

## NEW SURVEY MOTOR LAUNCHES FOR THE ROYAL AUSTRALIAN NAVY

by Commander John LEECH, RAN (\*)

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### INTRODUCTION

By any standards the task facing the Royal Australian Navy's Hydrographic Service is a daunting one. The Australian area of charting responsibility covers some 11.5 million square nautical miles of oceans and seas, including the waters of Papua New Guinea. The area of the continental shelf inside the 300 metres contour is some 760,000 sq.nm. Of this, 480,000 sq.nm lies in depths less than 50 metres, and 175,000 sq.nm at less than 30 metres.

Between 1945 and 1987, 30% of the shelf area has been surveyed to an adequate standard, and a further 20% to a temporarily adequate standard, requiring some update in the future. (This area has shortcomings in positional accuracy and sonar sweep coverage, reflecting its World War II origin.) The remainder is not adequately surveyed, relying on small scale reconnaissance surveys or on lead line soundings. The situation is illustrated in figure 1.

For some years, the Hydrographer has been attempting to improve surveying resources. Readers will be familiar with the Laser Airborne Depth Sounder project, described in the July 1988 issue of the *International Hydrographic Review*. The LADS project is an example of the innovative thinking that is required if significant progress is to be made with the surveying task. Another project that is now coming to fruition is the building of four Survey Motor Launches (SMLs) to progress surveys in coastal areas. They will replace the two Landing Craft (Heavy), HMA Ships *Betano* and *Brunei*, which were pressed into Surveying Service as an interim measure in 1984. This article provides broad details of the new Survey Motor Launches.

### THE SHIPS

The Navy's User Requirement was for a vessel capable of conducting surveys along large sections of the Australian and Papua New Guinean coasts. This

(\*) c/o The Hydrographer, RAN, P.O. Box 1332, North Sydney, NSW 2059, Australia.

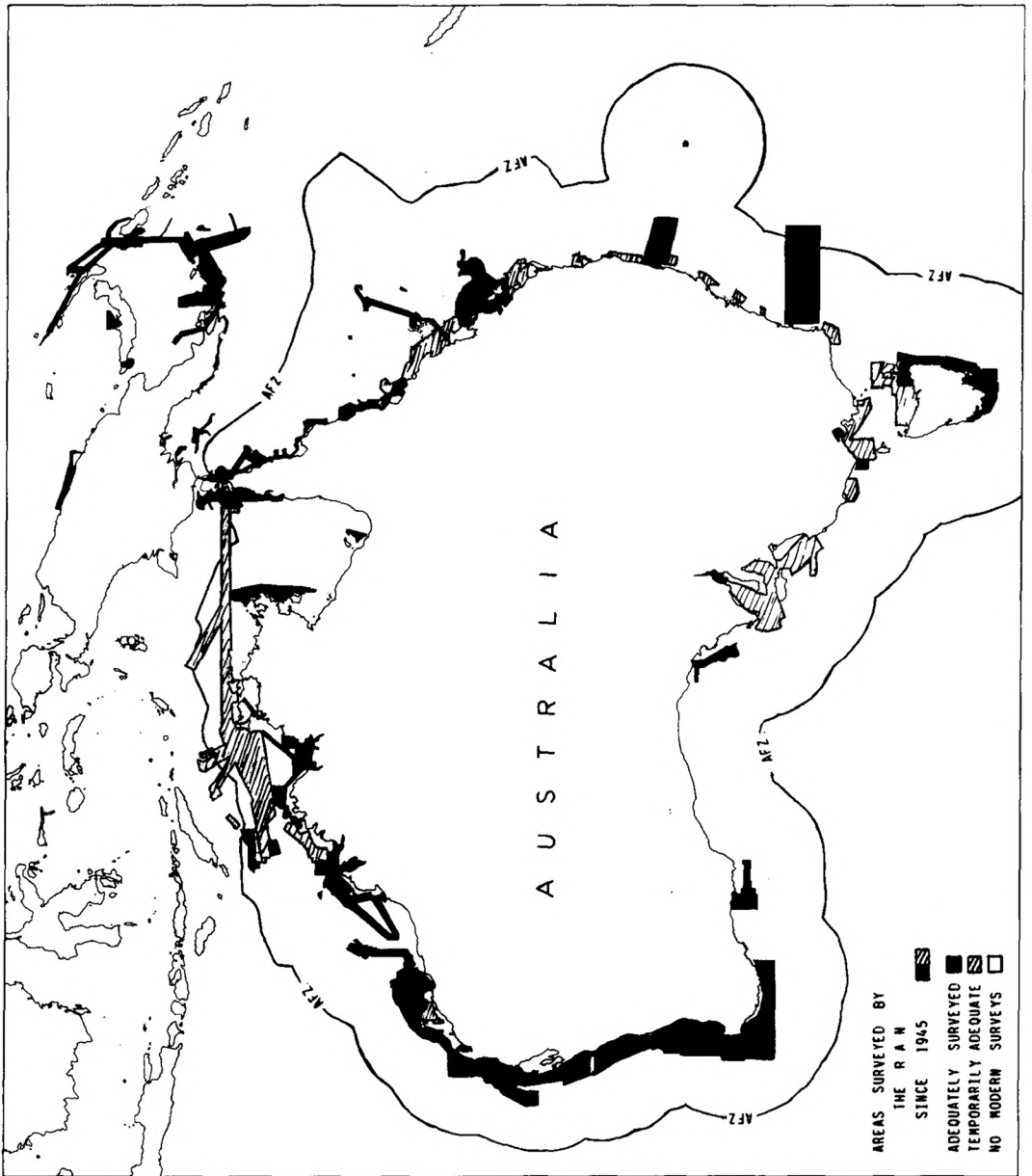


FIG. 1.

is a harsh tropical environment with extremes of weather, temperature and humidity, and is sparsely populated with little support available for advanced technology. Good sea keeping qualities and endurance were therefore required, in addition to the more usual characteristics of a survey platform.

The Navy wished to take advantage of the considerable expertise available in Australia in designing small ships for local conditions, and issued a broad Statement of User Requirements to which companies might tender. Responses included proposals for both monohull and multihull designs.

In November 1987, a contract was signed with Eglo Engineering of Adelaide, South Australia, for the building of four catamaran hulled vessels based upon the Prince class of Ro-Ro passenger ferries. The vessels incorporate the 'Hydrodome' hull form developed by the Australian Marine Consulting and Design group, ASD Marine Pty Ltd. The Hydrodome design has produced good sea keeping results for a number of operators on the Australian coast. It will be well suited for carrying out hydrographic surveys and is able to undertake ocean passages.

The principal features of the vessels are:

Length .....	36.7 m overall; 34.9 m at waterline
Beam .....	13.7 metres
Draught .....	1.9 metres
Speed .....	12 knots
Endurance .....	14 days
Propulsion .....	Twin Detroit GM92TA Diesels
Crew .....	12.

Construction is to Lloyds Classification +100A1 LMC UMS, and the Uniform Shipping Laws Code Class 2A. General arrangement drawings are shown in figures 2 and 3. It can be seen that the propulsion arrangements are conventional direct drive to a fixed pitch propeller. A high standard of accommodation is provided. This is particularly necessary as the vessels will be deployed away from base for up to three months at a time, in remote tropical areas.

The crew of 12 includes two surveying officers, four seamen/survey recorders, four ships engineers/technicians, a radio operator and a cook. In order to provide the required level of technical expertise, the ships will operate in pairs and members of crew will be interchangeable. For example, one vessel of a pair will have a senior mechanical engineer, while the other will have a senior electrical engineer. This pooling of expertise is important for operations in very remote localities.

## SURVEY EQUIPMENT

The vessels will carry a modern set of survey equipment including the following:

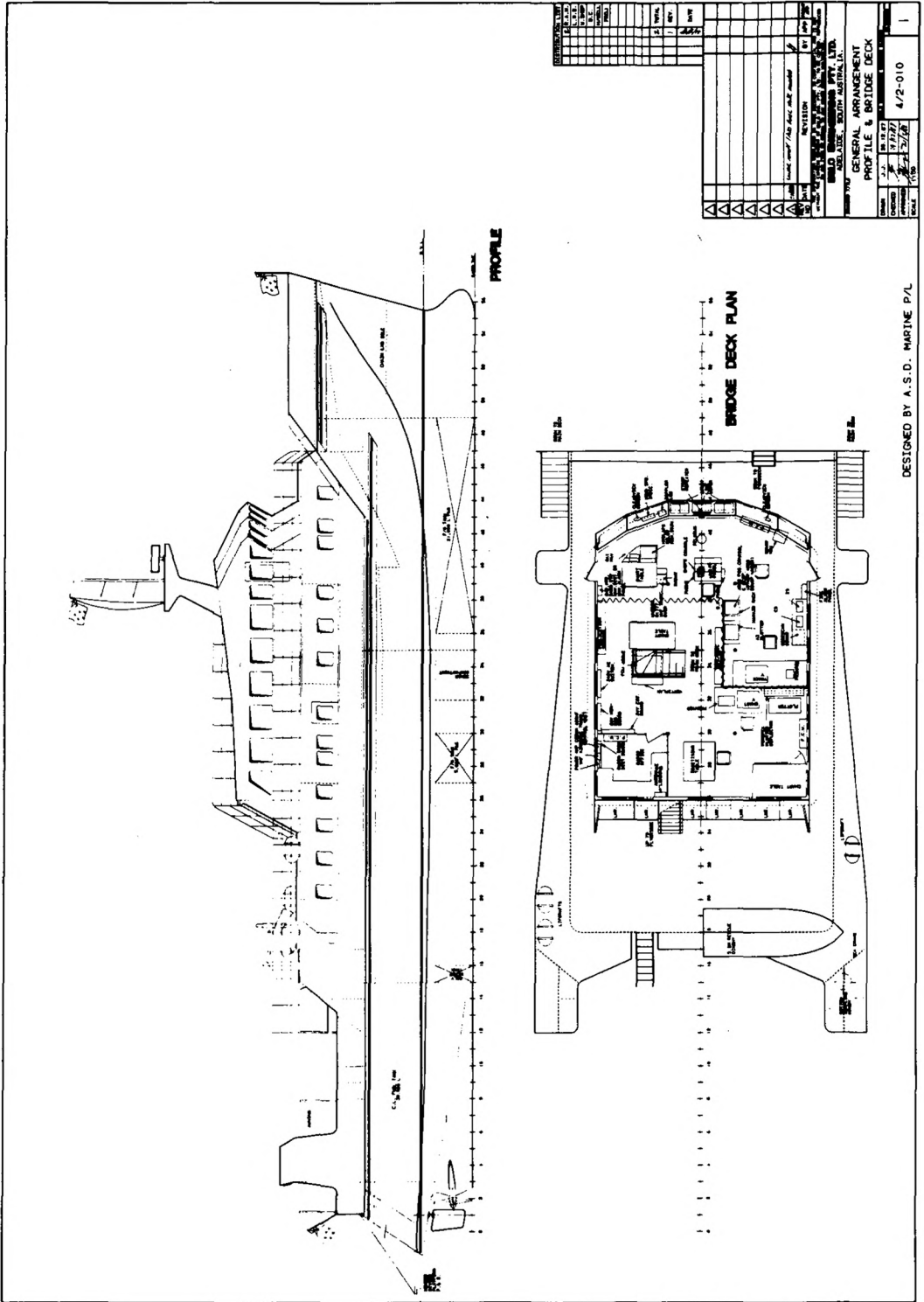


FIG. 2.

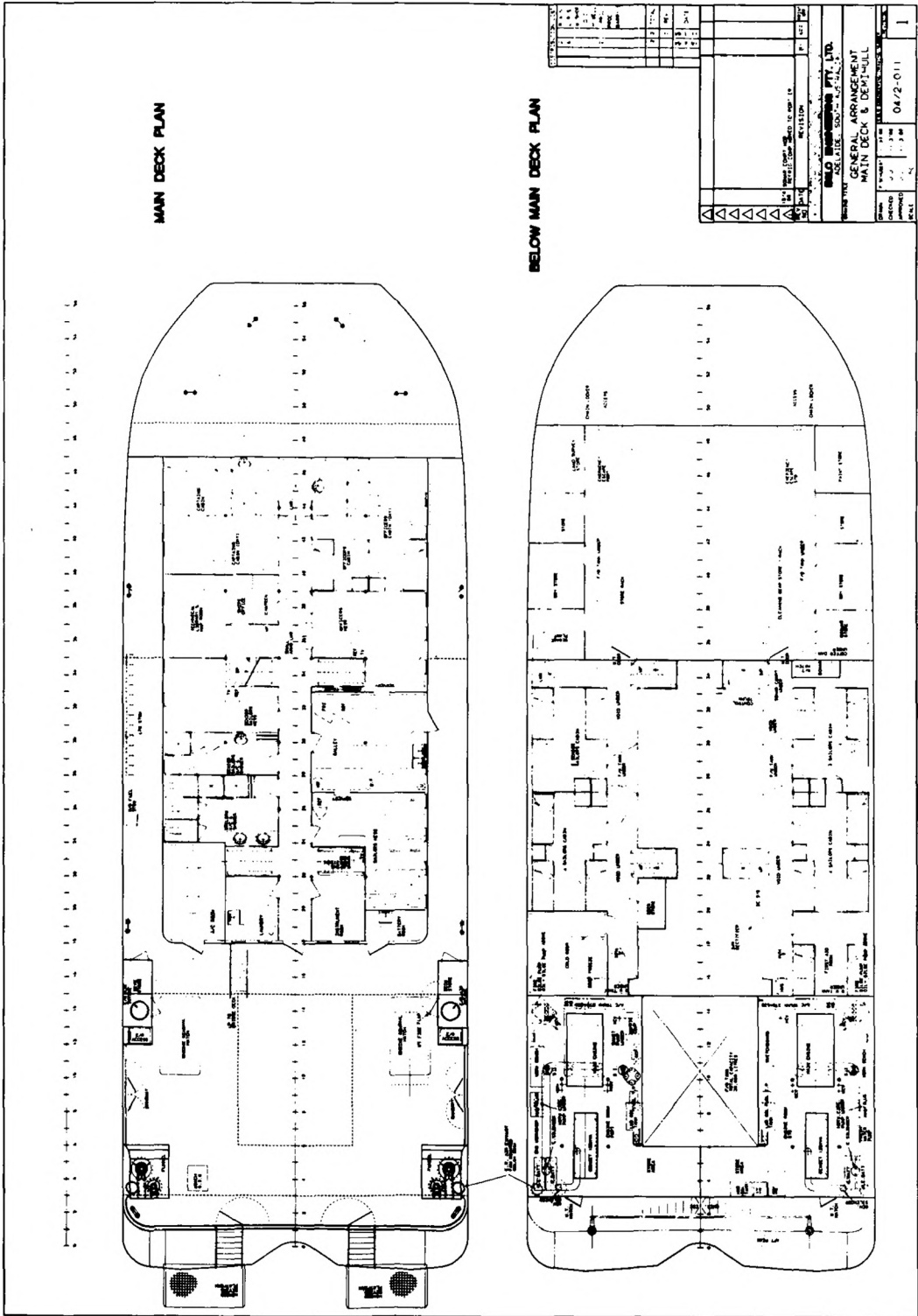


FIG. 3.

**Position Fixing:**

- Long Range — GPS (type to be determined).  
 Medium Range — ARGO DM54.  
 Short Range — Mini Ranger MRS3/Falcon IV.

**Depth Measurement:**

The advantages of stability and spacing of transducers for sounding, inherent in the catamaran design, have been utilised in the fitment of the echo sounding equipment:

<i>Port Hull</i>	<i>Starboard Hull</i>
1 × 30 kHz Tx	1 × 15.5 kHz Tx
1 × 200 kHz Tx	1 × 200 kHz Tx
1 × heave compensator	1 × heave compensator
1 × 50 kHz sidescan Tx	1 × 50 kHz sidescan Tx
	1 × Skipper S113 search light sonar with 1600 m range.

The echo sounder systems are provided with ELAC 4721 recorders and the side scan sonar utilizes the ELAC LAZ 72 recorder and LAZ 2500 colour display.

**Data Logging and Processing:**

QUBIT TRAC V — Data Logging System with:

- OOW work station.
- 20" trackplot display.
- Helmsmans' graphic display.

QUBIT CHART V — Data Processing System with:

- HP 7595 AO plotter.
- GTCO AO digitiser.
- Main storage on 80 Mb Winchester disc and cartridge tape drive.

(Note: The above may be subject to minor variations before delivery).

**Tide Gauges:**

2 sea bed tide gauges/current meters.

**Boat:**

1 5-metre boat with portable echo sounder.

**Other:**

Geodetic survey equipment.

The ADP equipment fit represents a considerable step forward for the RAN Hydrographic Service.

### EMPLOYMENT

The four ships will be based in Cairns in Northern Queensland. They will mainly operate on the North coast of Australia from Exmouth Gulf in the North-West to Darwin in the North, across to Torres Strait and down the East coast as far as Brisbane. They will also conduct surveys in Papua New Guinea, and will be able to work in co-operative programmes in other areas of the South-West Pacific, if the need arises.

### NAMING

The vessels will be named after ships employed in surveying the Australian coast in earlier times. The names will be *Paluma*, *Mermaid*, *Benalla* and *Shep-parton*. They will be delivered between November 1988 and October 1989.

### CONCLUSION

The RAN Hydrographic Service is eagerly awaiting the completion of these ships. They represent a considerable increase in surveying capabilities, and will do much to speed up the enormous task of surveying the continental shelf.