

Table 1

Date	Station	Position	Approximate depth	Gear	Remarks
19th October	1	56°01.7'N 07°39.1'W	158M	Multiple Corer	6 hauls all successful
19th October	2 (Trawl 20)	56°25.9'N 09°11.7'W to 56°30.8'N 09°11.7'W	750M	Large trawl	Good catch Starboard meter failed
19th October	3	56°28.6'N 09°12.7'W	750M	Agassiz Trawl	Good haul
20th October	4	56°36.2'N 09°38.4'W	1,500M	Agassiz Trawl	Good haul
20th October	5	56°32.2'N 09°28.5'W	1,250M	Agassiz Trawl	No sample Main wire meter failed.
20th October	6 (Trawl 21)	56°24.6'N 09°18.1'W to 56°27.8'N 09°18.9'W	1,000M	Large Trawl	Good Catch
20th October	7 (Trawl 22)	56°27.2'N 09°30.4'W to 56°29.8'N 09°31.4'W	1,250M	Large Trawl	Good Catch Port meter failed
20th October	8 (Trawl 23)	56°20.7'N 09°08.9'W to 56°24.1'N 09°07.1'W	500M	Large Trawl	Good Catch
22nd October	9	54°38.8'N 12°08.8'W	2,900M	Epibenthic Sledge	Good Sample
22nd October	10	54°38.5'N 12°18.4'W	2,900M	Agassiz Trawl	No Sample

RRS Challenger

Cruise No. 16/76

18 - 30 October 1976. (Unless otherwise stated, all times are GMT)

Report of Proceedings

A Main Objectives

Investigations and sampling of deep-sea demersal fish populations using a bottom trawl and an Agassiz trawl.

Studies of the deep-sea and shelf benthos using an epibenthic sledge, multiple corer, Craib corer, Agassiz trawl and Shipek camera.

B Geographical area.

Hebridean Terrace and Seamount. Rockall Trough west of Ireland. South-east slope of the Rockall Plateau. Rockall Plateau and northern Rockall Trough.

C. Scientific Party.

J.D.M. Gordon	SMBA	Chief Scientist.
I Barclay.	SMBA	
J. Duncan.	SMBA	
R. Lightfoot.	SMBA/University of Glasgow	
J. Muir.	University of Stirling	
G. Pearce.	SMBA/University of Aberystwyth	
C. Pettitt.	University of Manchester	
L. Ross.	University of Stirling	
R. Summers.	SMBA	
J. Watson.	SMBA	

28th October	31	57°04.7'N 12°16.8'W	2,400M	1M. Plankton net	Good plankton but no fish
28th October	32	56°43.1'N 11°06.8'W	2,460M	Multiple Corer	2 Hauls, no cores
28th October	33	56°46.7'N 10°58.7'W	2,400M	Agassiz Trawl	1 Haul, excellent sample
28th October	34	56°27.1'N 10°22.9'W	1,060M	Multiple Corer	2 Hauls - 8 cores
28th October	35	56°28.7'N 10°22.2'W	1,060M	Epibenthic Sledge	Good sample.
29th October	36	56°36.2'N 09°01.4'W	200M	Anchor box dredge	2 Hauls - 1 good sample.
29th October	37	56°37.2'N 09°02.2'W	400M	Anchor box dredge	1 Haul - good sample.
29th October	38	56°23.9'N 09°08.4'W to 56°26.6'N 09°06.0'W	500 M	Large Trawl	Good catch

D. Sea and Weather Conditions.

Generally very good, the only interference with the work programme occurred on 21 October when force 8-9 winds delayed the arrival on the deep station.

E. Conduct of the cruise and

F. Scientific equipment operation and handling.

Challenger sailed from Ardrossan at 16.00 hrs (BST) 18 October and arrived at seasonal shelf station A3 at 03.06 hrs (GMT) 19th October. Six hauls were made with the multiple corer and good samples, bottom temperatures and water salinity samples were obtained. We then steamed for the 750 m trawling station and the P.D.R. fish was launched while the trawl was being prepared. The new blocks for the inboard brackets on the A frame were now available and some time was spent on re-rigging the doors for the new method of shooting. The trawl is now shot on the auxilliary wires and there is no need to hang the doors on the A frame. The trawling operation is now considerably safer and for the first time the trawl can be shot using the specified length of bridle. In anticipation of a larger catch the time on the bottom was reduced to 1 hr but even then this was the largest catch ever made by Challenger and all subsequent hauls were of 45 min duration (cf 1½ hrs in 1975 and early 1976).

During the night two successful hauls were made with the Agassiz trawl in 750 and 1000 m. A third haul in 1250 m was not completed due to a failure of the metering gear. At dawn on 20 October a good haul was obtained with the Granton trawl in 1000 m and this was followed by another good catch from 1250 m. During the latter the wire out was estimated following a fault in the port metering gear. (The starboard

26th October	22	56°10.1'N 17°25.2'W	850M	Multiple Corer	1 Haul, fine coral sand
26th October	23 (Trawl 24)	56°17.6'N 17°25.7'W to 56°13.9'N 17°27.6'W	860M	Large Trawl	Good catch
27th October	24	57°18.1'N 14°05.6'W	160M	Multiple Corer	3 Hauls, 2 cores.
27th October	25	57°18.5'N 14°07.3'W	160M	Epibenthic Sledge	Good Sample
27th October	26	57°20.3'N 14°06.1'W	160M	Craib Corer	5 Hauls, 1 disturbed core
27th October	27	57°15.4'N 14°07.7'W to 57°20.6'N 14°02.5'W	200M	Large Trawl	Good Catch
27th October	28	57°37.8'N 13°41.9'W	85M	Craib Corer	3 Hauls - 1 sample of coral sand
27th October	29	57°14.8'N 12°40.4'W	1,800M	Multiple Corer	2 Hauls - 8 cores
28th October	30	57°07.4'N 12°18.6'W	2,000M	Multiple Corer	1 Haul - 4 cores

never had broken down on the first haul). On completion of this trawl it was our intention to continue the Agassiz work and do two anchor box dredge hauls at the top of the slope. However it was decided in view of the deteriorating weather conditions to proceed immediately with the 500 m trawl thus completing the seasonal fishing programme and allowing Challenger scope to avoid the advancing depression without have to return to this station.

Challenger then began steaming for the deep station at 21.05 20 October. By noon on 21st October only 70 miles had been covered and the ship had reduced speed to $2\frac{1}{2}$ k in strong S.W. gales. At dawn on 22 October Challenger was hove to on deep station 1 for multiple coring work but the swell was too heavy to work it with safety. We then steamed to deep station 2 and were able to work the epibenthic sledge between 11.00 and 14.40 hrs 22 October. A good sample was obtained with the 0.5 mm net and while the sample was being removed and the net changed an attempt was made to use the Agassiz trawl. A weak pinger trace was obtained and on recovery it was found that the net had not been in contact with the bottom. A second sledge haul, with 1 mm net, was then carried out and another good sample was obtained.

Challenger then returned to the multiple coring station and work began at 03.30 on 23 October. The multiple corer which had worked well at the shelf station now gave problems and the first 5 hauls were unsuccessful. After numerous modifications the fault was located and the next 8 hauls yielded good cores. Bottom temperatures and bottom water samples for salinity measurements were also obtained. The important seasonal work was now complete but before leaving the

deep station, it was decided to try the Agassiz trawl once more but this was unsuccessful.

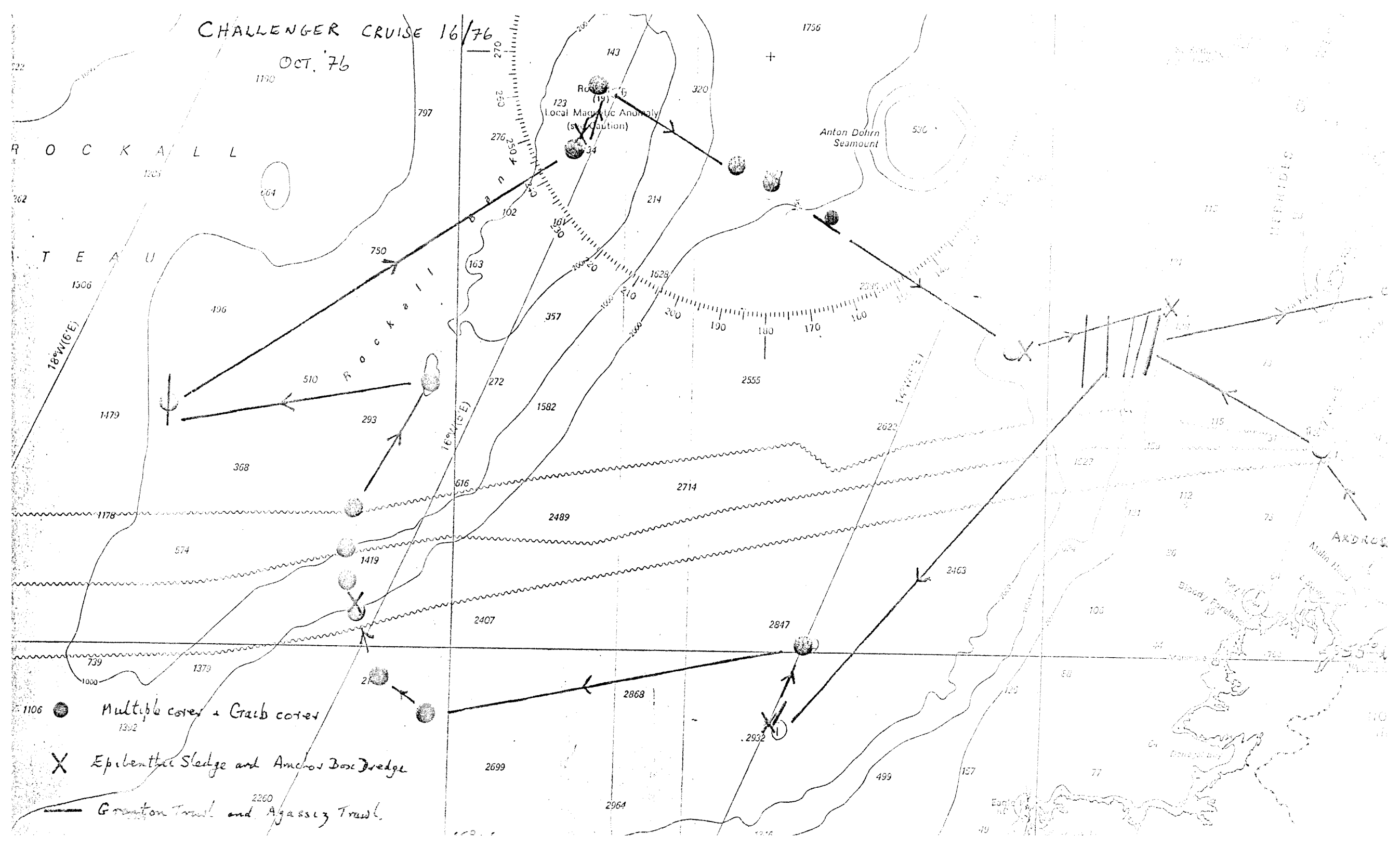
Challenger steamed from the deep station at 09.39 hrs 24 October to begin a transect on the south-west slope of the Rockall Plateau. The intention was to work the multiple corer, epibenthic sledge and Agassiz trawl at various stations on the slope. However multiple coring revealed that the bottom was fairly hard and most cores had small pebbles. An epibenthic sledge haul was attempted at 2000 m and although a good sample was obtained it was decided to abandon all further attempts due to external damage to the sledge and several large stones in the net.

Satisfactory cores, bottom temperatures and water salinity samples, were obtained from stations at 2520, 2200, 2000, 1500, 450 and 190 m. No sample was obtained from the 1000 m station due to coral. At 03.00 26th October we broke off from the transect and steamed due west to an area thought suitable for the large bottom trawl. The ground was tested with the multiple corer and consisted of fine coral sand. A P.D.R. run was made over the ground while the trawl was being prepared and no obstructions were evident. A good catch was obtained from 860 m. and Challenger steamed back to continue the transect on the Rockall plateau.

The multiple corer was used at 160 m on the Rockall bank but only one of the three hauls was successful due to the hard gravel bottom. Even 5 hauls with the Craib corer produced only 1 very short core. This was followed by the epibenthic sledge which yielded a rich sample. The presence of a few boulders in the net suggested that this ground would be unsuitable for the weak Agassiz net and consequently the

CHALLENGER CRUISE 16/76

OCT. '76



● Multiple cores + Grab cores
1106
1392

X Epibenthic Sledge and Anchor Box Dredge

— Granton Trawl and Agassiz Trawl

Granton trawl was used to sample the macro-invertebrates. Challenger then steamed close to Rockall and a Craib core was obtained from 85 m.

At 17.20 27 October Challenger set a course for the Hebrides Sea Mount. En route the multiple corer, which had been modified following the problems at earlier stations, was worked successfully at 1800 and 2000 m. A final attempt at a deep water (2400 m) Agassiz trawl was very successful and an excellent haul of fish and invertebrates was obtained.

Challenger arrived on the Hebrides Sea Mount at 1800 hrs 28 October and several P.D.R. runs were made over the ground. Two hauls were made with the multiple corer and excellent cores were obtained. The epibenthic sledge was then worked and a good sample was obtained. Challenger then steamed to the top of the Hebridean Terrace and successful anchor box dredge hauls were obtained from 200 and 400 m.

The remainder of the working time was then used to repeat the 500 m trawl station in daylight. The previous haul had been done in darkness because of the deteriorating weather conditions on 20 October, and was not strictly comparable with previous daylight work on this station. A good catch was obtained and after recovering the P.D.R. fish Challenger sailed for Dunstaffnage at 12.00 hrs 29 October. The ship docked at 08.00 and the scientific gear was unloaded by 09.00 30 October.

Scientific results.

Granton Trawl. The new method of working the trawl gave excellent results and good samples were obtained for the seasonal work. L. Ross was able to continue his studies on fish swimbladders and obtain

samples of heart/muscle for a colleague at Stirling. J. Muir collected samples of grenadier gonads for joint study with J. Gordon.

C. Pettitt collected invertebrate material for Manchester Museum and also for polymorphism studies. A collection of live crabs was made for A. Ancell (SWBA).

Agassiz Trawl. This gear worked well at the shallower stations and produced a wealth of invertebrate material and fish. Collections were made by C. Pettitt. At the deep station the results were disappointing but subsequent work at 2400 m has enabled us to become familiar with the gear and it should work well on future cruises. We are grateful to the fishing skipper for his valuable advise in this connection. J. Muir obtained bacteria from fish living at temperatures lower than 4°C.

Epibenthic Sledge. Good hauls were obtained from the deep station, Rockall slope, Rockall Plateau and the Hebrides Sea Mount. Further hauls on the Rockall Slope were abandoned because of the stony nature of the bottom and lack of time precluded a station on the Anton Dohrn Sea Mount. J. Gage was unable to sail, at short notice, and a new system using $\frac{1}{2}$ ton weights was not attempted.

Multiple Corer. Modifications and improvements to the firing mechanism of the coring assembly had proved very successful on the shelf station A3. The trouble experienced on the deep station was not due to these modifications, as was first thought, but to one of the four bottom valve mechanisms closing during the descent of the corer through the water column, thus preventing penetration of the core tubes into the sea bed. After this fault was corrected, good samples were obtained throughout the remainder of the cruise. Additional cores

were obtained for G. Pearce and Manchester University.

G. Ships performance.

This was generally excellent. The most serious defect on this cruise was the failure of the Elliot metering gear. During the first trawl the shaft of the starboard pulse generator sheared. This was followed a few hours later by the same occurrence on the main wire generator. An electrical fault on the port meter during the 1250 m trawl resulted in us having to estimate the amount of wire out. We are very appreciative of the efforts of the Chief and 2nd Engineer for the speedy temporary repairs. The port trawl wire and the main wire meters functioned well for the remainder of the cruise. It should be stressed that these repairs are of a temporary nature and a more reliable metering system will be required on future cruises.

The non-toxic sea-water supply and the constant temperature room both gave trouble on this cruise. Fortunately they were not of vital importance on this cruise but I anticipate making full use of these facilities on future fishing cruises. A thorough overhaul, particularly of the latter, would be appreciated.

We gratefully acknowledge the supply of the new blocks for the inner brackets of the A frame. The efficiency of the large bottom trawl has been considerably improved and the handling of the large trawl is now much safer. We did experience problems with the cleats on the outboard pads of the A frame. I should be grateful if R.V.B., in consultation with other users, would consider removing them.

We were again very impressed with the ships' officers' station-keeping, particularly during vertical wire work. The efforts of the fishing skipper in designing the new method of trawling and his help

with the trawling were greatly appreciated.

The competence of the deck crew under the new Bosun was probably the best I have experienced on board Challenger. The efforts of the catering staff was of the usual high standard.

It is a sincere pleasure to record with thanks the help and advice given by Captain Maw during this cruise. The generally relaxed yet efficient atmosphere on board the ship was proof of his talents and was very much appreciated by all the scientists.

Finally we should like to thank R.V.B. for their planning of the cruise. The change in sailing date and place and the problems of working in submarine areas were very efficiently handled.



J.D.M. Gordon.

5/10/76

List of equipment for Challenger Cruise 16/76

Satellite Navigator

Metric P.D.R.

P.D.R. Fish

Atlas Echometer

Shipek Camera (Already of loan to Dr Barnett)

New blocks for inner brackets of A-frame. (These blocks are now
in stores at Barry - see letter D.J. Spurlock to J. Gordon 19/7/76)

Agassiz Trawls (Mr Pettitt has written to Mr Skinner)

Two 500kg weights for use with Epibenthic sledge

Two snatch blocks to take 13 mm wire

Pen recorder to record wire tensions.

Dr Gage has agreed to contact IOS-Barry about the last three items.

Cruise CHALLENGER 16/76 Cruise Project 79/3615
 Required by SMBA (DR. J GORDON)
 Dates required from 19 OCT '76 to 1 Nov. '76
 To be *delivered to / ~~collected by~~ / ~~installed by~~ CHALLENGER AT ARDROSSAN
 on BY 17.00 TUES. 5 OCT '76
 (*delete as appropriate)

STANDARD INSTALLATION

Qty	Description	Inventory No.	Project No.	Che
1	ECHO SOUNDER PES MK III TRANSCIVER		7 1 1 3 0 1	
1	" " " " TRANSDUCER		7 1 1 3 0 2	
60	" " " " PAPER ROLLS			
	" " " " SPARES BOX			
	" " " " HANDBOOK			
1	" " MS 38 TRANSDUCER		7 1 1 3 1 5	
1	" " " " TRANSCIVER		7 1 1 3 1 4	
	" " " " SPARES BOX			
	" " " " HANDBOOK			
1	" " ATLAS 800 COMPLETE		7 1 1 3 2 3	
	" " " " HANDBOOK			
	" " " " SPARES BOX			
1	DECCA RADAR G29 + HANDBOOK			
1	" NAVIGATOR MK 21 & HANDBOOK			
1	" AUTOMATIC PLOTTER			
1	EM LOG & HANDBOOK		7 1 1 3 4 2	
1	DIGITAL CLOCK SYSTEM - GREYWAY		7 1 1 6 0 2	
1	SHIPEK GRAB, SPARE BUCKST & HANDLE		7 1 2 3 3 4	
	NID 2L WATER BOTTLES		7 1 1 1 3 1	
	EQUIPPED SCIENTIFIC WORKSHOP			
	MISCELLANEOUS TEST GEAR			
	EQUIPPED SCIENTIFIC DARKROOM			
1	SHIPEK CAMERA COMPLETE WITH FLASH & POWER UNITS		7 1 1 7 4 2	
1	SHIPEK CAMERA HARNESS		7 1 1 7 4 1	
2	AGASSIZ TRAWLS COMPLETE		7 1 2 3 4 1	
1	2TON CALIBRATED WEAR LINK			
2	500 Kg WEIGHTS FOR EPIBENTHIC SLEDGE			
2	SNATCH-BLOCKS FOR 13mm WIRE			
1	SERVOSCRIBE RECORDER (FOR WARP TENSION)			

Circulation:

- I.O.S. Head of Shipborne Instrumentation Group (✓)
- Shipborne Computer Group (✓)
- Ship Equipping and Mechanical Engineering Group (✓)
- IOS (BIDSTON ADMIN.) (✓)
- ACOUSTICS LAB (✓)

Signed B. Southon
 Cruise Planning Officer

Date 3 Sept. 1976

Confirmation sent 1-1

R.V.B. Operations Officer (✓)
 Stores (2 copies) (✓)
 PRINCIPAL SCIENTIST (✓)

DELETE
 INSERT (INSERT)
 CA. 50MM 10MM WIRE 8.9.76

CHALLENGER CRUISE 16/76 9/9/76

		02	04	06	08	10	12	14	16	18	20	22	24	
Oct	19											Steaming		
	20	Station A3 Coring	Steaming				TRAWL 1				Agassiz Trawl; long line Steaming			
	21					Trawl 2		Trawl 3				Agassiz Trawl		
	22	Long lines, Epibenthic Sledge				Trawl 4		Steaming to deep station 1 (55°03'SN 12°03'W)						
	23	Multiple Coring and Camera										Steam		
	24	Epibenthic Sledge and Agassiz Trawl 56°40'N 12°16'W						Steam to Southern Feni Ridge (offshore)						
	25	Epibenthic Sledge and Multiple Cores						Approx area 55° to 56°N, 13° to 16°W						
	26	Trawl approx. 55°30' 17-10				Steam to top of Rockall Plateau								
	27	Multiple cores and Epibenthic Sledge				Steam to Anton Dohrn approx 57°30' 11°05'				Epibenthic Sledge Steam				
	28	to Habitation Sediment approx 56°25' 10°25'		Epibenthic Sledge Multiple Cores				Epibenthic Sledge and Camera work on transect						
29	from 56°36'N, 11°11'W to 56°50'N, 10° and 11°W (Perhaps extending to 10° and 11°W)						Steam to Danstøffringe							
30							Unload Scientific Gear				Steam to Barry			
31														
Nov	1	// BARRY												
		20-22-1 Sept. Trawling and Agassiz area in box bounded by 56°10' to 56°40'N and 09°00 to 10°00 W Possible additional Agassiz work in area 56°00'N to 56°20'N at 09°00 to 12°00 W												

Table 2

Times for various activities on Cruise 16/76

Steaming time Ardrossan - 1st Station		11.0
Steaming time Final station - Oban		<u>20.0</u>
		32.0
Epibenthic sledge	14.5	
Anchor Box Dredge	1.25	
Agassiz Trawl	16.75	
Multiple Corer	39.5	
Craib Corer	1.5	
Trawl	26.0	
Plankton net	0.75	
Time lost due to weather	20.0	
Steaming time between stations	<u>127.75</u>	
Total scientific work	248.0	248.0
Total Cruise Time		280

22nd October	11	54°40.9'N	12°13.6'W	2,900M	Epibenthic Sledge	Good haul
23-24th October	12	55°03.7'N	12°03.5'W	2,880M	Multiple Coring	13 Hauls (1-5 unsuccessful)
24th October	13	54°36.4'N	12°20.2'W	2,900M	Agassiz Trawl	No Sample
24th October	14	54°41.5'N	15°09.9'W	2,520M	Multiple Corer	2 Haul - 4 Good cores
25th October	15	54°40.9'N	15°10.9'W	2,200M	Multiple corer	1 Haul - 4 Good cores
25th October	16	55°11.3'N	15°50.8'W	2,000M	Multiple Corer	2 Hauls - 5 Short cores with pebbles
25th October	17	55°13.9'N	15°50.0'W	2,000M	Epibenthic Sledge	2 Hauls 1st Haul not on bottom. 2nd Haul good but stones in net.
25th October	18	55°17.4'N	15°51.8'W	1,500M	Multiple Corer	3 Hauls. 5 Cores.
25th October	19	55°25.9'N	15°53.3'W	1,000M	Multiple Corer	1 Haul. No cores - coral
25th October	20	55°41.4'N	15°49.8'W	450M	Multiple Cover	2 Hauls, 6 cores
26th October	21	56°15.4'N	15°15.3'W	190M	Multiple Corer	4 Hauls, 4 short cores

S.M.B.A. (BIOLOGICAL)

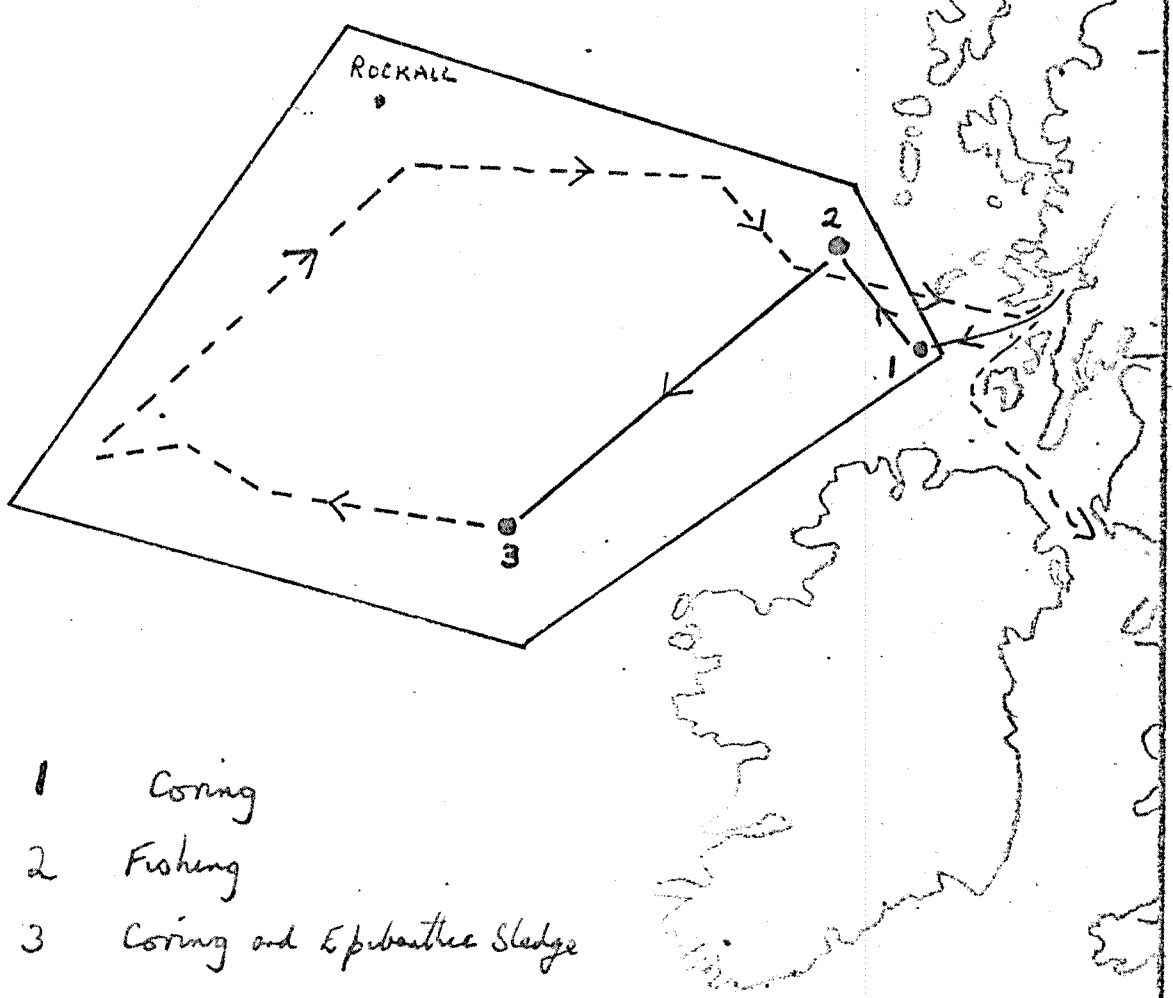
PROPOSED WORKING AREA

CHALLENGER CRUISE

0
B
16/76

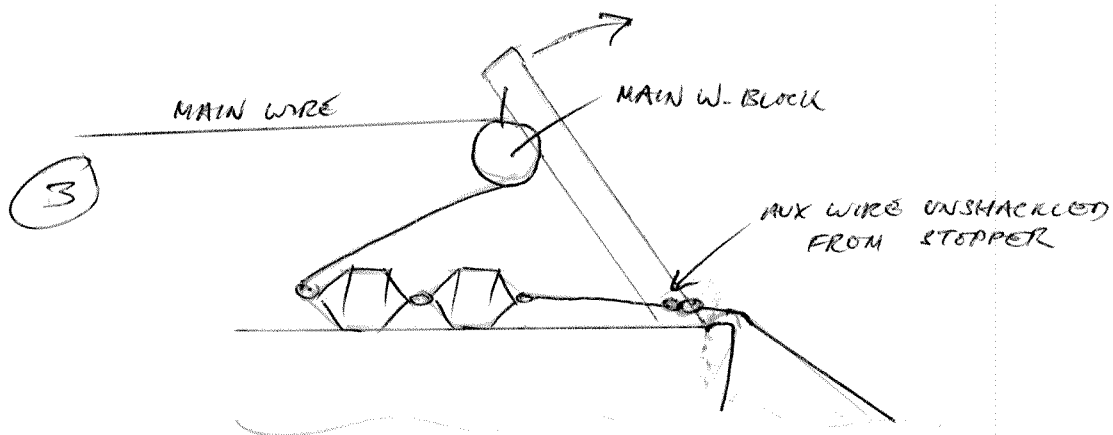
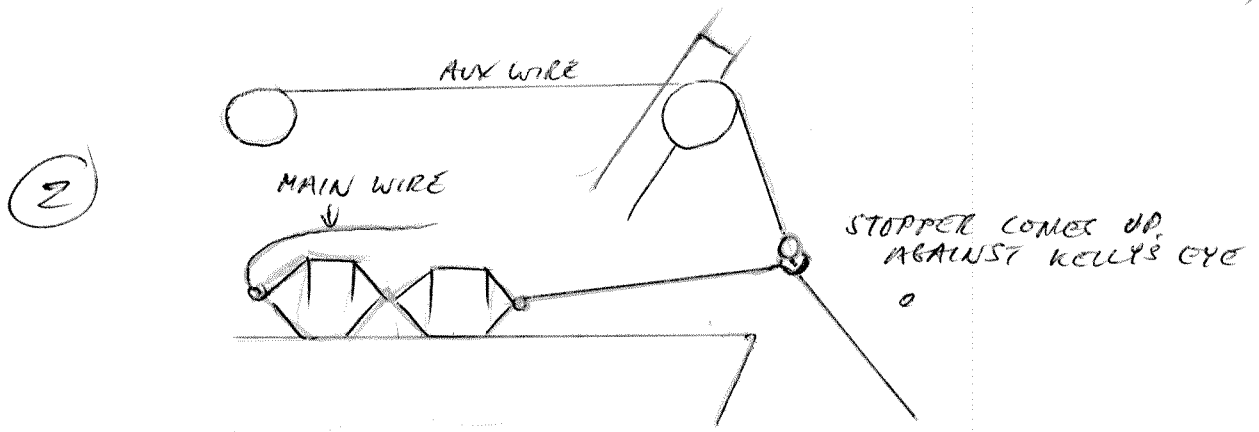
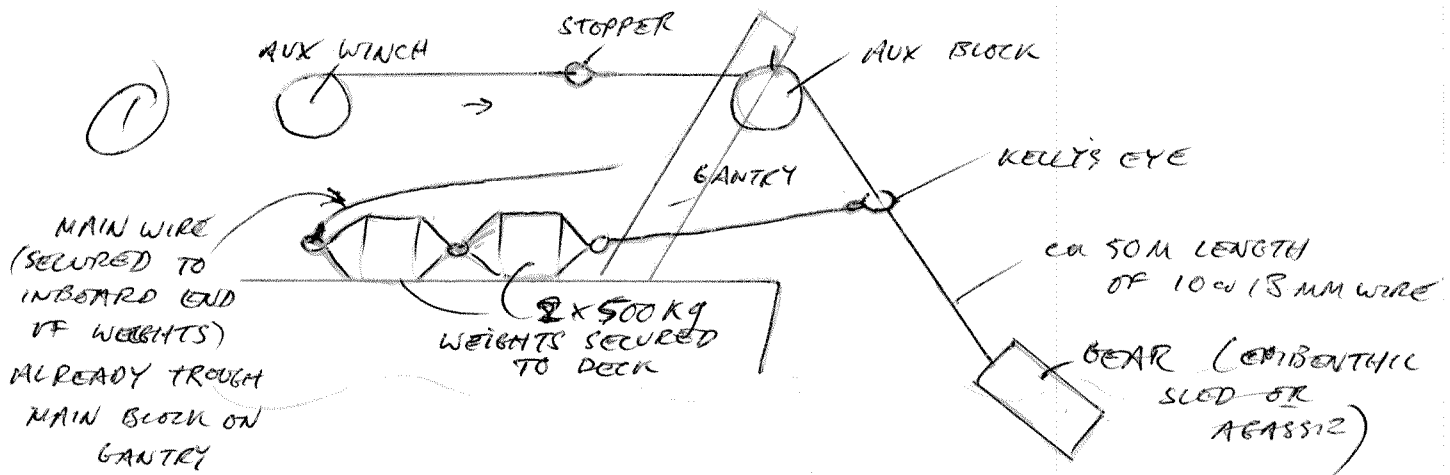
19th OCTOBER - 1st NOVEMBER

60
58
56
54
52
50



- | | |
|------------|------------------------------|
| Station. 1 | Coring |
| 2 | Fishing |
| 3 | Coring and Epibenthic Sledge |

USE OF HEAVY WEIGHTS FOR DEEP TRAWING ON CHALLENGER



* WEIGHTS ARE THEN LIFTED OVER STERN BY GANTRY AND PAYOUT COMMENCES AFTER FINGER IS ATTACHED AT CA. 50 M FROM WEIGHTS.

RECOVERY FOLLOWS ABOVE PROCEDURE IN REVERSE, THE AUX WIRE (LEFT IN POSITION ON AUX BLOCK ON GANTRY) IS SHACKLED ON TO STOPPER AS SOON ~~AS POSSIBLE~~ AS THE WEIGHTS ARE SWUNG INBOARD AND SECURED USING GANTRY. THE GEAR IS THEN WINCHED IN USING AUXILIARY WINCH

Ref.

Reference P12/16/76

R.V.B. SAILING INSTRUCTIONS

RRS "CHALLENGER" : CRUISE 16/76 : 18 OCTOBER - 1 NOVEMBER 1976

To the Master

1. Ship's Programme

(a) RRS "CHALLENGER" is to sail from Ardrossan on Monday 18 October 1976 with members of the Scottish Marine Biological Association, Dunstaffnage; the University of Stirling; the University of Manchester; and the University College Aberystwyth for a biological and benthic sampling cruise in the Atlantic Ocean, west of Scotland, as required by the Principal Scientist.

(b) The outline programme is given below:

Monday	18 October	p.m.	: Sail Ardrossan. Proceed 56 01.6 N 07 39.3 W (coring station) then proceed trawling. Stations - (on 500 m, 750 m, 1000 m, 1250 m and 1500 m contours between 56 10 N and 56 40 N). Then continue on dredge sites further west.
Friday	29 October	p.m.	: Proceed Dunstaffnage.
Saturday	30 October	a.m.	: Arrive Dunstaffnage.
Saturday	30 October	p.m.	: Sail Dunstaffnage.
Monday	1 November	p.m.	: Arrive Barry.

2. Scientific equipment

(a) It is required to continue the seasonal sampling of deep-sea demersal fish populations and deep-sea and shelf benthos.

Equipment used for fish sampling will include a bottom trawl, long lines, and an Agassiz trawl. For benthic sampling an epibenthic sledge, multiple core sampler and a Craib corer will be used. A deep sea camera will be utilised to photograph the sea bed.

The season sampling (trawl lines) up to Sunday 24 October takes priority, and if this programme is delayed the remaining objectives will be modified accordingly.

(b) SMBA equipment will be loaded in Ardrossan on Saturday 16 October and unloaded in Dunstaffnage on the morning of Saturday 30 October.

3. Scientific Party

(a) From the Scottish Marine Biological Association, Dunstaffnage;

- Dr. J. GORDON Principal Scientist
- Mrs. J. DUNCAN
- Dr. J. GAGE
- Dr. P. BARNETT
- R. LIGHTFOOT
- J. WATSON
- I. BARCLAY

From the Stirling University:

- J. MUIR
- L. ROSS

/Contd..

3. Scientific Party (continued)

(a) (continued)

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

G.PEARCE

From the Museum, University of Manchester:

C.PETTIT

(b) All scientific personnel will embark in Ardrossan on Sunday 17 October, and disembark in Dunstaffnage on Saturday 30 October.

4. AgentARDROSSAN

Messrs.R.L.Alpine Co.,Ltd.,
Winton Buildings,
ARDROSSAN
KA 22 8BY.

Telephone: 0294 63065
(After Office Hours - 0294 67588)
Telex: 778184.



14th October 1976.

(D.M.H.Stobie)
Director

DISTRIBUTION:Ship

: Master, R.R.S."CHALLENGER" (6)

Principal Scientist

: Dr.J.Gordon, SMBA, Dunstaffnage(11)

External:NERC Headquarters, London

: Director, Scientific & Technical Services
: J.Cleverly, Esq.,

Scottish Marine Biological Association

: Director Dunstaffnage Marine Laboratories
: Head of Technical Services.

Institute of Oceanographic Sciences

: Director, Wormley.
: Marine Advisory & Information Service

Foreign & Commonwealth Office, London

: Marine & Transport Department.

Ministry of Defence, London

: Hydrographer of the Navy
: C in C Fleet, Northwood (for CTF 311)

Agent

: Ardrossan.

Internal:

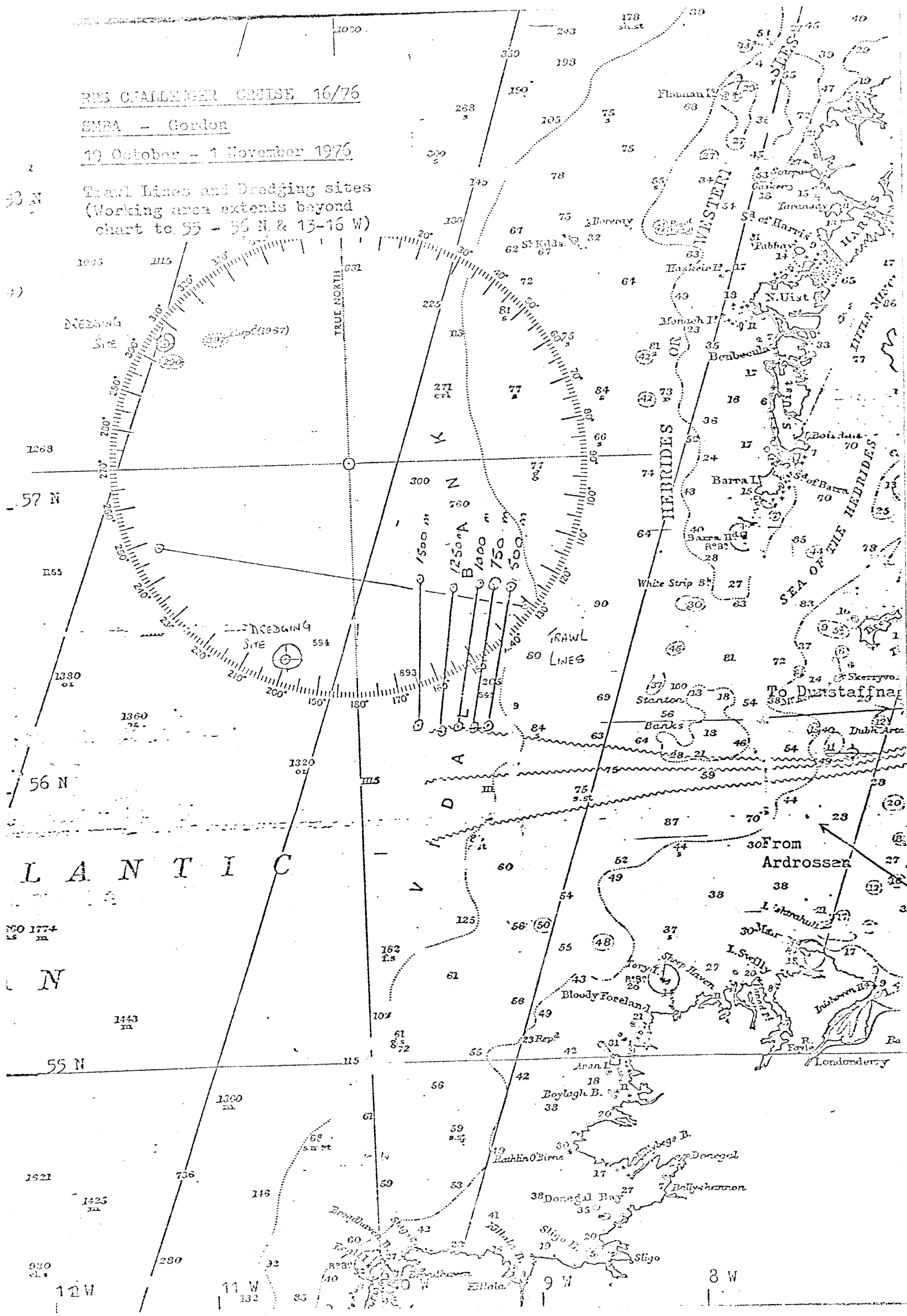
Normal RVB and IOS Barry

RMS CHALLENGER CRUISE 16/76

EMRA - Gordon

19 October - 1 November 1976

Trawl Lines and Dredging sites
(Working area extends beyond
chart to 55 - 56 N & 13-16 W)



L A N T I C

500 1774
15 m
N

55 N

12 W

8 W

STATION POSITION LOG

Station No.

Date 22-10-76

AGASSIZ TRAWL

Time from to

Time	Log	Position			WIND		Weath. and Vis.	WAVES			Corrected Barometric Press. mbs.	TEMPERATURE		CLOUD		REMARKS AND GEAR USED
		Lat.	Long.	Method of Determination	Dir. from	Speed Kts.		Dir. from	Period secs.	Height ft.		Dry Bulb	Wet Bulb	Type	Amt.	
1518		54° 41.34	12° 14.65	SARNAI												✓ 1/2 on Str
1536		54° 41.31	12° 14.65	---												GEAR IN WATER
1748		54° 38.51	12° 18.43	---												gear on bottom paid out 4000m
1816		54° 38.02	12° 19.67	---												low hauling
1938		54° 36.32	12° 23.02	---												stated hauling Agassiz Inboard

STATION POSITION LOG

Station No. _____ Date 22-10-76 CHALLENGER Time from _____ to _____

Time	Log	Position			WIND		Weath. and Vis.	WAVES			Corrected Barometric Press. mbs.	TEMPERATURE		CLOUD		REMARKS AND GEAR USED
		Lat.	Long.	Method of Determination	Dir. from	Speed Kts.		Dir. from	Period secs.	Height ft.		Dry Bulb	Wet Bulb	Type	Amt.	
2046		54° 41.5	12° 13.33	SAT NAV	110 040	16	bc 98	confused swell			998.3	Sea 12.2 8.9	7.2	CL9 CM8	4 2	1/2 hour to STW log 022 222° x 2.15'
2054		54° 41.5	12° 13.33	---												Sledge 0/B
2101		---	---	---												Weights on.
2106		54° 41.47	12° 13.38													begin on paying out Spd 1Kt
2134		54° 41.01	12° 13.36	SAT NAV FX												
2210		54° 40.91	12° 13.62	SAT NAV												Stopped paying out 3450.
2250		54° 40.63	12° 14.38	---												Payed out to 3500
2311		54° 39.26	12° 18.49	---												Commenced heaving @ 60 m/min
23.10.76 00.17		54° 38.18	12° 22.46		210	07	bc 98	confused swell			997.2	Sea 12.3 9.4	7.3	---	---	Hawl inboard. 1/2 026°

EPIBENTHIC SLEDGE.

STATION POSITION LOG

Station No.

Date 25-10-76

RRS. CHALLENGER

Time from to

Time	Log	Position			WIND		Weath. and Vis.	WAVES			Corrected Barometric Press. mbs.	TEMPERATURE		CLOUD		REMARKS AND GEAR USED
		Lat.	Long.	Method of Determination	Dir. from	Speed Kts.		Dir. from	Period secs.	Height ft.		Dry Bulb	Wet Bulb	Type	Amt.	
0836		55° 10.5	15° 51.31	SAT-NAV	250	07	bc 98	310	12	10	1000.2	Sea 10.1 11.8 8.0	CL1	2	Epibenthic sledge 1/8 G 248 x 151	
0843		55 10.45	15 51.5	---											Weights 1/8	
0856		55° 13.94	15° 49.99	SAT FIX												
0931		55° 13.63	15° 51.26	SAT NAV											Stopped paying out. on bath	
0932		55° 13.43	15° 52.08	---											Commenced hauling	
0955		55° 13.41	15° 52.14	---											2200 m.	
1027		55° 09.40	15° 56.78	---											Weights 1/8.	
1031		55° 09.38	15° 56.89	---											Sledge 1/8 No Sample	

1134		55° 12.96	15° 50.27	SAT NAV	220	05	bc p 98	310	12	10	1001.3	Sea 10.4 11.8 8.8	CL8	3	Epibenthic sledge 1/8 G 230° x 1.5.	
1140		55° 12.86	15° 50.48	---											Weights 1/8	
1236		55° 12.70	15° 50.48	---											Stopped paying out 2750 m	
1255		55 12.36	15° 51.14	---											Commenced hauling.	
1246		55° 11.32	15° 52.74	---											Sledge on board.	

EPIBENTHIC SLEDGE

STATION POSITION LOG

RRS CHALLENGER

Station No. _____

Date 28-10-76

Time from _____ to _____

Time	Log	Position			WIND		Weath. and Vis.	WAVES			Corrected Barometric Press. mbs.	TEMPERATURE		CLOUD		REMARKS AND GEAR USED
		Lat.	Long.	Method of Determination	Dir. from	Speed Kts.		Dir. from	Period secs.	Height ft.		Dry Bulb	Wet Bulb	Type	Amt.	
1958		56° 25.57	10° 23.69	SAT-NAV	030	20/25	098	030	6	6	1017.7	Sea 12.2 11.0	10.2	CL6	8	SLEDGE o/b
2037		56° 28.72	10° 22.25	SAT-NAV												GEAR ON BOTTOM (EPIBENTHIC SLED)
2054		56° 29.06	10° 21.90	SAT-NAV												Commenced hauling
2129		56° 30.37	10° 20.60	SAT-NAV												SLEDGE o/b
29-10-76																ANCHOR BOX DREDGE
0236		56° 36.00	09° 01.44	SAT-NAV												DREDGE o/b
0243		56° 36.19	09° 00.33	-												DREDGE ON BOTTOM.
0247		56° 36.24	09° 00.13	-												COMMENCED HAULING
0250		56° 36.40	09° 00.16	-												ON BOARD good sample 200m
0300		56° 36.58	09° 00.16	-												DREDGE o/b
0303		56° 36.60	09° 00.16	-												DREDGE ON BOTTOM.
0309		56° 36.73	09° 00.17	-												COMMENCED HAULING
0313		56° 36.83	09° 00.18	-												DREDGE ON BOARD. ²⁰⁰ noseple
0325		56° 37.08	09° 02.19	-												DREDGE o/BOARD.
0331		56° 37.20	09° 02.20	-												DREDGE ON BOTTOM
0343		56° 37.41	09° 02.99	-												COMMENCED HAULING
0353		56° 37.63	09° 03.02	-												DREDGE ON BOARD 600m good