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R.V. CLIONE

Report for Cruise 6/1968

Staff

R. R. Dickson  
A. Jones  
J. H. Nichols  
A. E. Howard  
T. C. Bennett  
D. Riches (Fleetwood)

Duration

1050 hours, 30 April,  
0845 hours, 10 May.

All times are B.S.T.

Aims

1. To carry out routine sampling of turbot from the north-central North Sea.
2. To bring back suitable live turbot for the laboratory rearing of eggs and larvae.
3. To carry out artificial fertilization at sea, returning fertilized eggs live to the laboratory.
4. To carry out a tin tow net survey of the area for turbot eggs and larvae.
5. To collect and bring back a quantity of zooplankton suitable for the laboratory feeding of larvae.
6. To collect live spawning fish for Dr. Purdom (all species).
7. To collect and freeze flatfish hearts and muscle for Mr. Iles.
8. To collect and freeze bulk skinless cod fillets and cod guts for Mr. Birkett.
9. To collect live turbot tapeworms and their eggs for Mr. Davey, Commonwealth Bureau of Helminthology.
10. To measure sea-bottom and sea-surface temperatures along the gas pipeline east of the Haisborough light-vessel.

Narrative

CLIONE sailed on schedule at 1050 hours, 30 April and proceeded at once to the Cleaver Bank to begin her survey of North Sea turbot grounds. Fishing by day and steaming between trawling grounds at night, CLIONE covered the grounds at the Cleaver Bank, Tail End, Middle Rough and Inner Shoal between 1 and 4 May. At the Inner Shoal, lack of turbot and damage to the trawl by great quantities of Flustra brought an end to trawling after 2 hauls, and at 1600 hours, 4 May, CLIONE left for Cleaver Bank where the greatest quantity of turbot had been obtained. On 5 May the stocking of deck tanks with mature turbot was completed and after a short tin tow net survey of Cleaver Bank it was decided to return these fish immediately to the laboratory rather than risk possible damage. Leaving the bank at 0335 hours, 6 May, CLIONE reached Lowestoft by 1430 hours on the same day, and there the live turbot were landed, together with a number of live mature lemon sole for Dr. Purdom and a quantity of frozen cod guts and fillets for Mr. Birkett. Having already completed the major objective with regard to turbot, it was decided to extend the survey to include the brill grounds off Mablethorpe. Leaving Lowestoft at 1535 hours, 6 May CLIONE proceeded first to the area east of the Haisborough light-vessel, where she occupied three hydrographic stations along the gas pipeline, before proceeding to Mablethorpe. After fishing the latter area on 7 May the survey of likely turbot grounds was resumed. The area between Hospital Ground and the southern end of the Pits was fished on 8 and 9 May. At 2130 hours, 9 May, with the survey completed, CLIONE left for Lowestoft, docking at 0845 hours, 10 May.

## Results

1. A total of 55 turbot and 171 brill were caught. The breakdown of these figures by areas is as follows:-

Fishing area	Date	No. of hauls*	No. of Turbot	No. of Brill
Cleaver Bank	1 May	6	18	10
Tail End	2 May	6	12	0
West of Middle Rough	3 May	6	5	0
Inner Shoal	4 May	2	0	0
Cleaver Bank	5 May	6	10	19
Mablethorpe	7 May	7	0	141
Hospital Ground/N.E. Pits	8 May	6	2	1
S. Pits	9 May	6	8	0
TOTAL		46	55	171

\*All hauls were  $1\frac{1}{2}$  hours duration, bar one haul of  $1\frac{1}{4}$  hours at Cleaver Bank on 1 May and another of 2 hours at Cleaver Bank on 5 May.

2. A total of 20 mature turbot were brought back live to the laboratory.

3. Two types of artificial fertilization experiments were conducted at sea; in each experiment the eggs were kept alive in polythene bottles, whose ends had been cut away and replaced with silk gauze, and which were floated in the deck tanks by means of expanded polystyrene collars. A turbot/brill cross was first attempted and reached blastodisc stage before the bottle was lost from the deck tank in heavy weather. A later brill/brill fertilization was successful and had reached gastrulation at the time of docking. No turbot/turbot experiment was attempted since the female fish had not yet reached spawning condition.

4(a) A short tin tow net survey was carried out in and around Cleaver Bank in the area where the heaviest catches of turbot were obtained.

4(b) Two hauls were made with the 2 metre Stramin net. A half-hour tow west of the Middle Rough provided no turbot or brill eggs or larvae, but a three-quarter-hour tow at Mablethorpe provided abundant brill and sole eggs. The brill eggs were placed in gauze-covered polythene bottles in the deck-tanks, and hatched the following day.

5. On the last day of the cruise a quantity of small zooplankton was collected using the 200 m.p.i. International net. The zooplankton was placed in carboys of sea water and returned live to the laboratory, for the feeding of larvae.

6. A total of 10 spawning lemon soles and 65 spawning dover soles were brought back live to the laboratory for Dr. Purdom.

7. Hearts and muscle-blocks were taken from the following numbers of flatfish and frozen for Mr. Iles:- 12 plaice, 12 brill, 12 dover sole, 12 lemon sole, 12 dabs, 6 flounders and 9 turbot.

8. Skinless cod fillets and cod guts were frozen in bulk for Mr. Birkett.

9. Three samples of the turbot tapeworm, Bothriocephalus scorpii, were kept alive in Tyrode's solution for Mr. Davey.

10. Measurements of surface and bottom sea temperature were made at three stations along the gas pipeline east of the Haisborough light-vessel for an Ordnance Survey levelling exercise.

11. A routine sample was made of all plaice caught at trawl station 6 (Cleaver Bank) for Mr. Bannister.

R. R. Dickson

13 May 1968

Seen in draft M.R.S.

Initialed A.J.L.

Distribution

Basic list plus the following:-

R. R. Dickson  
A. Jones  
J. H. Nichols  
A. E. Howard  
T. C. Bennett  
D. Riches (Flectwood)