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R.V. ERNEST HOLT

Report for Cruise 6/1968

Staff:

Duration:

(a)	H. A. Cole B. T. Hepper (Conway) P. D. Wallace D. B. Edwards (Conway) A. M. Watson A. C. Wheeler (British Museum)	28 June-11 July
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(b)	H. A. Cole P. G. Griffiths P. D. Wallace D. J. Symonds (Burnham) A. M. Watson R. G. Withers (Student)	12-24 July
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Aims:

- (a) 1. Deepwater trash fish survey, west coast.
- 2. Crawfish studies.
- (b) 1. Deepwater trash fish survey, west coast (continued).
- 2. Underwater television development.

Narrative:

The ship left Grimsby at 1930 hr BST on 28 June and late on 30 June two strings each of ten crawfish pots were laid on a large patch of rough ground northwest of the Labadie Bank. The pots were lifted next day and re-set and one crawfish net was laid in the same area. One string of pots was hauled in the evening of the same day in deteriorating weather conditions. Throughout 2 July the ship was laid or dodged due to strong winds and heavy swell. On 3 July the string of pots and the net were recovered and the ship steamed westwards to the continental shelf edge, the high speed plankton sampler being worked at regular intervals. In the late evening both strings of pots and two crawfish nets were set on rough ground near the shelf edge, being hauled the following morning, 4 July. A further move was made to an area on the shelf edge to the northwest where a few crawfish were trawled in 1967, TTN stations being worked en route. Two trawl hauls were made at this station before steaming north to begin work on the deepwater fish in an area about 100 miles west of Tralee Bay.

Deepwater trawling in the same general area was continued during the next three days after which a move was made to the Tory Island and Klondyke grounds which were fished on 9 July with a herring trawl. July 10 was spent fishing south of St. Kilda and the ship docked at Stornoway at 1030 hr BST on 11 July. A member of the crew was removed to hospital with a suspected fracture (since confirmed) and the planned exchange of scientific staff took place.

The ship sailed again at 0700 hr BST on 12 July and steamed to a position on the shelf edge just north of the Wyville Thompson Ridge where deepwater trawling was resumed. This continued through 14 July including grounds south of the ridge when a move was made to the Minch to begin the underwater television studies. During the next four days numerous lowerings of the television camera were made in sheltered sea lochs south of Stornoway in generally favourable conditions.

Work with the herring trawl was resumed on 19 July in the South Minch and west of Tiree and Dubh Artach.

Further lowerings of the television camera were made off Dundrum Bay in the Irish Sea on 20 July, while on 21 July some time was spent trawling southwest of the Smalls. Grimsby was reached at 0400 hr on 24 July. The weather throughout the cruise was exceptionally favourable, one day only being lost due to strong winds.

#### Results:

Crawfish No crawfish were taken in either pots or nets. The former took a few large crabs. Both pots and nets appeared to be set correctly and it must be concluded that there were no crawfish on the grounds fished. The TTN samples will be examined later for crawfish larvae.

Deepwater fish To the west of Ireland trawling was done at depths varying between 220 and 480 fathoms. Catches were light, not exceeding  $12\frac{1}{2}$  baskets per hour. The best catches were made at depths between 300 and 400 fathoms. Greater silver smelts (Argentina silus), the macrourid Trachyrhynchus trachyrhynchus and Hoplostethus mediterraneus were the most abundant species. Hake were very scarce but were taken down to a depth of at least 380 fathoms. Bottom temperatures ranged from 8.7 to 10.2°C.

North of the Wyville Thompson Ridge catches were heavier, reaching 40 baskets per hour; the heaviest catches were made at depths between about 250 and 300 fathoms, where bottom temperatures ranged between 2.8 and 7.4°C. The bottom temperatures recorded in the deepest hauls (down to 390 fathoms) were around zero centigrade. The most abundant species in the warmer water were blue ling (Molva byrkelange), Chimaera, tusk, greater silver smelts and redfish (mostly Sebastes viviparus); in the cold water Greenland halibut were abundant and Macrourus berglax was common. No hake were taken.

South of the Wyville Thompson Ridge bottom temperatures ranged from 8.4 to 9.5°C. Catches were again lighter, reaching only 12 baskets per hour; the most productive depth being about 320 fathoms. One haul reached a depth of 440 fathoms. Blue ling and Chimaera were the most abundant species but the shark Deania calcea and Alepocephalus bairdii were common. The large macrourid Coryphaenoides rupestris was also taken. Hake were very scarce.

Substantial quantities of deepwater fish were preserved or frozen for the British Museum (Natural History). These included many species very rarely seen. A frilled shark (Chlamydoselanachus anguineus) about 5 ft long was notable.

Underwater television The apparatus worked very satisfactorily except for the electric cable winch which proved to have insufficient power to give the anticipated fine adjustment of the camera position. About 1200 ft of film were exposed, either photographing directly from the television screen or indirectly from material recorded on video tape. The depths worked varied from 19 to 25 fathoms in the sea lochs and from 30 to 40 fathoms in the Irish Sea. Records were made not only of the activity of Nephrops at various times of the day but of the nature of the ground and the accompanying bottom and fish faunas.

#### Population studies

Demersal fish Hake, cod and spurdogfish were examined and otoliths and spines collected.

Pelagic fish Herring were sampled for length, age, vertebral count and maturity stage from catches taken south of the Stanton Banks, off Tiree and southwest of the Smalls.

Greater silver smelts were measured when caught and in the 'Farm' area west of Ireland a stratified length sample was examined for age, length, vertebral count and maturity.

130 blood samples were taken from mackerel caught in the Hebrides, each fish being examined for sex and maturity stage and the otoliths preserved.

A few horse mackerel were caught in the west of Scotland area and southwest of the Smalls, and ovaries were preserved. Two samples of blue whiting were deep frozen from grounds off the Irish coast and southwest of the Smalls.

Nephrops A small number of Nephrops were taken in deep water to the west of Ireland down to a depth of at least 315 fathoms. A sample of Nephrops was obtained from the Smalls ground, a marked increase in availability being noticed towards dusk.

#### Miscellaneous

Selected ship meteorological observations were made when the ship was the appropriate distance off the land.

H. A. Cole

25/7/68

#### Seen in draft:

E. A. Binnington  
G. W. Argumont

#### Distribution:

Basic list, plus the following:-

B. T. Hepper (Conway)  
P. D. Wallace  
P. G. Griffiths  
D. J. Symonds (Burnham)  
D. B. Edwards (Conway)  
A. M. Watson  
A. C. Wheeler (British Museum)  
R. G. Withers