

Mr Mills  
Mr W. Leggett

Provisional: Not to be quoted without reference to the writer

R V ERNEST HOLT

Report of Cruise 8/1969

Staff:	B W Jones	Duration:	13 August -
	R W Blacker		10 September
	J H Nichols		
	M R Vince		
	T W Boon		
	J Rous		

Aims

1. To participate in the international Barents Sea O-group fish survey with vessels from Norway and USSR.
2. To continue the development of echo survey techniques.
3. To work the hydrographic sections on our part of the survey grid.
4. To obtain flagellate flora samples for Dr Reynolds.
5. To collect cod blood and sea water samples for the Fisheries Radiobiological laboratory.
6. To transport live specimens of Zoarces from Tromsø to the laboratory and also to catch and keep alive O-group redfish for Dr Purdom.
7. To obtain samples of Balanus balanoides from Spitsbergen for Mr Cook (Menai Science Laboratories, Menai Bridge).

ERNEST HOLT sailed from Grimsby at 1700 hours, 13 August and made a good passage to Tromsø. Mr Johns of the Walker Log Company who sailed with the ship from Grimsby was landed en route by pilot cutter at Aberdeen. After taking fuel and water the ship sailed from Tromsø at 0700 hours, 19 August. Work commenced off the coast of northern Norway to calibrate the Boothbay trawl. During these trials, the net fouled the propeller with the result that the steel frame of the net was smashed and an acoustic depth telemeter lost. After freeing most of the gear from the propeller the ship was able to proceed to Tromsø where a diver removed the wire bridles from the screw and made an inspection for damage. The frame of the trawl was repaired and ERNEST HOLT was able to leave Tromsø again at 2330 hours, 20 August. The Norwegian ships JOHAN HJORT and G O SARS were in Tromsø during our second visit and the opportunity was taken, while repairs were undertaken, to have discussions with the Norwegian scientists on the co-ordination of the survey.

After calibration of the Boothbay trawl, some bottom trawling and the collection of flagellate samples on the northern Norway coast, we commenced our first leg of the O-group fish survey at 2200 hours, 22 August. The survey was completed successfully on the afternoon of the 4th and the ship returned to Tromsø that evening for bunkers. During the survey period some bottom trawling was done west of Hope Island and on the West Spitsbergen coast and further flagellate samples were collected. The ship left Tromsø at 0830 hours, 5 September and docked at Grimsby on the morning tide of 10 September.

## Results

1. The ERNEST HOLT's section of the international Barents Sea O-group fish survey was successfully completed. ERNEST HOLT started while the Norwegian and USSR ships were meeting in Murmansk and completed the survey three days ahead of the other ships. Contact was maintained with the other four ships by the exchange of survey reports by radio twice daily. The distribution of O-group fish was surveyed by echo sounder and 55 hauls were made with the Boothbay trawl or Engel trawl to identify the organisms making up the echo scattering layer. The Boothbay trawl fished very well and was extremely useful in providing a sample of the young fish with a minimum of time taken in shooting and hauling. The ERNEST HOLT worked an area from northern Norway to Bear Island and up the west coast of Spitsbergen as far as the edge of the polar ice at 80°18'N.

Water temperatures in the upper water layers this year were warmer in the Norwegian Sea and western Barents Sea but colder than normal in the eastern Barents Sea.

The O-group cod and haddock were this year much more abundant than in any other year of the international surveys and they were also much more widely distributed than in past years. Capelin and redfish were very abundant as were polar cod. Long rough dab were less abundant than in past years and their main area of distribution was west of Spitsbergen. Herring were again very poorly represented and this was the fifth successive year-class of very low abundance. One unusual feature was the presence of O-group mackerel in significant numbers as far north as 72°30'N.

2. The echo integrator appeared to work well after the modifications made following the previous cruise. There was little opportunity to use the cycle counters for bottom fish, but difficulty was experienced in getting the equipment correctly adjusted.

3. Six hydrographic sections were successfully completed during the survey.

4. 30 flagellate samples were collected from the northern Norwegian fjords, from east of Bear Island and from west of Spitsbergen. The samples were concentrated by centrifuging and were fixed in osmic acid.

5. Two samples of cod blood were collected and deep frozen. Surface water samples were taken from the areas where the blood was collected.

6. Specimens of Zoarces were kindly collected by the Marine Biological Station, Tromsø. 18 specimens were obtained and were successfully transported to Lowestoft. Catching of O-group redfish was left until the last part of the survey to give the best chances of survival. Unfortunately in the very bright sunlight of the last morning the fish proved to be very difficult to catch and only one live specimens was obtained but this survived only as far as the River Humber.

7. Owing to lack of time it was not possible to go ashore at Spitsbergen to collect barnacles.

8. Miscellaneous:

- a. samples of cod taken in the bottom trawl were measured and stratified otolith samples taken;
- b. the underwater camera was successfully used on the headline of the trawl on two hauls;
- c. 0-group cod and 0- and 1-group haddock were preserved in formalin and Bouins fluid for Mr Bye's studies on the pineal gland.

B. W. Jones  
15 September

Initialled: A J L  
D J G  
G W A  
J E M B

Distribution:

Basic list, plus the following:

Mr B Jones  
Mr Blacker  
Mr Nichols  
Mr Vince  
Mr Boon  
Mr Rous