

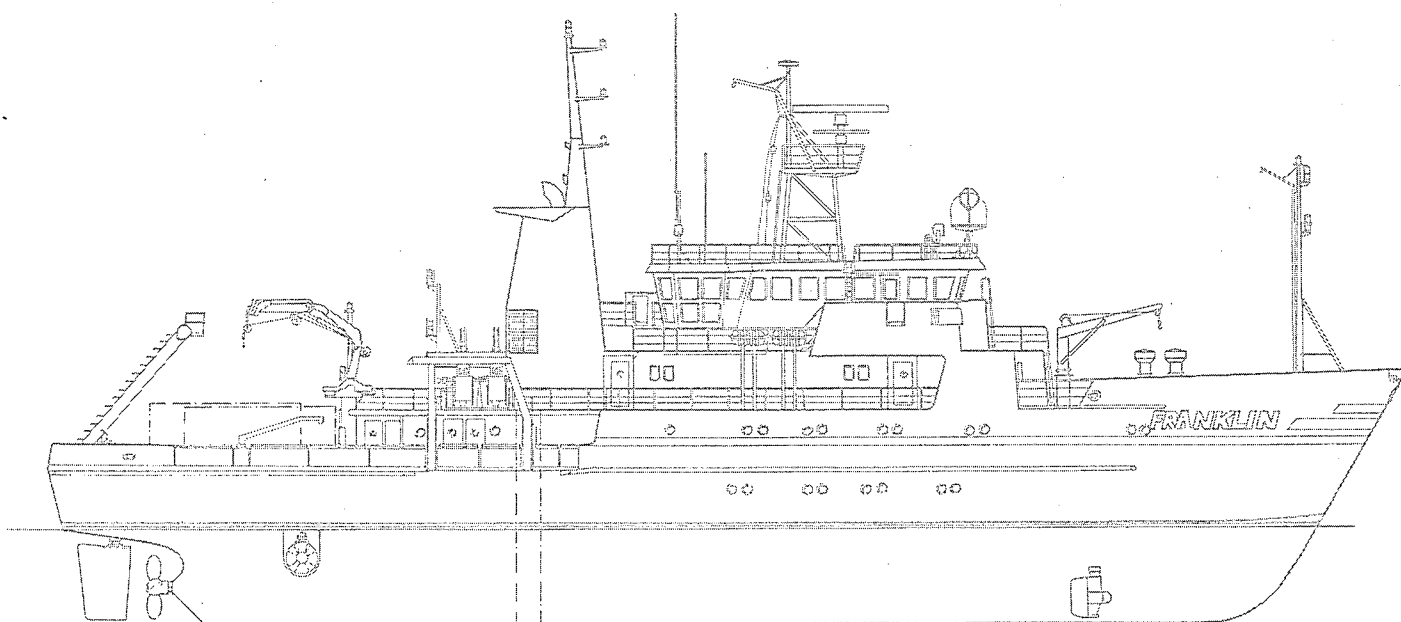
# R.V. FRANKLIN

NATIONAL FACILITY  
OCEANOGRAPHIC RESEARCH VESSEL

CRUISE SUMMARY

R.V. 'FRANKLIN'

FR 1/87



For further information contact

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R.V. FRANKLIN IS OWNED AND OPERATED BY CSIRO

TJM/NP

10 March 1987

### CRUISE SUMMARY

R.V. FRANKLIN

FR 1/87

### ITINERARY

Departed Hobart	1000 hrs	Monday	12 January 1987
Arrived Port Arthur	1000 hrs	Wednesday	14 January 1987
Departed Port Arthur	0700 hrs	Thursday	15 January 1987
Arrived Hobart	0800 hrs	Sunday	18 January 1987

### WORK COMPLETED

1. Testing of Bunyip to a depth of 350 m.
2. Collection of sediment samples, XBT and Acoustic Doppler profiles for the Marine and Freshwater Research Centre.

### CRUISE NARRATIVE

Ian Wallis and Scott Chidgey of the Marine and Freshwater Research Centre used the CSIRO sediment grab in around 2000 m of water with great success during the first two days of the cruise. Approximately twelve samples were taken within about 30 nm of 43° 36.5'S, 148° 14.5'E, mainly along the 2000 m contour. An XBT section was then completed to Port Arthur where we put down Alex Papij and took on board Leigh Carter.

On Thursday the microfish and seasoar were deployed, complete with seabird sensors and pumps (Bunyip's CTD system), sensitive triaxial accelerometers and velocity sensors that measure the small-scale turbulent velocity fluctuations. Since the second Bunyip engineering trials cruise in October 1986, the microfish was made much more symmetric, and on this cruise it towed very nicely; with typical rolls and tilts of only  $\pm 3^\circ$ , in response to the shipheave. The vibration levels were found to be encouragingly low, with typical levels corresponding to a dissipation rate of mechanical energy,  $\epsilon$ , of  $10^{-8} \text{ W kg}^{-1}$ . The spectra of the accelerometers showed that this vibration was

concentrated near 80 Hz and that this vibration frequency was independent of tow speed. This is approximately the natural frequency of the first mode of vibration of the probe sting, and we have since redesigned this to be shorter so it will vibrate at a sufficiently high frequency so as to be outside of our range of interest.

During the second deployment of Bunyip, on Saturday morning, the "water-level detector", in the microfish pressure vessel sounded and we recovered the system to find 500 ml of water inside. This problem has been traced to the fact that the hard-anodized aluminium hats at the end of the carbon fibre cylinder did not bond to the epoxy and we have since made new aluminium hats that are anodized just on the O-ring surfaces.

The seasoar hydraulic system exhibited a fault on both deployments that we could not rectify on the cruise. The symptom was that we could not make the wings adopt a "full dive" attitude at a towing speed greater than 5 knots. It has become apparent that the pressure relief valve in this unit was manufactured incorrectly in England, and we are now confident that this problem will shortly be remedied.

The underwater electronics, communications and real-time data display all proved very reliable on this cruise. The piggy-back project by Scott and Chidgey was able to efficiently use the ship time that became available when various parts of Bunyip were undergoing repair.

#### SCIENTIFIC PERSONNEL

Trevor McDougall  
Lindsay Pender  
Ian Helmond  
Mike Snook  
Stuart Swan  
Mike Meerding  
David Kube  
Janette Atack  
Ian Wallis  
Scott Chidgey  
Erik Madsen  
Alex Papij (Hobart - Port Arthur)  
Leigh Carter (Port Arthur - Hobart)



Trevor McDougall