FRANKLIN

National Facility
Oceanographic Research Vessel

Diversity and Biogeography of Benthic Invertebrates of the Southern Coast of Australia

CRUISE SUMMARY

ORV FRANKLIN

FR 5/94

Depart Hobart	Monday 9 May 1994
Arrive Adelaide	Friday 27 May 1994

Principal Investigator

Dr G C B Poore
Museum of Victoria

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RESEARCH SUMMARY
RESEARCH CRUISE 5/94

DIVERSITY AND BIOGEOGRAPHY OF BENTHIC INVERTEBRATES OF THE SOUTHERN COAST OF AUSTRALIA

Sailed Hobart	1800 hrs	Monday	9 May 1994
Arrived Portland	1730 hrs	Wednesday	11 May 1994
Sailed Portland	2000 hrs	Wednesday	11 May 1994
Arrived Adelaide	0600 hrs	Friday	27 May 1994

Principal Investigators

Drs G C B Poore and C C Lu
Museum of Victoria, Abbotsford Vic 3067

FRANKLIN

CRUISE REPORT
RESEARCH CRUISE 5/94

Itinerary

Depart Hobart	1800 hr	Monday 9 May 1994
Arrive Portland	1730 hr	Wednesday 11 May 1994
Depart Portland	2000 hr	Wednesday 12 May 1994
Arrive Adelaide	0600 hr	Friday 27 May 1994

Scientific Program

To sample benthic fauna along a depth gradient (50-3000 m) and a longitudinal gradient (116°E to 139°E) on the southern Australian continental shelf and slope (Vic. to WA) and to relate this to sedimentary regimes, comparing extensive biogenic calcareous sediments with terrigenous deposits from the Murray-Darling system.

To collect sponges, tunicates and other sessile invertebrates for bioactive substances.

Principal Investigators

Drs **G.C.B. Poore** and **C.C. Lu**
Museum of Victoria
71 Victoria Crescent
Abbotsford Vic 3067

Results

Benthic invertebrates were sampled on only two of the three transects planned. All the bottom-sampling gear was used (epibenthic sled, SM grab, boxcorer and beam trawl) with varying degrees of success.

Nearly all samples planned were taken on the first transect off Portland, Vic., i.e., 44 grab or corer samples, 7 epibenthic sled samples and 6 beam trawl samples. Samples were not taken from the 3000 m site because of bad weather. Not all beam trawl samples were attempted at deeper sites because of weather and the very rough bottom.

Fewer samples were attempted at the second transect off Victor Harbour, SA., because of lost time due to bad weather. 32 grab or corer samples, 9 epibenthic sled samples and 6 beam trawl samples were obtained.

Extremely bad weather prevented us reaching the most western transect off western SA and the same reason prevented any sampling at a substitute transect off the entrance to the SA gulfs.

The SM grab and box corer worked well and good quantitative benthic samples were obtained. Because of bad weather the SM grab was used as a substitute for the preferred heavier box corer and few undisturbed samples were obtained. For this reason fewer surface foraminiferan samples were taken for Stephan Nees (ANU) than hoped for. All possible sediment samples for sedimentary analysis were taken.

The epibenthic sled worked effectively at all stations where attempted. The beam trawl was not as effective as hoped. The rough bottom, especially on the second transect, damaged the trawl net and broke the beam twice.

Two samplers were lost. CSIRO'S SM grab was lost from the oceanographic winch because of human error. One of the Museum's two epibenthic sleds was lost when it hooked up on the bottom and the safety chain failed.

Some time was lost early in the cruise when communication between the bridge and the bow thruster failed. The vessel spent 38 hours steaming to and at anchor off Portland while this was

repaired. Some of this time was too rough for effective sampling.

The most serious problem on this cruise was the exceptionally bad weather throughout. This not only forced the Franklin to heave to for long periods but caused considerable time lost in repositioning between samples and travelling between transects. Some failure with gear could also be attributed to big seas. On days 3-4, 38 hours were lost (partly to repair bow thruster), on days 7-9 38 hours were lost to big seas, on day 11 3.5 hours were lost, on days 11-12 23 hours were lost, and all work ceased on day 13 (remaining 4.5 days lost).

Without counting extra manoeuvring time on transect, 9 days were spent not sampling. Only 3.5 days had been allowed for travelling between transects. The ship log reported 5 days 11.8 hours of weather affected time of which 4 days 9.8 hours were spent hove to.

The piggy-back programs, samples for foraminiferans and for bioactive chemicals, were not well served because of the weather.

Cruise narrative

Day 1, 9 May 1994: Departed Hobart for Portland

Day 2, 10 May: Steaming to Portland

Day 3, 11 May: Arrived Portland at 1730 h and loaded the scientific party and gear. Departed at 2000 h and commenced sampling on the first transect at 2230 h. Seas calming.

Day 4, 12 May: Continued to sample with all gear. Weather excellent but beginning to deteriorate.

Day 5, 13 May: Sampling to 1130 h but problems with communication to bow thruster caused work to cease. Steamed to Portland to anchor at 1800 h.

Day 6, 14 May: Sat at anchor while engineer repaired bow thruster control circuits. Departed at 2200 into moderating seas.

Day 7, 15 May: Started sampling at 0100 with beam trawl but with little success. Weather OK at 21 kn.

Day 8, 16 May: Continued to sample all day until 2000 h when most of the sampling on transect 1 was completed. CSIRO's SM grab was lost from the oceanographic winch.

Day 9, 17 May: Travelled to the next transect in rough seas and arrived at 2200 h. Hove to in 30-40 kn winds.

Day 10, 18 May: Hove to in huge seas and gales.

Day 11, 19 May: Recommenced sampling in deep water at 1200 h. It was difficult to maintain station because of the steepness of the slope. An epibenthic sled lost in 2500 m. Bottom very uneven below 200 m. Seas gradually abating.

Day 12, 20 May: Rising seas made work with the box corer impossible (3 misfires at 2500 m) and we continued with the SM grab.

Day 13, 21 May: Between 0600 and 0930 h it was too rough to work. Recommenced in 20+ kn winds until 1800 h when rough seas again stopped sampling.

Day 14, 22 May: Hove to until 0630 h when we steamed into shallow water where swells were slightly smaller. Started sampling at 1700 h.

Day 15, 23 May: Continued sampling in fresh winds until the transect was finished at 2200 h. Began to move west slowly in heavy seas. Given the forecast for continuing bad weather a

closer third transect off the entrance to the SA gulfs was drawn.

Day 16, 24 May: Arrived at the third transect at 1200 h and hove to.

Day 17, 25 May: Hove to all day in big swells and 40-50 kn winds. Considering the unlikelihood of any further sampling in the next two days we turned at the first opportunity, 2200 h, for Investigator Strait.

Day 18, 26 May: Arrived in Investigator Strait in early morning and at 0100 deployed the beam trawl to augment our collection of sponges.

Day 19, 27 May: Arrived in Adelaide 0800 h.

Summary

This Franklin cruise holds the record for the numbers of days lost and affected by bad weather. In spite of this, numerous worthwhile samples were taken at nearly all depths on two of the three transects. The inability to visit the third transect is disappointing in view of the difficulty of being able to return to this area in the near future. Material now exists to assess similarities and differences between the faunas at slope depths east and west of Bass Strait but not to examine trends along the southern coast.

The amount of time lost due to bad weather is underestimated in the totals of periods not working. The repeated repositioning of the ship between samples at nominally the same station, time which would not have been spent in calm weather, slowed sampling considerably. Failure of the grab and the corer to trigger reliably on the bottom also wasted valuable time.

The strong swell for much of the cruise prevented use of the box corer which meant that less than ideal samples were taken with the SM grab.

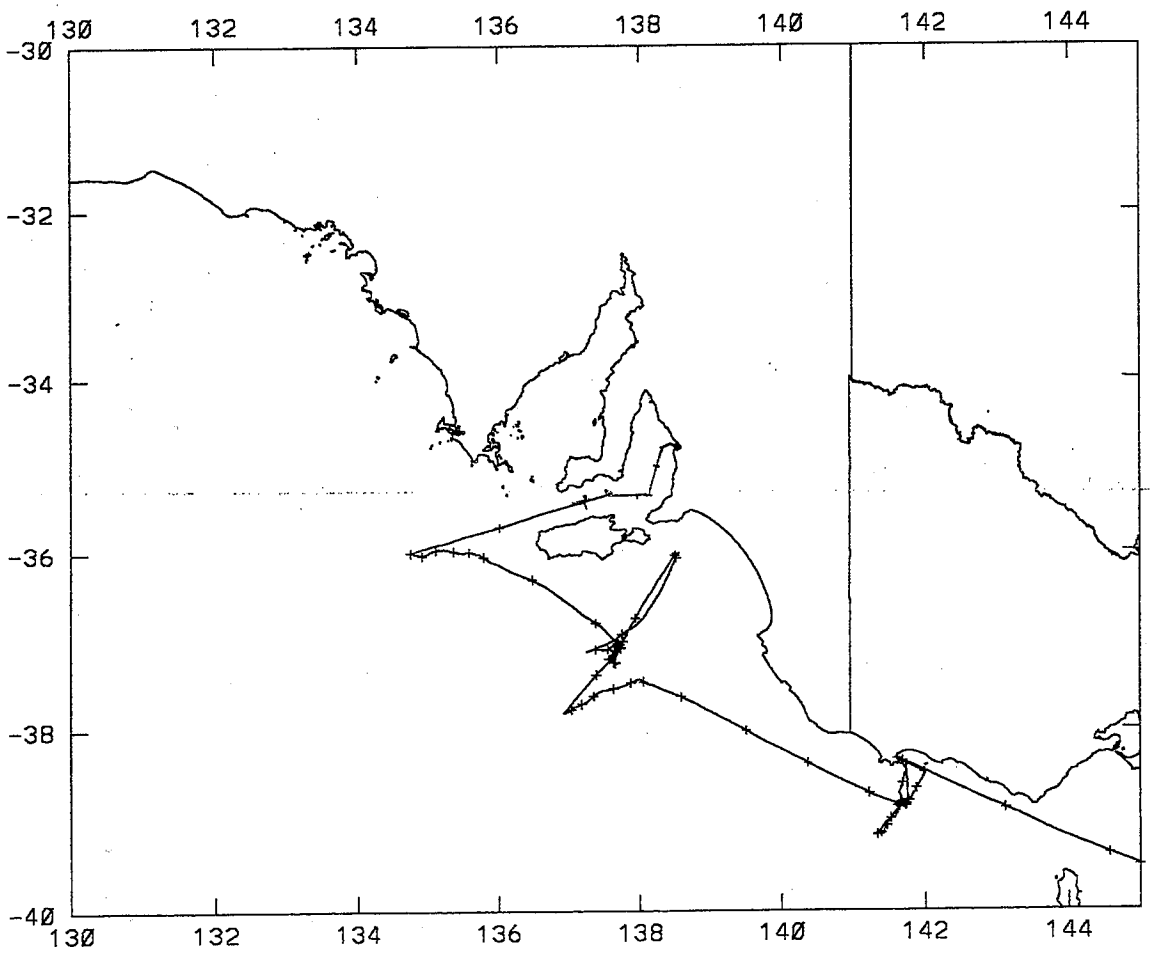
We thank the master and crew of the Franklin for co-operation under trying conditions.

Scientific and technical participants

Gary Poore	Museum of Victoria (Cruise leader)
C.C. Lu	Museum of Victoria
Liesl Jonker	Museum of Victoria
Brian Cohen	Museum of Victoria
Tim Stranks	Museum of Victoria
Christopher Rowley	Museum of Victoria
Genefor Walker-Smith	Museum of Victoria
Leanne Murray	Chemistry, University of Melbourne
Buz Wilson	Australian Museum
Dave Vaudrey	CSIRO
Erik Madsen	CSIRO

Attachment

Cruise plot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