AND AND AND AND AN										56° 25 · 4		
		••••			180	77.7	***************************************						***************************************	56° 25'.0		51 28
					170	77.0	41.1	14.7						56° 24.7		2144
Commenced howling.			ls.	12/2	170	74.7	416	15.9	*				0414.1	56 21.8		2224
Completed burling Com				42		73-4	41.8	16.4					09.17.8	56" 19.9		2325
Cod and inboard		·		STORES AND THE STORES		73:0	<u>લ</u> . વ	16.4		especial control of the control of t			۱۲۰۱ و	56" 19-6		2251
Completed statum													***************************************			2254
				and the second	****************************								***************************************			
				No.	•••••			<b></b>								
					••••••••••••	7	:							The second secon		*******************
					***************************************			<b></b>			<b></b>				ļ	····

not plagued with the engine/generator failures that have affected so many previous cruises, and we hope that the problems have indeed been conquered permanently. We are also grateful for the improvements to the darkroom door and trawl deck communications speakers.

Most of the scientific party complained of headaches at one time or another which, apart from other possible causes, seemed likely to be due to funnel fumes entering the accomodation from a ventilator on the winch deck. Black smoke can often be seen to billow all over the after deck areas - which have always collected black smuts. Hence the long periods spent on the trawl-deck washing samples were often rendered quite unnecessarily uncomfortable. Maybe a modified funnel which ejects the boiler gases upwards more efficiently is the answer.

It is hoped to attempt laying another deep-water mooring on our November cruise (14B). It would be appreciated if the wire supplied for this attempt is tightly spooled.

It is a pleasure to record our thanks to the Master. Capt. P. Maw, and the officers and crew of 'Challenger' for their continued cooperation and interest in our work. In particular, the ready help of the engineering officers did much to overcome the inadequacies of the scientific workshop. But it is sad that we have to exploit their good nature in this way. We were also impressed with the ship's greatly improved station-keeping performance made possible with the satellite navigation equipment installed, and we hope that we can rely on this being present on all future biological cruises of 'Challenger'.

(Signed) Shull J.D. Gage.

#### R.R.S."CHALLENGER": CRUISE 12B/75 : 2 - 10 September, 1975

#### To The Master

#### 1. Ship's Programme

- (a) R.R.S."CHALLENGER" is to sail from Dunstaffnage on Tuesday 2 September with members of the Scottish Marine Biological Association, The University of Manchester and the University College of Wales, for a Biological cruise in the North-East Atlantic Rockall Trough area, as required by The Senior Scientist.

  The outline programme is given below.
- (b) Tuesday 2 September p:m. Sail Dunstaffnage
  Wednesday 10 September 1300 Arrive Barry

### 2. Scientific Requirements

- (a) It is required to carry out a study of deep-sea and shelf benthic, and deep-water pelagic communities and demersal fish on the Continental slope.

  There is also a requirement to carry out a pilot investigation of heavy metal concentration in deep sea sediments and benthos coring will be carried out using a spade corer and a multiple corer with attached camera.

  Mid-water Trawling will be carried out using a rectangular trawl, and for demersal fish trawling an atter trawl will be used.

  A Dhan-buoy will be laid (4-9 September) in position 55° 03.5N 12° 03.5W in a depth of 2900 metres for station marking purposes.
- (b) SMBA equipment will be loaded in Dunstaffnage on Tuesday 2 September, and unloaded in Barry on arrival.

#### 3. Scientific Party

(a) From the Scottish Marine Biological Association, Dunstaffnage :-

Dr. J.GAGE Senior Scientist
Dr. P.BARNETT

Dr. J.GORDON Miss.H. GRIGG Mrs.M.PEARSON

Mr. J. WATSON

From the Museum, Manchester University :-

Mr.C. PETTIT

From the Department of Geology, University College of Wales :-

Dr. J. HAYNES.

(b) Scientific personnel will embark in Dunstaffnage on the afternoon of Tuesday 2 September and disembark in Barry.

D.M.H.STOBIE

Time from Station No. 326 RMT Date 4.9.75 TEMPERATURE CLOUD WIND **WAVES POSITION** Corrected Weath. REMARKS AND GEAR USE Barometric Time Log Long. Method of Determination Period Height Speed Dir. Wet Dir. Press. mbs. Type Amt. from On State Stod I. Krot 1/4:3 13:0 SE 55° 16.0 11° 323 S.NAV. 290 25. 530 4 12 1011.6. 1336 busbaring PMT Va Roun 55777 1340 RMT + 2m STRAMM LAUNCHED. 55° 16.91 11° 33.7 SNAV /4.CQ paying out 1500 56°139, 11°382 SNAV 4000m and stop baying or 55-13-72 11° 60-2 Swar 1531 56° 12.12 11° 62.7 SNOW 1600 5508-6 11 52.0 COM. HAULING NET. 1930 SNAJ 55 09.4 11 55.2 S. NAU 2100 55099 11 56.3 S. NAV 2130 56° 10.12 11° 56.89 5. NAU R.M.T. recovered 2145 STRAMIA in Light. 55 10.19 He 57.06 S.NAU ~ 4X 327 /RMT 0- th 14. 55 097 11 583 S.NAV 22/2 R.M.T. + 2m STRAMIN LAU 55 04-67 11 58-4 3216 Paying out 55" 0467 11" 58-37 S. NAJ 2218 SINAU <\$ 09.3 11° \$8.84 1200 07.511° 58.3 S.NAV 2300 55 06.4 11° 58.4 5. NAU 23.08 Completed purging on SC 16.8 11° 59.2 S. NAU 5213

Station No. 327 RMT

Date 4 9 1 5

DEMARKS AND CEAR US	OUD	CLC	ATURE	TEMPER	Corrected		WAVES		Weath.	ND	WII		POSITION			
REMARKS AND GEAR USE	Amt.	Туре	Wet Bulb	Dry Bulb	Barometric Press. mbs.	Height ft.	Period secs.	Dir. from	and Vis.	Speed Kts.	Dir. from	Method of Determination	Long.	Lat.	Log	Time
Gomered healing.		******					од да да на даду доской да да от от отгат и и и и и и и и и и и и и и и и и и и					SALAN	11°59-55	55°867	CONTRACTOR	2218
								•				5. NAU	11 57-3	55° 06:2		2330
												Shav	11° 58.8	55° 05.9		0000
Nots on board.				2				***********				SNAV.	17° 03-7	55° 051		<u> </u>
Steaming to slodge be		************			CC(E.	c Sr	ENTHI	ERE	328	To.	S					2025
In postic Per wledge run.		••••						••••				SNAV	17° Q14	55°030		250
36ge aver		********										Surv	1201.9	55°03°0		<u>) 135.</u>
Attachers chair 100m.		********					••••••									X45.
chair over			•••••			- <b></b>			•••••			SMAL.	120050	55°03.0		1145
Allaching burger 150m					***************************************		**********						§ ÷	**		1150
Ringer away Convening s					•••••			····				Snew	12°02-1	55 03		153
		•••••			·····				•••••			SNAV	12° Q2 3	£5° 03-2		<u> </u>
											<b></b>	SAW	17-03-1	55 Q.L		<u> </u>
Roduce to Atknot. Co:												81,000	12003.6	55°03-6		ng ng gray Ng mga gray
Up dale by Det Pix		************										SAW	12°01£0	55° 03.5.		
Crop words, slades as bo		, , , , , , , , , , , , , , , , , , ,							*************			Snav.	70 68.8	55002.7	*	<u> </u>
BAO FIX ON SAAV.									*****************							
Com hauling Sted	didinarery man ham model					ana Andrewson and Andrewson an					<b></b>	E37.	12°047	55° <b>0</b> &-0		)400_

Station No. 328 EABENTHIC SLED Date 5.9-75

REMARKS AND GEAR USE	UD	CLC	ATURE	TEMPER	Corrected Sarometric		WAVES	•	Weath.	ND D	WII		POSITION			
NEI JANG AND GEAR OSE	Amt.	Туре	Wet Bulb	Dry Bulb	ress. mbs.	Height ft.	Period secs.	Dir. from	and Vis.	Speed Kts.	Dir. from	Method of Determination	Long.	Lat. N	Log	Time
WIRE RECOVERED, SLEDGE CE		**********		administration of the second s		or memory and the second secon	de wydrosoed da America sprincipa					S. NAJ	12° 13.00	55 07.45		0650.
	*********			N ← T0	L03/	7.3	CEA CA	& <sup>04</sup>						1	329	
	•••••	•••••											***************************************		etali-tamenena esperante arrente pro-	
ON STATION	**********	•••••	9 <u>2</u>	<i>ऽ०</i> ३क	5596	52.4	40.1	11.8				5.443	12° 03.48	55 03-48		0435
% ANCHOR %		••••		T )	(Suspec				*************	• • • • • • • • • • • • • • • • • • •			·····			37
Paging at	••••			•••••						***********						]8
Wire caught on real	••••				***************************************					*************						42
Wie stopped off. Fining of					***************************************		•			***********						44
New satallite form			⊭.22 <sub></sub>	5034	(SUSPR	52.6	40'2	4.8				S.JAJ	12'04-67	55 02:48		<b>V</b> \$6
Paying and wine																l liq
they jumed as reel			*******				************							1		1133
White art.			••••		***************************************		*******									1/35
Hew satelike fin Dhan bury laying abo	*******		56	5039	15596 (34584	52-5-	40.3	11.4				SINAG	12'06-31	SS 02.78		1136
	******		*******		management of the second					Decc			CVEV			
a station pulparing or			••••	##**		Q		CHAIN	Quede	24660	Ĉeo					\200.
Youring Coner.			***************					3			G.	STE	17°05-5	55°02.7		1240.
Cover on battern.					*************	360-4-	<b>35/</b> 50	3.57	52.62	4Q-52	120	*************************	12 07-11	65 02.29		1330
Carer on board.				and the second	***************************************			20 Months (Carantella Carantella	MENCACHOLIS MANAGEMENT AND				and the state of t	Parameter State of St		

St	tation N	o. <u>33</u> 1	Cover.		Date	<u> 59</u>	<b>1</b> 5	*******								Time from
Time			POSITION		WI	ND	Weath.		WAVES		Corrected Barometric		RATURE	CLC	DUD	REMARKS AND GEAR USE
Time	Log	Lat. N	Long. W	Method of Determination	Dir. from	Speed Kts.	Vis.	Dir. from	Period secs.	ft.	Press. mbs.	Dry Bulb	Wet Bulb	Туре	Amt.	
						DECC.	I	1	\Q₹	1			aboliscie el palación de paración de parac		Opening paramount and	
45		56°03-51	12° 03-52	SNAV.	11-76-	to!	5), es	-5001	45-3	<del>(563</del> -7	***************************************					On Wation
			**		11.76	4016	53-08	5034	: S 3	563.7						Coner launded
530		55°03.'3	12° 05-6.	Snor	1176	40-11	53.0%	5034	5 3	563.7						on bottom
<u>.</u> 07		55 03.23	12 05.68	SNA1.	11-70	40.0)	53.24	5034	1.6 3	1567.1						me.I/B.
1/32	7/2															3
	F	ALT. CORC		F	1	2001	×2 22		23 /	-12.3						. 14 . 0.18
. ૧૪.		<u>५५ ०५</u> .५५	1		1											n/c 0/B.
706		56 03.85			1			1								Core- on botto
49		55 03.36	12 04.92	S NAV.	11:77	40+5	52-99	50.74	1-2 )	l≤62·8						M/C I/B
STN	333/	HUR &	At +													-
१०६.		55 03.49	12 03.46	SNAV.	11.65	40.00	53.13	<b>५०</b> ३५	7 . 4 . 3	1561-4	*					m/c 0/6.
42	Maging in a graph of the first	5503.43	12 04.74	Name of the state	11-65	40.04	53-11	5034	6-7	1555.7						bore- bottomel
7.20	1	. 63-51		politication to a residence of												m/c I/B.
	Land	while	\									1				2
	334.,		į			20.00							************			M k ola
932		100	12 03:45				1	1			<u> </u>					M/C 0/B.
205		55 03-57	12 63:15	Manager 7	11.65	39.92	53.09	7034	¥68	315628						Gen on both
2040		55 03.50	12 05-27		/1·6x	40.0	57.51	503	<u> </u>	315647					A. A	ME I/B
	-4335/	M With To			<u> </u>			ļ	1 1	:	9		· ·			
20)		6313.44	12 03.6	SAT NA V	11.84	39.99	5284	६०३४	4	315603				esconoscopicos de la constanta		M/c O/B
2140		569 3.41			1			1	1	315610			Name and Address of Ad		April (descriptions)	the a lath

Station No. 333 / Milliple Gre- Date

late \$- 9-15

Time from\_\_\_\_

	1	1 0. 333 (			Date <sub></sub>	***************	1					1				Time from
Time	Log		POSITION		ļ	IND	Weath.	ļ	WAVES		Corrected Barometric		RATURE	<b> </b>	DUD	REMARKS AND GEAR USE
,		Lat. N	Long.	Method of Determination		Kts.	Vis.	Dir. from	Period secs.	Height ft.	Press. mbs.	Dry Bulb	Wet Bulb	Туре	Amt.	
					DA.	4ch 3	S (m.		Man.							
2.4.5		55 03.41	15 07.36	SAT. NAJ	11-75	40.06	52·54	<i>\$256</i>	7 31	5630						M/c \$1/B 2 comes
				+indexicol/distrain	A CONTRACTOR OF THE PARTY OF	and contains a section of the	Cener				•		secondo cincia de la constante			
		4			1				ļ	1800						M/c 0/4
2245		1		SAT NAV	1		ı	1	1							
2318		55°03:45	12" 03:44	SAT NAV	11.76	40.0	52.16	5034	91 3	55.95						Core on lotton.
2358		ςς° 02·78	12° 04-34	SAT NAV	11.82	40.22	51.54	50346	3	567.0						Mc 7/6
*							CCHAI									
				~ A:												M -/-
3024		55°63-51					5 <b>2</b> 93									Me 0/6.
0053		55 OS:51	12° Q3-LL	***	11-51	40.70	52 63	503	\$ 3	559.5						Cons on battom
Orlo		55 03-51	17 ° 03 Lu_	ें: ' 8-8	11-63	£1.56	52-16	5036	. 5 3	561-4		armenaures :				M/C I/B.
						2	188	1,00	1000			Alexandra Exercises			editation of the residence of the reside	
		erro est	40 000	0.3			1 '	1	1				·			270° I knor Powsking &
0211		55 08 6	11° 59.57		1		52.97	1				1				
3300	<b></b>	55° 03.52	12 0154	Snav	11.86	40.18	52.82	50%	14:13	5533						adó on ballon
J-22 L		55° CB.1	150 03:3	Snav.	11.88	46/33	5154	5039	3 6 3	56U3	***************************************					SAT Fix Hawling
0441		55 45.76	12 05-65	SNAU	12.12	W.45	L. Mar	NO34	. 6 t	4/1.0						Bu breke inbout.
		AND SAME AND			<u> </u>					oracicolosia.			-	-		
		•	, f	on hely	1											4 1 1 0 1
05.19.,		5503.46.	12 01-62	SMAV.	12.4	5 42-83	59.92	5021	0.4.3	1562-1						Box bredge overboard.
0616.		5503-76.	1205-05	- 5NAV	12-2	144-5	58.29	<u> </u>   <u> </u>	13.3	558.0						- on loten
0630				SMAY.			reaction (			Garden Andreas (Principles)		Walter Street	statistical engineers to the control of the control		Management of the Control of the Con	Unling Box box of
0 8 0 3	8		1	5 NAV.	1	į.	1	ž .		1.76-7.4		And the second second				Box Ledge Inboard.
¥F	Buck	147 - 7.	115 10.41	1 > 14 17 .	1	1 + A OF)	1 10	1203	T	1 > 1 . 1	Ī	į		I		LOUR WARE HOUSE

STATION POSITION LOG Station No.

Time from...

			POSITION		W	IND	Weath.		WAVES		Corrected	TEMPE	RATURE	CLC	DUD	DEMANAGE AND GEAR HEE
Time	Log	Lat. N	Long.	Method of Determination	Dir. from	Speed Kts.	and Vis.	Dir. from	Period secs.	Height ft.	Barometric Press. mbs.	Dry Bulb	Wet Bulb	Туре	Amt.	REMARKS AND GEAR USE
					Deni	~!		1	-							
					8	4	G									
0852		55 03-52	12°03.45	S.NAJ	11.84	44.24	S.70	∫े3्व	ra j	<i>(510</i>		ACCIONATION OF THE PROPERTY OF		A CONTRACTOR CONTRACTO		ON STATION.
042 <b>21</b>		56 02.97	12'06.48	(3. NAU	12.01	44.56	58.1€	\$234	3, 3	5544				COMMUNICATION OF THE PROPERTY		Mc ola
1000		SS 02-47	12:06.38	S.NAJ	12-01	4456	58-19	5034	32 3	15594						Con on lotten
(034		56002.17	12° 06-03	5.000	12:10	44:76	57 98° 12	5034	12 3	15357						M/E 5/6
		ACCUMANTAL MATERIAL M		t for the state of the state or minerare described and the polytopic place and the place and polytopic place.		341	Contr					*** <b>*</b>		TO THE PERSON NAMED IN COLUMN		
125		55° 03.49	12 03 52	S.NAU	11.76	44.1			47 3	5598						M/c 1/B
11/38		55°03.49	12"03.52	. S.NAJ	11-90	44.)	58:61	5014(	2 3	15,283						Coner on bother
(233	over a service and a service a	55°02.68	120 05-33	F-6.	11.90	6439	\$\$ 55	5034	Vu.	15743	<b>N</b>					M/c 3/8
	AND THE PROPERTY OF THE PROPER					362	Slac	E Co	<b>.</b>	de maria de la constanta de la		EAST-OWNERS AND				
1318.		55° (3):53	120 03-67	Svar	11-74	LL G	58.9%	So34	J - S - 3	1552	f					Slado cour ols.
1400		55° 03-53	12003-67	te:	11. 77	(2.fe · 1/4	-SS-98	503(	29.3	(S\$1:3						Spodo conc on bottom.
1413.		£*0329	7° 06-60	**												SAT FIX
1459		55 03 79	17° 04-60		11:79	44.71	58 AD	503	0.6	1550-1						Copy on board
ાર્ગ્સ																Modification to cons
1616.		<< 63.54	12°03-34	S.NAV	12-42	342	1026 59.35	2 (5) 5035	9 NOE ) 14 - 8 3	516-2		AND MANAGEMENT OF THE PROPERTY				borer launched.
1690.												New Commence of the Commence o	namanoplemente Makalamanota		Autobiopoli egi pilipa kerendenanan	P.D. R. OUT OF PAPER.
1728		55 03-67	1706-00	S. NAV.	$n \cdot n$	44.11	59-15	501	4.6	31517.5			And a pro-proper production of the state of		The state of the s	lade war bottomed.
184			12 06. 47		1		ı	ii S								Core mboard.

Station No. 343 / Spale borer Date 6. 1975

	OUD.	CLC	ATURE	TEMPERA	C 1	i	WAVES			ND I	WI		POSITION	· 3/43		
REMARKS AND GEAR US			Wet	ļ	Corrected Barometric Press. mbs.		Period	Dir.	Weath. and Vis.	[	i	Method of			Log	Time
	Amt.	Туре	Bulb	Dry Bulb	rress. mos.	ft.	secs.	from		Speed Kts.		Method of Determination	Long.	Lat. 📢		
Core launchel.						155\$ 4	361-83 Cari		S S2:92.	<u>(a 3</u> (u.o.		-s.NAV	(2) 03-34	55 03·44		1915.
Pinger attacked @ 25m												£ .		55°03.40		<u>/</u> C
Ger a later						5 J. S. 7	<sup>1</sup> 631	\$034	(8.84	43.94	12.74	** ·	1208:54	5103.4		¥2.00 %
Prize \$6								·•··								2,117
Ger Sta Nor TRIPER						\$	315	5035.7	57 <b>9</b> 8	44.30		SINAN	12 03-12	\$ 6 03/3		2124
												-4	fall a	344/3		
ON STATION						(603	1 31	(0)59	58.80	43.48	1272	S-NAJ	1203.54	55035		2142
Ge 0/0					***************************************	5601	273	5035	58.53	43.96	12:64	SNAU	12°03.54	\$\$ °63.\$		3(5)
Priger attacked @25 m										•••••		5 NA )		Secretarian de la company		2200
Gre- oalde						5701	23!	\$0 <b>.5</b> \$4	58:46	44.14	12:69	S.NAV	12°03.54	55 °03.5	*	5246
Punjar 3/B						15520	\$-0 °	6035	58.09	44.34	12.74	SINAD	R° 07-14	55" 02 71		2334
Gren =/B			******			15642		Sols	57.06	44.18	12.84	S. NAV	12: 03:14	5502:71		2538
							)/Q.Y.	Unic	S HV							
COM OB						1556.5	ao! 3	5031	52.27°	W.F	12.99	SHL	12°05'56	£5°0343		0028
en betten				abilitati kida da mada kida mada kida mada kida mada kida mada kida mada kida kida kida kida kida kida kida k		5579	\$\$ <b>\$</b> 1	\$2	50.10	uk ku	3.14	Shav.	17 06256	SS 02-85		0104
Cole in B.				A CANADA PARA PARA PARA PARA PARA PARA PARA P		5594	653	Eq.33	5748	u., (.),	\$ 08		17 OL-56	55 02 85		Olle
							*******		,							
							The state of the s			- Operation and Assessment Assess		And the second s	***			
	a-depoply of another measurement			Management of the second												

Station No. 346/A=24 Steamin Date 7.9.75.

Time from\_\_\_\_

			POSITION		W	IND	Weath.		WAVES		Corrected	TEMPER	RATURE	CLC	DUD	DEMANUS AND GEAR HE
Time	Log	Lat.	Long.	Method of Determination	Dir. from	Speed Kts.	and Vis.	Dir. from	Period secs.	Height ft.	Barometric Press. mbs.	Dry Bulb	Wet Bulb	Туре	Amt.	REMARKS AND GEAR USE
0201 0x66		55°029	12°043	SAW.	6	ECU C UUS4	G									Net away 060° 1 Knor.
0%43 <b></b>																2 Knok
020		55°02:5	12005-1	÷ 6	12.90	hu:26	58.70.			-1444		Manager Commission				
0275		55°02.6	12,001.8.	84	13.22	44:30	58-84			***********		CONS. A CARGO ADDRESSANCE OF THE CONSTRUCTION				1000m
0240		55°03-5	12°03-4	§ v	1319	11 28	51.00					CONTRACTOR				Paying and to 1500
<u>0,65</u>		55°63-6	17° 027.	¢ ų.	12.85	43.7%	50,00					A LICENSE AND A				1500 m.
0309		55°03.9	120 02-0		12-62	63.4	<u> </u>					ing to compare the compare to compare the compare to compare to compare the c				13 Krols Commana harling
0352		55°OU-6	110 59.8	<u> </u>	12.53	45.65	59-14	ACCOUNT OF THE PERSON OF THE P			***************************************					1 knor.
Oxof.		SS 04.7	110-59:3	**	12-50	65.62	60 50	MCCHCCHAMMAC CHOCKE		•		-		THE PROPERTY OF THE PROPERTY O		Net on board.
	34.	/ Millipe								ensidenti rasol in obsesso robigalementi de						
<u>osys.</u> ,		5503.4	12 03-4		12.65	46.43	59-22									Well bover 0/3 with
0633		2.5 44	12 04.0				57.05									Core on bottom.
47.60		55 63 - 8			12-70	46.05	5% -95								-	fore Irland.
*************	348/	Spanis C					K A		LORAN							
6844		\$5 01.48	12" 63-52		12.72	45.48	\$8.44		\$ 6	508	315+67					(ore- 1/B.
0846																Prize study
6530		55°03.63			<b>†</b>		59.18		5.03	The state of the s	3:5601				reducing the second	Gre or bollo
10/1		l	12" 03-61		T	1	\$9.24	1	5039	92	315615	CALLED TO THE CA		National Control of Co	Andreas	Pinjerus
103	ENCORPORT ENCORPOR	55°05.68	15.07.61		12-64	45.9	\$9-26		1000	bi	315611	wecommensor			Salanda di primpira	Ge =16

Station No. 349 / STRAMIN Date 7/9/25 Time from DECCA UNRELIABLE TEMPERATURE CLOUD WIND **WAVES POSITION** Corrected Weath. REMARKS AND GEAR USE Barometric Time Log Speed Kts. Wet Bulb Dir. Dir. Period Height Method of Press, mbs. Type Amt. Lat. Long. Determination from DreiA 3/1 LORYN Net Stramin 2m % W Cas: 55 0.42 12 05 81 5. NAV 1127 2.7 ( 46.12 19.02 2 le paging out 15 1017.7 14.6 12.9 Cs 1128 55 02.5 12 06.25 Stopped purging out @ 1000 . S. NAJ 1153 13.01 46:51 58.28 paying out to 1500m 55°01 6 12°06 4 13-12 6-55 57-56 1209 1500 m. 555015 170067 3.2L LD 00 57-66 1770 harling -23<u>6</u> SS OIL 12 012 13.34 67.70 5700 Not a board. 66° 59 4 17° 088 13-64 67-50 55-94 Sm 350 Ba Cour Core. 0/B 55°03.89 12°03.93 12-68 46-00 59-20. 50367.8 315629 426 Corev on bollom 55° 03:89 12°03.93 503461 315 buo 11:17 W/18 53.16 151**7** love I/B 11.63 39.91 53.46 1616 55 03.89 12 03.93 51N 351 Box love loe 0/0. 55 0334 12 03.54 11-74 40-11 53-67 borer on bottom. 1776 55 03 42 12 05-32 11.77 40.10 53.11 1315 55 03-42 12 05-32 11-64 40.00 53-23

Station No. 352/Box bore. Date 7/9/75.

Time from...

3(	acion in	o3.2. <u>c.</u> .1.		· · · · · · · · · · · · · · · · · · ·	Jace <sub></sub>									,		Time from
<b></b> .	•		POSITION		W	ND	Weath.		WAVES		Corrected	TEMPER	RATURE	CLC	DUD	REMARKS AND GEAR USE
Time	Log	Lat. N	Long. W	Method of Determination	Dir. from	Speed Kts.	and Vis.	from	secs.	Height ft.	Barometric Press. mbs.	Dry Bulb	Wet Bulb	Туре	Amt.	REMARKS AND GLAR OUT
								De.	CA 31	\$ . Cr -						0
1845.		55 03.26	12 03.00	S. NATA				11/190	39-90	5 <b>5</b> º15.						borer 0/B.
1932	**********	55 04.10.	12 02.51	S.NAV				11:55.	39-83	53.32						bover on bottom.
2019	************	55" 04.30	12° 02.22	S.NAU				11.54	39.80	\$3.54						Core-1/2
	353	/spade	Corer		•					e e e e e e e e e e e e e e e e e e e	annonemento (contrata de la contrata del contrata de la contrata de la contrata del contrata de la contrata del contrata					
210		55003.57	12° 03.52	S.NN				11.84	40 29.08	52.98						Core- 90
2104		55° 03'34	12° 02.69	SAA				E .	4à-0							Prize attacked One on bollo
2149		1	120 02-69	1					400							Gre a bollo
1250												000 grave and 00				Perior up
2253		\$\$°03.14	12° 02.44	SINAO				11-80	39.98	52:22	74					Cover I/O
								A CONTRACTOR OF THE CONTRACTOR	-							
***************************************													- Canada de Cana	Carrier de la constante de la		
***************************************																
***************************************		•						•	the sales of the s			*				
**********		•													***************************************	
***************************************										And Administration of the Administration of			-			
*************							**************************************									
***************************************											The second secon		-			
***************************************							ripes production and the second	CHITTING THE STATE OF THE STATE								
***************************************	NAMES OF THE PARTY							all the same of th		•	TROOPING MARKET	Name of the second	fit adoption of the control of the c			
	į			1		Salar		I	i.			*				

Station No. 352/1300 love Date 7/9/75.

Time from\_\_\_\_

Time	Log	POSITION			WIND Wea		Weath.	h. WAVES			Corrected	TEMPERATURE		CLOUD		DEMARKS AND GEAR USE
		Lat. N	Long. W	Method of Determination	Dir. Speed Vis. from Kts.		Dir. from	Period secs.	Height ft.	Barometric Press. mbs.	Dry Bulb	Wet Bulb	Type Amt.	REMARKS AND GEAR USE		
								OC.	C 4 51	٠ ئ						
1845	***********	55 05.26	1205-00	5. NA'Z		-		11/130	3990	5 <b>9</b> 15.						borer 0/3.
1952	<xx.></xx.>	35 O4.10	12 02.51	5.NAV				!!:55	39-33	S ક - પ્રેટ						love on bottom.
2019		55' 04.30	12" 02:22	(.da)-				11.54	39.80	\$3.56	.,					Core-3/10 s
	<u>ئ</u> "ئۇ	/spele	Corac	,	-		***************************************		***********			A CONTRACTOR OF THE CONTRACTOR	. O.			
L. o		F	12° 03.50	(AA)				11.84	40 <b>A</b> .K	52.98		CARLES CONTROL DE L'ACTUAL DE		END ESCRIPTION OF THE PROPERTY		Cora 9/0
2104		62-6 <del>3</del> -63-64-	1	l ·	Marketin Company	••••••		44								P. c. attachel
		53° 03'34	1	1	17			1	40.0	50.12						hige attacked Goe on billo
2/49	•••••••	* 3	15 05 0 1									and the second s				luis-up.
2350		1570							31.98	(7.71		CONTRACTOR				Gover I/o
2337		5500024	N 03-44	S.NA.	<b></b>			11.80	31.48	J4 44						<u> </u>
<u>'</u>	i				<b></b>								and control	<b></b>		
											•••••		to the control of the		ļ	
********	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					-										
	·····															
	s	e e				:							Vanada da maria da m			
													mazavároz kilo mod de deleverior			
										www.io.io.io.io.io.io.io.io.io.io.io.io.io.			dental and the second of the s		pour traces assumented and	
******************		Esperance and the second secon			1					Land of the land o		A STATE OF THE STA				
							<b></b>			And a second sec				National Contract of the Contr	Prince of the second se	