

R.V. FRANKLIN

NATIONAL FACILITY OCEANOGRAPHIC RESEARCH VESSEL

R.V. FRANKLIN

RESEARCH PLAN

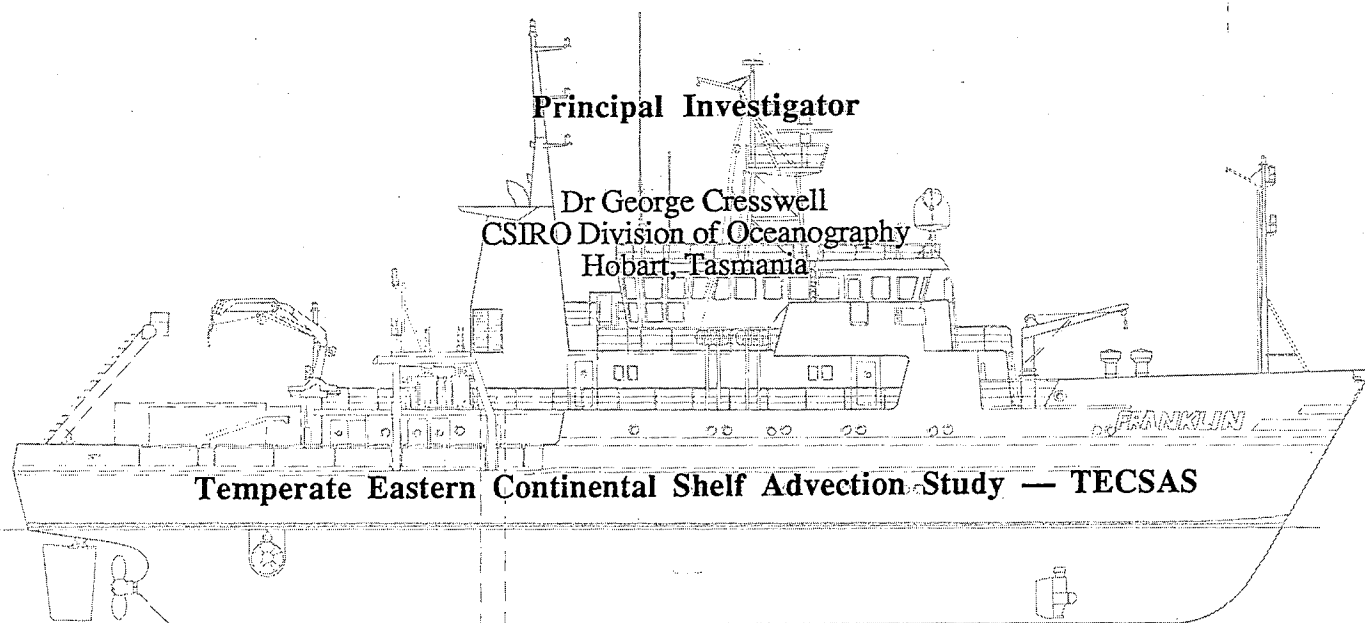
CRUISE FR13/89

Sail Hobart 1000 Saturday 11 November 1989

Arrive Hobart 1800 Friday 8 December 1989

Principal Investigator

Dr George Cresswell
CSIRO Division of Oceanography
Hobart, Tasmania



For further information contact

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R.V. FRANKLIN IS OWNED AND OPERATED BY CSIRO

CRUISE PLAN FR 13/89

Temperate Eastern Continental Shelf Advection Study — TECSAS

Itinerary

1000 November 11 — 1800 December 8
Hobart — Hobart

Objectives

To use RV *Franklin* in concert with other methods (satellite and aircraft imagery; moored instruments; satellite-tracked drifters) to examine:

The upwellings produced when the East Australian Current (EAC) separates from the central and northern NSW coast near Laurieton and Evans Head.

The nature of the continental shelf and slope currents in other areas. These currents are important for effluent disposal, navigation, and fisheries.

The effects on the continental shelf waters when an eddy collides with the southern NSW shelf (and the effects produced on that eddy).

In addition, there are several piggyback projects:

A survey of an eddy with BUNYIP (McDougall).

Testing the Division of Fisheries towed body (Elliott).

Running a real time numerical model of currents on the ship's computer (Hunter).

Chemical sampling in the Sydney region as it pertains to the sewerage outfalls (Nichols).

Staffing

The following table indicates the 12 available scientific berths and who will fill them on the various parts of the voyage.

	1	2	3	4	5	6	7	8	9	10	11	12
A	GC	JP	LP	IH	PA	DT	PN	FB	KM	NE	RK	SS
B	"	"	WBD	RAN	"	"	"	JB	MR	NSW	JH	—
C-D	"	"	LP	IH	"	"	CN	PB	PF*	AW*	"	VL
E	"	"	"	"	"	"	TMcD	RS	CS**	CS**	—	—
F-H	"	"	"	"	"	"	"	"	—	—	—	—

where the code is overleaf:

A: Hobart-Sydney
D: S. Qld-Newcastle
G: Eddy/shelf interaction

B: Sydney-Sydney
E: Newcastle-Jervis Bay
H: Return to Hobart

C: Sydney-S. Qld.
F: Jervis Bay to eddy

CSIRO Division of Oceanography

GC George Cresswell
IH Ian Helmond
PN Peter Nichols
CN Carl Nilsson
TMcD Trevor McDougall
SS Stuart Swan

JP Jan Peterson
PA Phil Adams
FB Fred Boland
JH John Hunter
AW Tony Woods
RS Richard Schahinger

LP Lindsay Pender
DT Dave Terhell
KM Kevin Miller
PB Paul Boulton
MR Mark Rayner
VL Val Latham

CSIRO Division of Fisheries

NE Nick Elliott

RK Rudy Kloser

Collaborators and observers

JB John Bavor
RAN Observer

CS CSIRO Film and Video Unit
NSW Fisheries

WBD Water Bd

PF Peter Fry (ABC Radio Science Unit)

Proposals from other observers will be assessed on a case-by-case basis.

* disembark by ship's boat at Coffs Hbr

** disembark by ship's boat at Jervis Bay

Ship's tracks, dates and work

The work will rely on "standard sections" that will be done west-east with the Seasoar and the Acoustic Doppler Current Profiler (ADCP). The sections will run from 30 m, or a depth deemed safe, out to the shelf edge. The ship will then reduce speed to allow the Seasoar to profile between 250 and 500 m out to the 1000m contour, reverse course and increase speed to allow the Seasoar to profile the upper 250 m back to the shelf edge. Travel times have been calculated at 11 knots for transit between regions and 7 knots for towing the Seasoar. In the event that better speeds are achieved because of good weather or favourable currents then either the study areas will be extended or the spacing of the sections decreased. In the event of Seasoar problems the CTD will be used at close station spacing.

Part A

Nov 11 (1000) — Nov 14 (1500)

Hobart-Sydney (Watsons Bay) cruising at 11 knots.

— Travel inshore of EAC as much as possible.

— Run ADCP and underway instruments.

— Test BUNYIP at 6 knots for one hour.

— Test DF towed body at 5 knots for 4 hours.

— Deploy ADCM and chemistry moorings at 60 m contour out from Sydney.

— Ground truth for Ocean Colour Scanner on COSSA aircraft (near Sydney)

— Personnel changeover by ship's boat to Watson's Bay pier.

Part B

Nov 14 (1600) — Nov 17 (0500)

Sydney—Sydney (Watsons Bay)

- Physical and chemical examination of the Sydney region continental shelf.
- Personnel changeover by ship's boat to Watson's Bay pier.

Part C

Nov 17 (0600) — Nov 27 (0400)

Sydney (Watsons Bay)— S. Qld.

- Standard section east from Sydney
(6 hrs @ 7 knots).
- Seasoar north to 100 m contour off Sugarloaf Pt. and then roughly along this contour to Smoky Cape
(25 hrs @ 7 knots).
- Series of 5 standard sections at 15-20 mile intervals between Smoky Cape and Cape Hawke ie. the Laurieton study area
(36 hrs @ 7 knots).
- 24 hour detailed examination of features revealed by the sections (24 hrs).
- Travel along 100 m contour to Cape Byron
(20 hr @ 11 knots). CTD stations each 1/2° of latitude (4 hrs).
- Standard sections at 10' of latitude intervals between 28°40'S and 29°40'S in the Evans Head study area
(43 hrs @ 7 knots).
- 24 hour detailed examination of features revealed by the sections (24 hrs).
- Re-occupy CTD stations at western end of 28°15'S section of FR11/89 (12 hrs)
- Travel to Cape Moreton, roughly along the 100 m contour
(13 hrs @ 11 knots).
- Series of 4 standard sections at 20 mile intervals between Cape Moreton and the Gold Coast.
(31 hrs @ 7 knots).

Part D

Nov 27 (0400) — Nov 28 (1000)

S. Qld to Newcastle to refuel.

- Travel to Newcastle, roughly along the 100 m contour
(30 hrs @ 11 knots).

Part E

Nov 29 (0600) — Nov 30 (0500)

Newcastle to Jervis Bay.

- Recover ADCM mooring.
(2 hrs)
- Travel to Jervis Bay, roughly along the 100 m contour
(13 hrs @ 11 knots).
- Standard section east from Jervis Bay.

(4 hrs)
— Personnel changeover by ship's boat.

Part F

Nov 30 (0600) — Dec 4 (0600)
— Eddy survey by Dr. McDougall.
(96 hrs)

Part G

Dec 4 (0600) — Dec 6 (0600)
— Examine the effects of an eddy on the waters of the continental shelf near Eden. If the eddy is well-removed from the shelf then the time will be used to occupy standard sections out from the southern NSW and Tasmania coasts.
(48 hrs).

Part H

Dec 6 (0600) — Dec 8 (1800)
Eden vicinity to Hobart.
— Travel to Hobart, roughly along the 100 m contour

ORV Equipment required

ADCP, Seasoar, depth sounder, CTD and rosette, fluorometer, GPS, BUNYIP (for Dr. McDougall's piggyback), ship's pitch and roll sensors (for towed body tests — Elliott), 7-core (EZ) cable on trawl winch (Elliott)

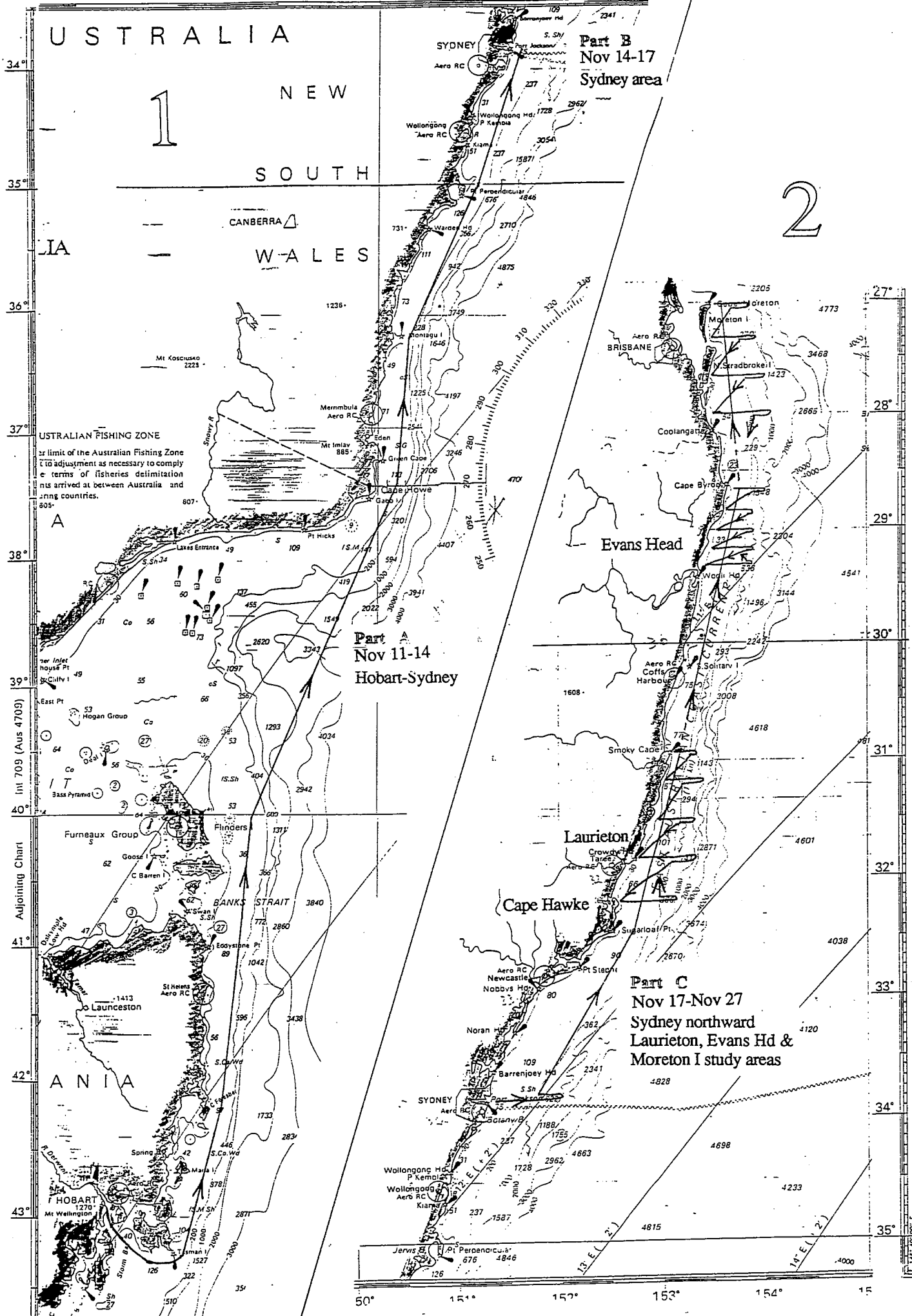
This cruise plan is in accordance with the directions of the National Facility Steering Committee for the Oceanographic Research Vessel RV *Franklin*.



A. D. McEwan
CSIRO DIVISION OF OCEANOGRAPHY



D. H. Green
NATIONAL FACILITY STEERING COMMITTEE



USTRALIA

1

NEW

SOUTH

IA

W-ALES

2

AUSTRALIAN FISHING ZONE

limit of the Australian Fishing Zone
 to adjustment as necessary to comply
 e terms of fisheries delimitation
 us arrived at between Australia and
 rning countries.

A

Part A
 Nov 11-14
 Hobart-Sydney

Part B
 Nov 14-17
 Sydney area

Evans Head

Laurieton

Cape Hawke

Part C
 Nov 17-Nov 27
 Sydney northward
 Laurieton, Evans Hd &
 Moreton I study areas

ANIA

HOBART

SYDNEY

Wollongong Hd

Wollongong Hd

Jervis Hd

Adj. Chart
 Int 709 (Aus 4709)

50° 151° 152° 153° 154° 155°

34°
 35°
 36°
 37°
 38°
 39°
 40°
 41°
 42°
 43°

27°
 28°
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 32°
 33°
 34°
 35°

USTRALIA

4

NEW

SOUTH

34°

35°

36°

37°

38°

39°

40°

41°

42°

43°

Int. 709 (Aus 4709)

Adjoining Chart

IA

AUSTRALIAN FISHING ZONE

Limit of the Australian Fishing Zone (AFZ) adjustment as necessary to comply with terms of fisheries demarcation agreements arrived at between Australia and other countries.

A

ANIA

HOBART

CANBERRA

Part G
Dec 4-6
Eddy effects on shelf waters

Part F
Nov 30-Dec 4
Eddy Study

Part H
Dec 6-Dec 8
Return to Hobart

Part D
Nov 27-28
South to Newcastle

Laurieton

Cape Hawke

Part E
Nov 29-30
Newcastle to Jervis Bay.

SYDNEY

Wollongong

Wollongong

Wollongong

Wollongong

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27°

28°

29°

30°

31°

32°

33°

34°

35°

50°

151°

152°

153°

154°

155°

150° 151° 152° 153° 154° 155°