

# FRANKLIN

National Facility  
Oceanographic Research Vessel

## RESEARCH PLAN

FR 11/94

|                   |             |                  |
|-------------------|-------------|------------------|
| Sail Port Lincoln | 0800        | 6 December 1994  |
| Call Albany       | 1500 - 1700 | 11 December 1994 |
| Arrive Fremantle  | 1800        | 19 December 1994 |

## CIRCULATION OFF SOUTH WESTERN AUSTRALIA AND IN THE GREAT AUSTRALIAN BIGHT

Principal Investigator

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SEABIRD DISTRIBUTIONS AND DENSITIES

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# RESEARCH PLAN

FR 11/94

## CIRCULATION OFF SOUTH WESTERN AUSTRALIA AND IN THE GREAT AUSTRALIAN BIGHT

### SEABIRD DISTRIBUTIONS AND DENSITIES

#### Itinerary

|                   |             |                  |
|-------------------|-------------|------------------|
| Sail Port Lincoln | 0800        | 6 December 1994  |
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The ocean south of Western Australia is influenced by: a branch of the West Australian Current in summer; the Leeuwin Current in autumn and winter; and long intrusions of cold sub-Antarctic water that flow north and west from 37° to 38°S towards the continental shelf. This cruise will examine the cold intrusions and their interaction with the "summer" Leeuwin Current. In addition, current and water property data will be collected in the waters of the Great Australian Bight.

#### Objectives

- A To examine the intrusions of cold sub-Antarctic water (estimated temperature for December ~14°C) that reach north and west from 37°-38°S towards the southern WA shelf edge and interact with the summer Leeuwin Current
- B To measure currents and water properties in the Great Australian Bight.
- C To gather information on unusual associations of seabirds away from their breeding colonies with respect to the effect of the Leeuwin Current.

#### Ship's tracks, dates and work

The ship will collect information on currents and water properties while underway and will occupy some 70 CTD stations. These will include sampling for nutrients and calibration, fluorescence, phytoplankton and zooplankton hauls. Expendable bathythermographs (XBTs) will be used in the deeper waters to map oceanographic features with a finer resolution than can be obtained with CTD's alone. Times are calculated for a ship speed of a little under 11 knots and for station times averaging 1 hour Pt Lincoln - Albany and 2 hours Albany - Fremantle. At the Albany anchorage the ship will take on WA graduate students and recent satellite imagery.

### Time Estimates

|                                     |          |                        |
|-------------------------------------|----------|------------------------|
| Port Lincoln to Albany              | Steaming | 4 days 7 hours         |
|                                     | Stations | 1 day                  |
| Albany to Fremantle                 | Steaming | 3 days                 |
|                                     | Station  | 3 days 16 hours        |
| Mapping of intrusions and offshoots |          | 1 day 5 hours          |
| <b>TOTAL</b>                        |          | <b>13 days 4 hours</b> |

### Cruise track

See attached

### ORV Equipment required

ADCP in bottom track and GPS modes  
CTD with rosette, fluorometer  
Analyses for oxygen, salinity and nutrients  
Underway temperature, salinity, fluorescence  
Winch for zooplankton net hauls  
XBT  
Sounders

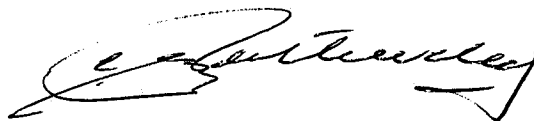
### Scientific participants

|                        |                     |                 |
|------------------------|---------------------|-----------------|
| George Cresswell       | CSIRO-DO            | Chief Scientist |
| Jan Peterson           | "                   |                 |
| Phil Adams             | CSIRO - ORV         |                 |
| Bernadette Heaney      | "                   |                 |
| Val Latham             | "                   |                 |
| CMDR Martin Rutherford | RAN                 |                 |
| A participant          | WA Fisheries        |                 |
| Graduate student       | Flinders University |                 |
| Graduate student       | Flinders University |                 |
| Graduate student       | Curtin University   |                 |
| Graduate student       | UWA                 |                 |

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



A D McEwan  
CSIRO Division of Oceanography



G W Paltridge  
National Facility Steering Committee

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DEPTHS IN METRES

