

FRANKLIN

National Facility
Oceanographic Research Vessel

RESEARCH PLAN

"CIDARIS III"

6 - 18 February 1992

Depart Townsville 0800 Thursday 6 February 1992

Arrive Townsville 1500 Tuesday 18 February 1992

The north east Australian slope and deep sea bottom fauna of the adjacent Coral Sea. This cruise is a follow up of FR 3/86 and FR 7/88.

Principal Investigators

Dr. M. Pichon

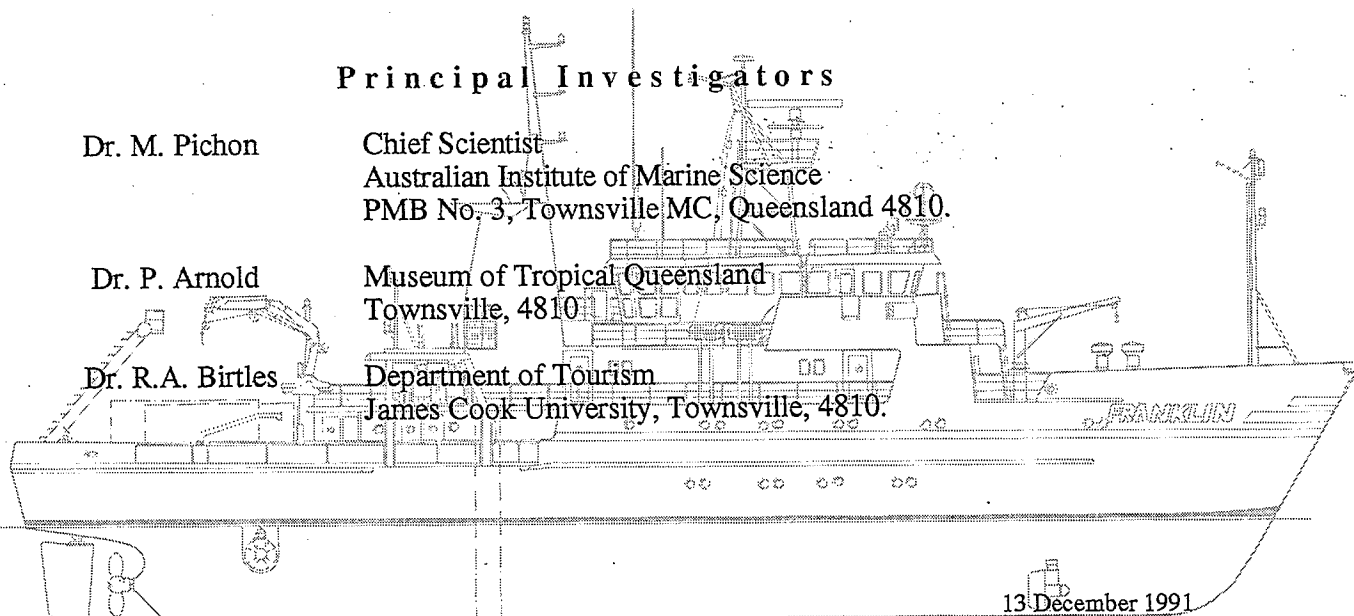
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13 December 1991

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RV FRANKLIN
RESEARCH PLAN

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ITINERARY

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SCIENTIFIC PROGRAM

The north east Australian slope and deep sea bottom fauna of the adjacent Coral Sea. This cruise is a follow up of FR 3/86 and FR 7/88.

PRINCIPAL INVESTIGATORS

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Dr. P. Arnold Museum of Tropical Queensland
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Dr. R.A. Birtles Department of Tourism
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CRUISE OBJECTIVES

The distribution of the deep sea benthic fauna is influenced by a number of factors, in particular depth, distance from shore, physical and chemical nature of the sediment, input of organic matter. The sampling design is formulated so as to address the following specific questions:

What is the influence of organic inputs on the deep sea biomass and productivity?

What is the influence of the nature and composition of the sediment on biomass and productivity? The proposed area of operations possesses the advantages of a significant bathymetric range (to > 3000m) covering the whole of the bathyal and the upper part of the abyssal zone. It is affected by significant reef-derived carbonate inputs (from the "Eastern Fields") and organic matter input (mostly from the "Fly River"). A diverse and somewhat richer fauna than off the central East Australian shelf is therefore expected.

The same breadth of approach as during the previous cruises will be followed, and sampling will cover a large spectrum of sizes and groups of organisms, including bacteria, protozoa, meio-fauna, macro-infauna and the larger, mobile epi-fauna.

From a quantitative standpoint, a large Smith-MacIntyre Grab will be used (with replicate samples at each station). The larger, more mobile, and more dispersed fauna will be collected with a beam trawl. Previous cruises on board ORV *Franklin* have shown that this sampling method was very effective. Sampling with instruments other than grab or beam trawl (dredges and sledges) follow a strictly defined protocol, ensuring compatibility of the samples.

Overall, the approach is from several standpoints:

taxonomic : leading to an inventory of the deep sea bottom fauna of the bathyal and upper abyssal environment;

ecological : including a study of depth distribution and depth range of deep sea benthic organisms of their relationship with the sediment, their feeding ethologies, their interspecific relationship and the definition and mapping of the main communities/assemblages;

zoogeographical : leading to comparisons with results obtained off the central (CIDARIS I) and north-central (CIDARIS II) Queensland shelf and with results obtained in other deep parts of the Coral Sea.

CRUISE PLAN

Steam to a position approximately $13^{\circ}45'S$ and $145^{\circ}15'E$ thence proceed towards Bligh Trough and Pandora Trough. All other sampling to be carried out on the "Eastern Plateau" (south of the "Eastern Fields") and down the slope extending south of the Eastern Plateau (see proposed track on map attached).

Two types of stations will be sampled : detailed stations where the whole spectrum of collecting gear (grab, dredge/sledge, beam trawl) will be deployed, and simplified stations where only either grab and beam trawl or beam trawl only will be deployed.

Time estimate take into account the following parameters:

transit speed : 12 knots
average speed between stations : 10 knots
winch speed : 0.75 ms^{-1}
round the clock operation

Estimate of time necessary on station relies on the experience acquired on board ORV *Franklin* during two previous cruises during which similar operations were carried out (FR 03/86 and FR 07/88)

On the average, detailed stations require approximately 20 hours each and simplified stations 5 hours each. It is proposed to sample 7 detailed stations (indicated on the map attached) and up to 10 simplified stations.

EQUIPMENT

The following equipment to be provided by user:

Spring loaded Smith-MacIntyre Grab
 Charcot-naturalist dredges
 Calypso dredges
 Modified ockelman epibenthic sledges
 Beam trawl
 Sorting table and sieving table
 Sorting trays
 Sorting sieves
 Containers and vessels for specimen preservation
 Laboratory equipment
 Photographic equipment

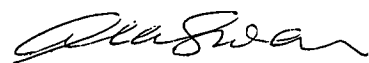
ORV Equipment

Towing block and readout (cable out, rate of payout, tension gauge).
 Scientific echosounder
 Walkie-Talkies
 Navigation data (Met displays)
 Biological container laboratory

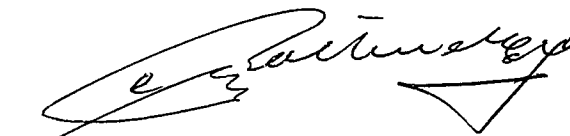
PERSONNEL

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Dr. C. Arnold	Museum of Tropical Queensland	
Dr. A. Birtles	James Cook University	
Dr. A. Bruce	Northern Territory Museum	
Dr. P. Davie	Queensland Museum	
Dr. M. Riddle	AIMS	
Mr. P. Christofferson	"	
2 Research Assistants	"	
Mr B Edwards	CSIRO - ORV	Cruise Manager
Mr E Madsen	"	

This cruise plan is in accordance with the directions on the National Facility Steering Committee for the oceanographic research vessel *Franklin*.



A D McEwan
 CSIRO Division of Oceanography



G Paltridge
 National Facility Steering Committee

