

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD  
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1983 RESEARCH VESSEL PROGRAMME)  
REPORT: CHARTER OF R.V. PRINCE MADOG (NERC, MENAI)  
(PROVISIONAL: Not to be quoted without prior reference to the author)

STAFF:  
D J Swift  
P J Kershaw  
Diving Team: B H Holford  
K H Brander  
C W Baker  
T H Widdop

DURATION:  
11-15 July

LOCALITY:  
Irish Sea (Cumbrian coast)

- AIMS:  
To study sediment bioturbation off the Cumbrian coast at Sellafield. This work to be carried out by the diving team involving:
1. quantitative biological surveys of selected areas
  2. sampling of selected species of benthic animals
  3. investigation of burrow systems by a resin cast technique
  4. photographic and TV observation of selected seabed areas
  5. collection of a number of sediment core samples for natural radioisotope measurements.

NARRATIVE:  
PRINCE MADOG sailed from Menai at 0840h on 11 July and arrived off Sellafield at 1730h.

A sixteen station transect line was worked running from the end of the Sellafield pipeline westward for six nautical miles. At each station the underwater TV system was used to obtain recordings of the bottom epifauna and topography. A total of 23 dives was made by the diving team. The divers made observations of the seabed, collected three box core sediment samples, three vibrocore tube sediment samples, made two attempts to obtain burrow casts and took close up pictures of selected burrow structures. The underwater still camera rig was deployed overnight on two stations.

PRINCE MADOG sailed from the Cumbrian coast at 0630h on 15 July and docked at Menai at 1345h.

- RESULTS:
1. A fairly comprehensive video record of the seabed along the transect line was obtained. This record gives a much better guide to the sedimentary structures and epifauna of the area than was available before.

2. Only one set of photographs were obtained from the camera rig as a malfunction during the first deployment resulted in the film not moving on correctly.
3. Despite successful ship board trials (CEROLANA, 5/83) of the burrow resin casting technique, the underwater trials were unsuccessful. The main problem lay in the divers being unable to get suitable penetration of the resin into the burrows. A rethink of the whole technique will be required before any future use.
4. Three box and three vibro tube sediment core samples were collected. Two cores were sectioned and are being analysed for  $^{234}\text{Th}$  and  $^{210}\text{Pb}$ . Two other cores were retained for longitudinal sectioning and CR39 alpha-track analysis. Two of the burrow systems recovered in the box cores were sectioned and samples taken for Pu and Am analysis.

D. J. Swift

23 September 1983

APPROVED: H W H

**DISTRIBUTION:**

Basic list +  
 D J Swift  
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 B H Holford  
 K M Brander  
 C W Baker  
 T H Widdop