

R.V. FRANKLIN

NATIONAL FACILITY
OCEANOGRAPHIC RESEARCH VESSEL

CRUISE SUMMARY

R.V. 'FRANKLIN'

FR 3/86

For further information contact

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R.V. FRANKLIN IS OWNED AND OPERATED BY CSIRO

CRUISE SUMMARY
R.V. 'FRANKLIN'
FR 3/86

SCIENTIFIC PROGRAMME:

**The Deep Sea Bottom Fauna of the Barrier Reef Shelf and Adjacent
Coral Sea**

PRINCIPAL INVESTIGATORS:

Assoc. Professor Michel PICHON (Chief Scientist)
Dr P.W. ARNOLD
Mr R.A. BIRTLES

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James Cook University
Townsville Qld 4811
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ITINERARY: Depart Townsville 13.30 hrs Monday 5 May, 1986
Arrive Townsville 15.45 hrs Tuesday 18 May, 1986

CRUISE OBJECTIVE ACHIEVED:

Fifty two stations were occupied, at depths varying between 300 and 1620 m, and a total of 117 operations carried out. Breakdown of sampling operation by type of gear is as follows:

Grabs.....48
Dredges.....9
Sledges.....20
Beam Trawl..40

Grabs were deployed with the 6 mm hydrographic winch on the starboard side and this saved up a considerable amount of time by decreasing the amount of gear-swapping on the towing winch. Further, the grab sieving station could be installed at close proximity of the starboard A-frame, leading to a more efficient utilisation of space on the aft-deck for dredging and trawling operation. In general grabs retrieved undisturbed sediment samples and this allowed for collection of deep sea benthic microfauna and meiofauna in near perfect conditions. Sediment was mostly a compact grey-white mud with a somewhat more fluid superficial (2.3 cm) layer. Organogenic fraction was

heavily dominated by Pteropod debris and in some instances, and to a much smaller extent, Foraminiferida. Nowhere typical Globigerina oozes were encountered. Sediment appears to be strewn with pumice in the whole of the area surveyed. Hard grounds were found close to the Queensland Plateau, in the vicinity of Flinders reef (depth 930 m) and on the continental slope (depth 500 m). Rock fragments were retrieved in the dredges and beam trawl.

Dredge, Sledge and Beam trawls were deployed with the towing winch, through the main A-frame on the aft deck. Deployment and retrieval of the sampling equipment was easy and, with very few exceptions, sampling gear performed very satisfactorily. At 'detailed' stations the whole array of gear - grab, dredge, sledge and trawl - was utilised and this allowed collection of benthic organisms over the totality of possible size range - from bacteria to fishes - and also allowed a good sampling from small-sized, immobile invertebrates of the endofauna to large sized, fast swimmers such as crustaceans and fishes.

The Beam trawl only was deployed at 'simpler', intermediate stations.

BRIEF SUMMARY OF CRUISE:

R.V. 'FRANKLIN' sailed from Townsville at 13.30 hrs (local time) on 5 May 1986, following a 3 1/2 hours delay to replace a missing A.B. After dropping the pilot at the mouth of the Platypus Channel, R.V. 'FRANKLIN' sailed clear of the coral reefs through Palm Passage. First station was reached at 23.00 hrs and from there on, sampling progressed as per cruise plan. The sand cays of Flinders reefs were sighted on 9 May, while sailing between North Flinders and South Flinders Reefs, in water depths of more than 600 m. Echo sounding transects were performed on tow transects along the continental slope, prior to sampling gear deployment. Beam trawl at the last station (depth 500 m) was completed on 18 May at 0815 hrs (local time) and R.V. 'FRANKLIN' sailed back to Townsville via Palm Passage and docked in Townsville harbour at 15.45 hrs (local time) on 18 May. Weather during the cruise was predominated by trade winds, mostly below 20 knots, except for the first two days of the cruise. Gusts of up to 35 knots, associated with rain squalls, were experienced between 21.00 and 23.00 hrs (local) on 10 May, 1986. Few seabirds were observed and no cetaceans sighted during the entire cruise.

Minor problems aside, equipment on board and sampling gear performed well and all scientific objectives of the cruise were achieved.

PERSONNEL:

A/Professor M. PICHON	James Cook University (Chief Scientist)
Dr P.W. ARNOLD	James Cook University
Mr R.A. BIRTLES	James Cook University
Ms L.M. MARSH	Western Australian Museum
Dr B. RICHER DE FORGES	Centre ORSTOM, Noumea
Dr M. RIDDLE	AIMS
Dr D. ALONGI	AIMS
Mr T. MCKENNA	James Cook University
Mr L. MORGAN	James Cook University
Mr D. VAUDREY	CSIRO Marine Laboratories (Cruise Manager)
Mr A. POOLE	CSIRO Marine Laboratories (Electronics)

APPENDIX - EQUIPMENT REPORT

I. GENERAL - M. Pichon

1. Main winch (towing winch)

Some minor difficulties were experienced with winch spooling. The problems were rectified by the Chief Engineer. Free wheeling was experienced in two instances. In both cases free wheeling took place while the winchman moved from bridge remote control position to direct winch control. Tension gauge on towing winch was not operational for the whole trip. Tension gauge on towing winch was not operational for the whole trip.

2. Propulsion

Accurate speed adjustment between 0.5 and 2 kts is difficult to achieve when ship is on T.A.C. Although uniform speed is desirable during dredging and trawling operations, this did not create major sampling problems.

3. General Purpose Lab.

Vibration, which prevented stereomicroscope and high power microscope examinations, were experienced on the benches in the General Purpose Laboratory. The problem could possibly be alleviated by use of anti-vibration material. The General Purpose Lab is not suitable for most biological purposes. However, the container-laboratory installed on the aft-deck provided excellent working and storage space.

4. Echo Sounder

The instrument functioned well but insufficient details are obtained on the graphic recorder for deep sea benthic operations. A low frequency (e.g. 3.5 Khz) high resolution Echo-sounder/Bottom profiler system with Precision Graphic Recorder (19" chart) is strongly advocated as an essential piece of equipment for any type of benthic work on board.

5. Aft Deck

Additional flood light on the aft-deck (and if possible one or two mounted on the A-frame) would facilitate work at night (in particular sorting of biological samples).

II. ELECTRONIC REPORT - Alan Poole

1. Simrad EK400 Sounder

The Simrad performed well the entire cruise.

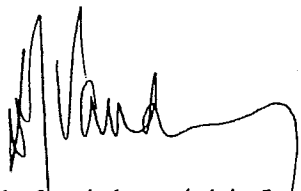
2. Thermosalinograph

The thermosalinograph performed well the entire cruise. During rough weather a noisier trace resulted due to aeration of the pump with occasional drop-outs. The quality of the data input will be slightly reduced during these times.

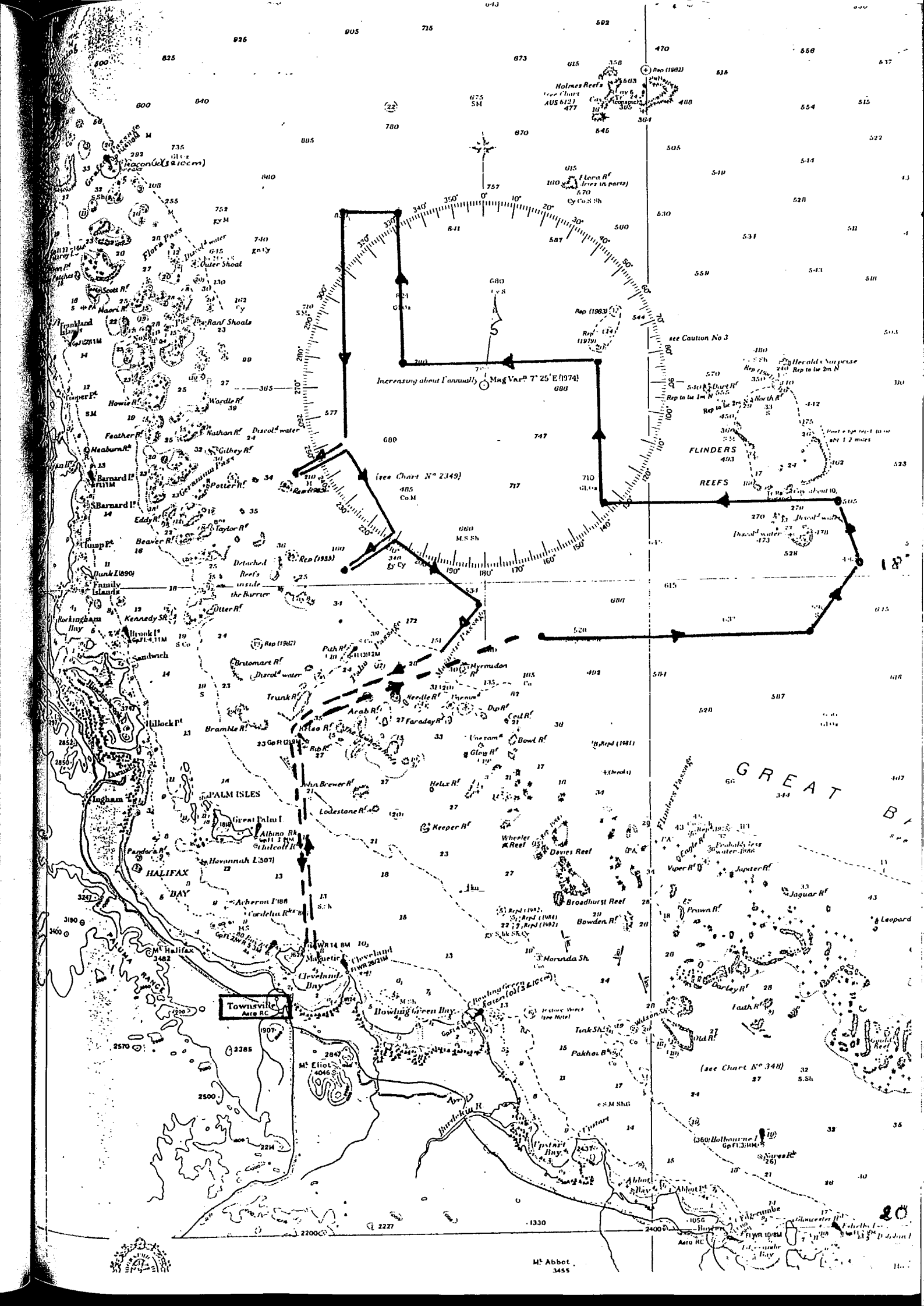
3. General Oceanics Meter Block
The block was in constant use the entire cruise. The cable out and rate of payout performed faultlessly, however, the tension has stopped working altogether. The electronics in the block will have to be removed and examined before any further conclusions can be made. This was not possible during the cruise.
4. Intech Satellite Navigator
The intermittent problem from last cruise continued and was traced to a faulty high tension lead. This was temporarily repaired and will need to be replaced in the near future.
5. Sippican XBT System
The XBT system was reinstalled and tested using the test device. No XBTs were launched.
6. Communications
Walkie-talkies and intercom performed faultlessly the entire cruise.
7. Met. Station
The Met. station worked well the entire cruise. Some problems were encountered with the barometric pressure and wind speed. The wind speed problem was traced to a faulty wire while the barometric pressure rectified itself. The values obtained however, are still not realistic and further work is needed on the pressure sensor.

III. COMPUTER REPORT - David Vaudrey

1. MTSPOL
MTSPOL failed to transfer NAV, MET and TS files to micro tape drive although some files appears to be transferred to VAX.
2. MET Display
The MET display crashed at various times through the cruise, initially because the disc became full of data from old cruises. More crashes followed. Logged data of dubious quality.
3. The computing cookbook was of little assistance in trying to overcome MTSPOL and MET crashes. Much of the cookbook has been superseded.



Michel Pichon (Chief Scientist)
per: David Vaudrey (Cruise Manager)



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Aero RC

GREAT BARRIER REEF

Mt Abbot
3455