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R. V. ERNEST HOLT

REPORT FOR CRUISE 5/1967

Staff:

P. O. Johnson
A. C. Burd (24th-31st May)
P. Scholes
C. R. Hood
L. Emerson
T. Watson
W. R. Morris

Duration:

24th May-13th June

(All times G.M.T.)

Aims:

1. To carry out a tin tow net survey for eggs and larvae of fish species potentially important for industrial fishing development. The area to be covered including the southern part of the North Sea, English Channel, British Channel, south of Ireland, St. George's Channel, Cardigan Bay and western Irish Sea.

2. A concurrent echo survey using both low (30 and 48 kHz) and high frequency (100 kHz) equipment, the latter with fish counting gear attached.

3. Hydrographic observations involving surface temperatures, salinities and thermocline observations.

4. Midwater and bottom fishing if any worthwhile fish concentrations are located, and collection of fish blood samples.

Narrative:

The ERNEST HOLT left Grimsby dock at 1720 hours on the 24th May but had to anchor shortly after leaving to put ashore an injured crew member for medical treatment. It was decided in view of his condition to leave him behind and the vessel sailed again at 2150 hours shorthanded, but before the Humber entrance had been cleared a leaking stern gland forced a return to the anchorage off Grimsby for repairs. These were completed by the following morning and final departure was made at 0830 hours on 25th May.

The first day was spent rigging and calibrating the tow net gear over the Inner Silver Pit, this work being completed by 1700 hours, the vessel then steaming to the first station of the survey grid off Aldeburgh, reaching this position at 0050 hours on the 26th. The survey then ran smoothly over the next few days to cover the southern portion of the North Sea and most of the English Channel, although Phaeocystis did prove a problem on several stations by badly clogging the net.

A brief call was made at Plymouth on the night of the 30th-31st May to land Mr. Burd, take on fresh water and provide medical attention for the 2nd engineer and some of the crew.

The survey then continued to cover the western end of the English Channel (the final leg extending from a point about 60 miles S.W. of Ushant to the Scilly Isles), the Bristol Channel and the area off the south coast of Ireland between the Scilly Isles - Fastnet and Tuskar - Smalls. This section of the grid was completed in the early hours of 6th June and the vessel then proceeded to Cork berthing at 0700 hours. Here fuel and fresh water were taken on and mail collected, departure being made at 0800 hours on 7th June.

The final stage of the survey then commenced, this covering St. George's Channel, Cardigan Bay and the western half of the Irish Sea, the final tow net station being completed by 1130 hours on 9th June.

The last few days of the trip were spent mid-water and bottom trawling in the Bristol Channel and on the Smalls Ground collecting various species for blood sampling. Trawling finished at 1920 hours on 11th June and the homeward trip then commenced. The return voyage was made in perfect weather conditions and with the assistance of favourable tides the ERNEST HOLT was able to berth a tide earlier than originally planned at 2045 hours on 13th June after covering a total distance of 4,118 miles.

A remarkable feature of this trip was the exceptionally fine weather experienced throughout, the only day gale force winds arose was that spent in Cork, otherwise the wind rarely exceeded 15 knots and was often calm or only a few knots.

RESULTS:

A total of 184 tow net stations were completed using the 25" diameter fibreglass body tow net. The first 129 stations used a nose-cone with a 14" diameter aperture but this was lost together with its flowmeter during a haul due to a fracture around its bonding with the base attachment ring. The remaining stations were then completed with a 16" diameter aperture nose-cone attached. Clogging with Phaeocystis proved a problem in the southern North Sea and on some stations in the eastern half of the English Channel, but otherwise most hauls were fairly straightforward with zooplankton predominating. Varying quantities of fish eggs and larvae were noted, but these have yet to be identified but although quantities of larger Pilchard-size eggs were not anywhere particularly evident, on some stations clupeid larvae were quite abundant particularly around the Bristol Channel. Off the south of Ireland large numbers of Crystallogolius larvae were taken on some stations.

Echo-Survey Results

The 48 kHz Marconi "Fishgraph" was run throughout the trip, whilst the 100 kHz sounder with fish counting gear was used over limited sections of the survey grid. Unfortunately it was not possible to use this unit effectively due to excessive noise generated by the ship. Measurements carried out withthe vessel moving at 11 knots indicated noise levels of between 250-300 μV at the transducer terminals, a level well above target strength recorded at the time. Reduction in ship speed to 5 knots resulted in a drop in noise level to around 200 μV.

The Kelvin Hughes "Humber" (30 kHz) unit was also used for comparative purposes with the other units, together with the scale expander unit recording signals in the bottom 4 fathoms. Tests were also made with the "Braincon" V fin towed transducer body with a 100 kHz unit attached and although this showed a considerable noise reduction compared with the hull-mounted transducer levels were still too high for effective fish detection and counting. Towed abeam the unit was very stable up to a speed of 7 knots but above this considerable vibration resulted. Pelagic fish shoals were generally small and thinly scattered, in the Engish Channel being confined mainly to the coastal and immediate offshore waters on each side and relatively scarce in the central deeper water.

Extensive scattering layers were detected in the western part of the Channel, in the Bristol Channel and off the south coast of Ireland. It is suspected that these may have been mainly composed of fish larvae, both from the results of the tow net hauls, and also when the trawls were used in areas where these layers were present the meshes were festooned with large quantities of larvae - clupeids in the British Channel and Crystallogolius off southern Ireland.

Hydrographic Observations

The thermograph was run continuously throughout the trip for recording surface temperatures and surface salinity samples were taken at each station. A bathythermograph was attached to the tow net and used on most of the deeper water stations from the western half of the English Channel onwards.

The Muirex recorder was used daily to receive weather charts from Offenbach (Federal Republic of Germany).

Fishing

One haul was made with the Engels trawl in the Bristol Channel. This yielded about 80 small mackerel, 1 sprat, 1 small MAKO Shark and 1 Salmon parr. Large numbers of clupeid larvae (possibly sprat) were clinging to the meshes.

A further six hauls were made using the Granton Bottom Trawl in the Smalls Ground area both in the deeper gulley and on the edge of the Nymphe Bank. The net was badly torn on several of these hauls by large stones and boulders resulting in the loss of most of the catch, but a good variety of species were taken. The best haul (3 hours) yielded 5 baskets of medium and large cod, 1 basket of hake and several baskets of assorted species such as coalfish, pout whiting, spurdogs, mackerel, bearded hake, anglerfish, rays, haddock, ling, John Dory, pollack, gurnards, whiting and various flatfish including plaice, dabs, long rough dabs, lemon soles and megrims. Large quantities of Crystallogolius larvae were caught up in the meshes.

At the end of this time the net had deteriorated to such an extent that it was no longer worth repairing so was cut away and condemned.

Blood samples were taken from the following species and deep frozen for subsequent enzyme analysis.

Species	No. of Samples
Cod	52
Mackerel	20
Hake	11
Coalfish	3
Salmon Parr	1
Anglerfish	1
Cuckoo ray	1
	89

The acoustic link was tested during these trawling operations bud did not prove very successful, probably due to difficulties of aligning the towed receiver.

Special watch was maintained for oil slicks during this survey but none were observed.

P. O. Johnson
15/6/67

Seen in draft:

E. A. Binnington

G. W. Argumont

Initialled:

A.C.B.

Distribution:

Dr. Cole
Mr. Lee
Captain Aldiss
Dr. Cushing
Mr. Bolster
r. Burd
Mr. Cattley
Mr. Corlett
Mr. Garrod
Dr. Harden Jones
Mr. Iles
Mr. Holden
Dr. Jamieson
Dr. Purdom
Mr. Margetts
Mr. Trout
Mr. Bridger
Mr. Mitson
Mr. Tungate
Mr. Williams
Mr. Wood
Mr. Adams
Mr. Mills
Mr. Kay
Miss Conolly
General Lab
Lab. Registry
Library (2)
Mr. Whiting
ERNEST HOLT file (N.I.C. next cruise)
Mr. Simpson
Dr. Reynolds
Chief Inspector
All D.I.s
Fisheries Registry
Captain Binnington
Mr. Sutcliffe
Skipper G. W. Argumont
Mr. Burgess
Mr. W. Baird
Prin. Inf. Officer, D.A.F.S.
Mr. Glover
Dr. Grant
Hydrographic Department
Dr. Lovern
Dr. Lucas
Director, N.I.O.
Dr. Peachey
Mr. Shelbourne
Mr. Steele
White Fish Authority
Director Bergen
Mr. Joesen
Director Reykjavik
Dr. Johnson
Mr. Scholes
Mr. Hood
Mr. Emerson
Mr. Watson
Mr. Morris