

# **CSIRO MARINE RESEARCH**

## **1997 RESEARCH VESSEL PROGRAM**

### **CRUISE PLAN**

#### **FRV *SOUTHERN SURVEYOR***

#### **CRUISE SS 01/97**

**20 JANUARY - 3 FEBRUARY 1997**

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## **ITINERARY**

DEPART: HOBART 0900 MONDAY 20 JANUARY 1997  
RETURN: HOBART 1500 MONDAY 3 FEBRUARY 1997

## **AREA OF OPERATION**

Seamounts on the continental slope south of Tasmania, within latitudes  $44^{\circ}10'$ – $44^{\circ}30'S$ . and longitudes  $147^{\circ}00'$ – $147^{\circ}20'E$ . (see Figure 1).

## **RESEARCH BACKGROUND**

A recent CSIRO report to the Australian Nature Conservation Agency (ANCA) concluded that the seamounts fished by deepwater trawlers for orange roughy provide a distinct environment for a diverse sessile fauna, including several groups of deepwater corals, that appears to be extensively damaged by normal trawl operations and has extremely limited regenerative capacity. The invertebrate fauna is almost certainly characterised by a high degree of endemism, but details of its species composition, depth distribution and zoogeography are not known. A rare and distinct fish fauna also seems to be associated with this benthic environment.

Based in part on the recommendations of the CSIRO report, ANCA and AFMA recently agreed to establish an interim deepwater marine reserve to protect a group of newly-mapped and hitherto unfished seamounts south of Tasmania (Fig. 1). However because these seamounts peak at depths between 1200 and 1600 m and are therefore deeper than those that have been previously fished or sampled scientifically, the fauna associated with them is unknown. Consequently, their value in terms of conserving the fauna impacted by orange roughy trawling is not yet known.

The general aims of the cruise will be, first, to assess in a preliminary manner the impact of trawling on the benthic community associated with southern Tasmanian seamounts based on photographic transects of fished, lightly fished, and unfished seamounts; and, second, to assess the conservation potential of the proposed marine reserve based on the species composition of the region's seamount fauna in relation to depth and position on the seamount

## **CRUISE PLAN**

The vessel will steam from Hobart to the Pedra Branca / Interim Seamount Reserve area. Between 10 and 14 seamounts will be sampled along an approximately 1000 m depth gradient, the peaks' depths beneath the surface

ranging from 650 to more than 1600 m. Seamounts are selected to achieve approximately even sampling across the depth range (i.e., at least one seamount per 100 m depth stratum). The seamounts have been selected equally from within the Reserve and outside it, and cover a range of fishing intensities. Twenty-four hours are allocated to the sampling of each seamount. Sampling on each seamount will consist of photographic transects from the peak to the base (6 hr); dropline and trap sampling (deployment and retrieval: 9 hr); and dredge sampling from peak to base (9 hr).

On 24 January, the Southern Surveyor will steam to Recherche Bay, for the exchange of two scientific crew (12 hr).

**OBJECTIVES ARE TO:**

- 1) Conduct replicate photographic transects from the peak to the base of up to 14 seamounts along a depth gradient of seamount peaks from 650 to >1600 m depth below the surface.
- 2) Conduct dropline and trap sampling to obtain samples of the motile invertebrate and fish fauna on these seamounts.
- 3) Conduct dredge sampling on the peaks, slopes and base of these seamounts to obtain faunal samples for species identification, particularly of the sessile macrofauna, and to assess qualitatively community composition.
- 4) Collect geological samples on an opportunistic basis, to aid in dating the seamounts (for a University of Tasmania project).

## PERSONNEL

Dr Tony Koslow (Cruise Leader, Leader, Watch 1)  
Dr Sebastian Rainer (Assistant Cruise Leader, Leader Watch 2)  
Ms Karen Gowlett-Holmes  
Dr Alan Williams  
Mr Mark Lewis  
Electronics (1 person, t.b.a.)  
Mr Nick Albers (20-24 January)  
Dr Nadia Ameziane (Muséum National de l'Histoire Naturelle, Paris)  
Ms Kate Dempsey (Australian Museum)  
Mr Kim Larsen (Australian Museum)  
Mr Simon Talbot (Australian Fisheries Management Authority)  
Dr Tim Stranks (Museum of Victoria)

Personnel are CSIRO staff unless otherwise noted.

## CONTACTS

For further information about this cruise contact:

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for: B. H. Hill  
Acting Chief

CSIRO Division of Marine Research

Date: 9 January 1997

## APPENDIX 1.

Survey sites 1–14 (Names refer to Figure 1.). Sites 1–10 are in the order of their sampling. Sites 11–14 are additional sites, to be sampled if time is available.

Sample site	Seamount name (Fig. 1)	Latitude (S.)	Longitude (E.)	Depth of peak (m)
1	Main Pedra	44°15.5'	147°05.8'	720
2	Sister I	44°15.2'	147°15.0'	930
3	K1 (R)	44°17.6'	147°23.2'	1370
4	D1 (R)	44°23.2'	147°18.8'	1650
5	W (R)	44°26.1'	147°13.7'	1815
6	U (R)	44°19.5'	147°10.8'	1155
7	J1	44°15.4'	147°20.9'	1235
8	Dory Hill	44°19.6'	147°07.2'	1090
9	B1 (R)	44°18.5'	147°16.8'	1340
10	Mackas	44°11.8'	147°02.5'	670
11	Andy's	44°11.6'	146°58.9'	660
12	38	44°12.9'	147°21.4'	1195
13	A1	44°19.7'	147°16.4'	1335
14	V	44°23.6'	147°10.7'	1495

