

Cruise Report

RV FRANKLIN 4/96

1. Itinerary

The ship left the Port of Dampier at approximately 10 am Friday 23 March 1996 and arrived at the Port of Fremantle at approximately 8.00 am Saturday 30 March 1996.

2 . Scientific Programs:

(a) Distribution and abundance of scaly mackerel eggs and larvae along the west coast of WA.

Principle Investigator: Dr R. Fletcher, WA Fisheries Dept., W.A. Marine Research Laboratories, PO Box 20 North Beach, WA 6020

(b) Seabird distribution and densities in relation to oceanic factors off Western Australia.

Principle Investigator Prof. R. Wooller, School of Biological and Environmental Science, Murdoch University, Murdoch WA

3. Objectives

1. To determine the distribution and abundance of scaly mackerel eggs and larvae along the mid coast of WA
2. Determine the influence of the Leeuwin current on the depth stratification of scaly mackerel eggs and larvae.
3. Document the distribution of all larval fishes in relation to longshore and offshore gradients and oceanographic and ecological conditions.
4. To enhance the appreciation of the relative distributions and densities of seabird species, in relation to oceanographic factors in the eastern Indian Ocean.

4. Results

(a) Preliminary work completed during February in the Geraldton region indicated that the spawning season of *Sardinella* was almost over at that time which meant that few *Sardinella* eggs would be present in late March when the cruise was to be conducted. Consequently the focus of our sampling altered to conduct a more general larval survey, with 12 cross shelf transects covering the region from North West Cape to Fremantle (Fig. 1).

A total of 65 stations were sampled with both vertical and surface plankton tows. Approximately 55 CTD casts were made with samples of the collected water filtered for phytoplankton. Only 5 EZ tows were completed.

Substantial numbers of larvae were collected in the plankton tows, particularly in the night time shots. Distinct compositions could be distinguished amongst the various locations, tropical - temperate; shelf -slope etc. The samples were obtained in areas which were at the beginning of the Leeuwin Current, in the LC and inshore of the LC and in areas where the northwards counter current was flowing (Fig. 2).

The use of the EZ net was limited, initially due to a number of technical problems. Ultimately, however, the weather was generally too rough to allow deployment.

(b) Two Murdoch University seabird observers piggy-backed on this cruise with partial funding support from the offshore petroleum industry companies involved in an integrated Shearwater Monitoring Study (ISMS). Although the sponsors have an immediate interest in the marine distribution of Wedge-tailed shearwaters, this cruise added considerably to the data base assembled following Franklin cruises in the eastern Indian Ocean during October 1987 and April 1995.

Significant additional data were obtained on the marine habitats of 20 seabirds including breeding species, passage migrants and wintering migrants. Of particular interest were hitherto unrecorded marine habitats occupied by Streaked Shearwaters (migrants from Japanese waters), Great-winged Petrels (breeders from southern WA) and white-phase populations of the Wedge-tailed Shearwater.

5. Cruise Narrative

After leaving Dampier Friday morning, the boat steamed to the area north of Exmouth Gulf. The plankton sampling began early on Saturday morning as the wind increased to above 20 knots, where it stayed for the remainder of the trip. The reduction in boat speed and the increased time taken to complete stations resulted in a number of amendments to the cruise plan as transects and stations were removed to fit within the time allowed. Nonetheless, whilst the weather was rough, it did not become too bad to stop sampling completely except at only one station on Thursday evening where it was not possible to deploy the CTD.

The problems with the EZ net were mentioned above took Phil Adams a considerable time to eradicate and were possibly due to teething problems following the long period of storage. Phil worked almost continuously on these problems during and after his shift on Saturday to Tuesday. The other ORV equipment worked well except the underway fluorometer. Our own plankton sampling gear operated successfully for the duration except the 1m square surface net had a bit of an accident on early Wednesday morning when the warps became caught during deployment and the frame was stretched into a diamond. This was subsequently straightened with the ingenuity of Bosun Yannick and A/B Norm. Unfortunately the stress on the

joints resulted in the entire frame disintegrating later on Wednesday when a large wave hit the net during deployment. Luckily the net and flowmeter were recovered and all but one of the frame segments. Fortunately, the engineering staff (Terry, Dave and Bernie) were able to find a metal rod suitable as a replacement segment and welded the whole structure back together using an improved design. Ultimately, only 3 stations were missed. A suitable reward for the crew in the form of a few cartons was negotiated!

The only other problems encountered with sampling were from the entanglement with the floats and lines from rock lobster pots on Friday evening during the last few tows of the cruise. This is a regular hazard on the WA coast. Unfortunately we couldn't haul the pots aboard to sample the contents.

The boat arrived in Fremantle wharf at 0805 just in time for many of the crew to catch taxis to the airport for flights home.

6. Summary

Sufficient sampling was achieved that will allow a number of analyses of the larval fish communities of the west coast of WA in relation to the hydrography, phytoplankton and zooplankton abundance and current structure to be done. This data will not only help greatly in our general understanding of the WA marine environment but also for planning our future intensive, biomass surveys in this region.

The simultaneous collection of larval fish samples and seabird observations should assist in tying together our existing knowledge on tern feeding niches. Larval fishes available at the surface in shelf waters are an important component in the diet of Brown and Lesser Noddies and Bridled Terns. The data gathered by both groups will be compared in order to ascertain if there were any strong relationships between the presence of larvae in the tows and the presence or behaviour of seabirds in the area.

7. Personnel:

Dr R. Fletcher	WA Fisheries	Chief Scientist
Dr D. Gaughan	"	
Mr R. Tregonning	"	
Mr K. White.	"	
Dr N. Dunlop	Murdoch University	
Mr C. Surman.	"	
Mr D. Vaudrey	CSIRO ORV	Cruise Manager
Mr P. Adams	"	
Mr D. Wright	"	
Mr R Griffiths	"	

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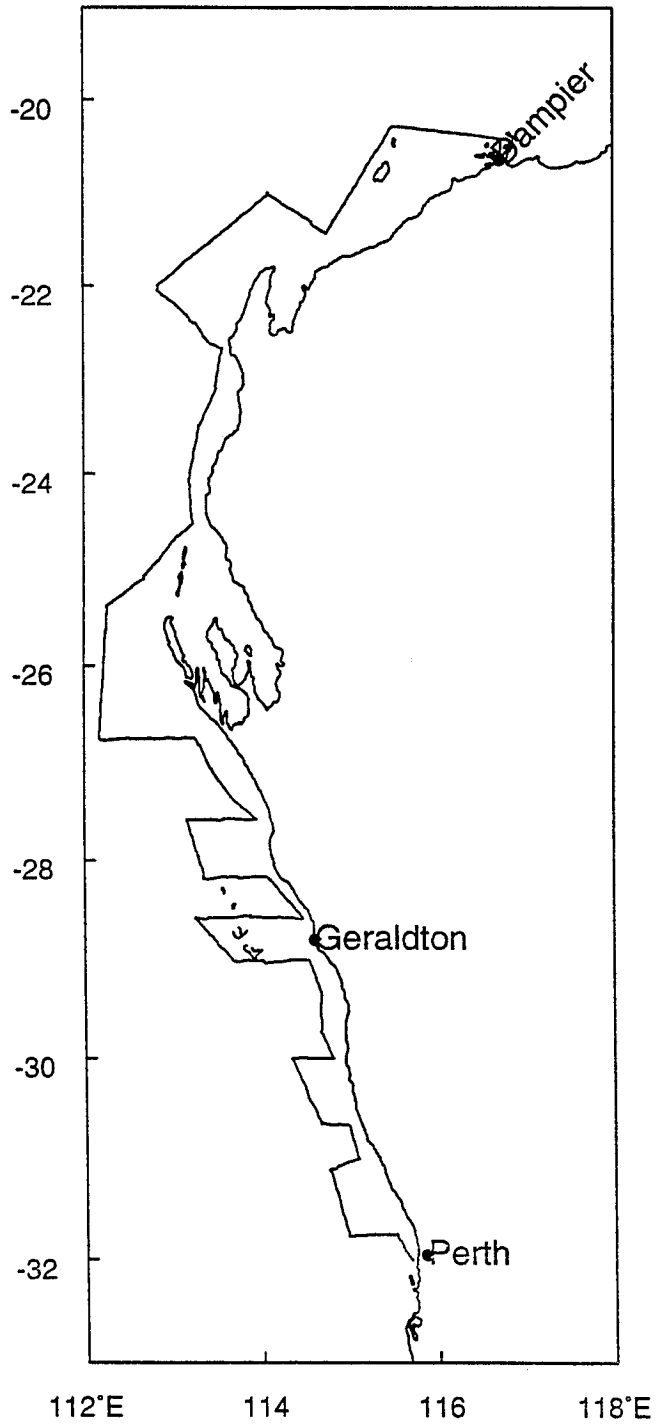


FIG 1.

Corrected Currents [ny] at 15m

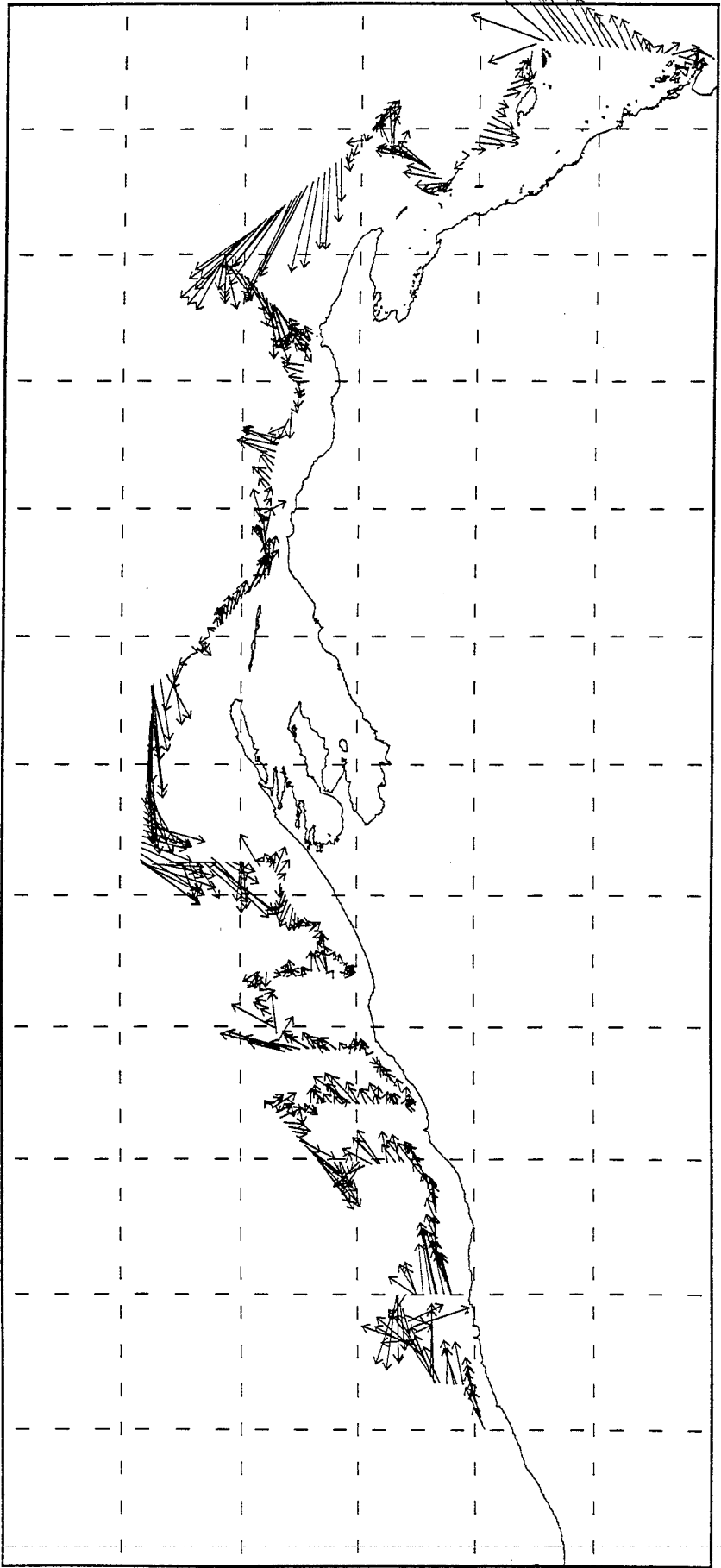


FIG 2.