

This paper not to be cited without prior reference to the author

International Council for
the Exploration of the Sea

C.M.1977/H:27
Pelagic Fish Committee
/Northern/

SPATIAL DISTRIBUTION OF HERRING LARVAE /Clupea harengus L./
IN THE NORTH SEA IN 1976

by

Kazimierz Siudziński
Sea Fisheries Institute
Al. Zjednoczenia 1
81-345 G d y n i a
/Poland/

I n t r o d u c t i o n

The investigations on quantitative occurrence and distribution of herring larvae /Clupea harengus L./ in the North Sea have been conducted since 1963 / W.Kijowski - 1963, - 1965, 1966, 1967; P.Ciszewski - 1968, 1969, 1970; L.Szlachcikowska - 1971, 1972, 1973; K.Siudziński - 1974, 1975/ with the purpose of watching the changes taking place as regards the population dynamics of herring.

M a t e r i a l _ a n d _ m e t h o d

Ichthyoplankton containing the herring larvae was collected during a cruise of the research vessel of the Fisheries Institute, mt. "Birkut" from 27th September to 22nd October 1976.

During the above cruise the observations were made at 56 stations in the area embracing the regions: Aberdeen, Flamboro and Little Pitt.

Herring larvae were caught by the method established on the meeting of the Working Group ICES in Lysekill/Sweden/, held in

May 1976. The plankton sampler of the type "Gulf III" with the coniforme inlet of 20.6 cm in diameter was used. The gear was sank at a speed of 50 m/min down to the maximum depth of 100 m, and at shallower stations - to 5 m over the bottom. It was taken out at a speed of 10 m/min. The speed of trawling was 5 knots. The whole of the material was preserved in 4 % formalin, than herring larvae were separated from other plankton components. Afterwards they were measured with the accuracy of 0.5 mm and classified according to their body length and their number under 1 m² of the sea surface.

R e s u l t s o f r e s e a r c h

Herring larvae occurred in the above mentioned area of the North Sea at 17 stations only. All the larvae were from the length range of more than 15 mm /Table I/ with only one exception; one larva was 14 mm long.

When comparing the quantitative distribution of larvae with temperatures it can be noticed that larvae were most numerous in waters of temperatures about 12°C.

A similar pattern of distribution, i.e., occurrence of greater numbers of larvae in water of relatively high temperature /from 10 to 12°C/ was observed in previous years investigation, i.e., 1974 and 1975 /K. Siudziński/.

D i s c u s s i o n

Referring to the results of my research carried out in previous years /1974, 1975/, where I also had performed an analysis of Polish investigations on the occurrence of herring larvae in the North Sea, i.e., since 1963 to 1975, in 1976 a fall in the quantity of

larvae was observed once more in the area investigated. However the delayed start of research in 1976 does not allow the author to compare properly the results from 1976 with those from previous years.

It ^{was} generally stated, that in 1976 there was an exceptionally deep fall in the number of herring larvae. It was the first regression since 1971. The individuals caught were over 15 mm long /but one larva of 14 mm in length/.

R e f e r e n c e s

- Kijowski W.: Wstępna analiza ilościowego występowania larw śledzia w Morzu Północnym w latach 1963-1965
/maszynopis, Morski Instytut Rybacki - Gdynia 1966/
- Kijowski W.: Występowanie larw śledzia /Clupea harengus L./ na Morzu Północnym w roku 1966. Ibidem 1967.
- Ciszewski P.: Opracowanie w formie sprawozdawczej wyników badań nad ilością planktonu oraz występowaniem i rozmieszczeniem larw śledzia w Morzu Północnym w roku 1968.
/maszynopis, Morski Instytut Rybacki - Gdynia 1968/.
- Ciszewski P.: Produkcja zooplanktonu ze szczególnym uwzględnieniem larw ryb użytkowych Morza Północnego i Szelfu Celtyckiego. /maszynopis, Morski Instytut Rybacki - Gdynia 1969/.
- Ciszewski P.: Produkcja zooplanktonu północno-wschodniego Atlantyku /Morze Północne, Morze Norweskie/ ze szczególnym uwzględnieniem larw śledzia.
/maszynopis, Morski Instytut Rybacki - Gdynia 1970/.
- Siudziński K.: Quantitative distribution of herring larvae /Clupea harengus L./ in the North Sea in 1974.
International Council for the Exploration of the Sea,
C.M. 1975/H:32 Pelagic Fish Committee - 1975.
- Siudziński K.: Quantitative occurrence of herring larvae /Clupea harengus L./ in the North Sea in 1975.
International Council for the Exploration of the Sea.
C.M. 1976/H:23 Pelagic Fish Committee /Northern/ 1976.
- Szlachcikowska L.: Rozmieszczenie oraz stan ilościowy larw śledzia na Morzu Północnym w 1971 r.
/maszynopis, Morski Instytut Rybacki - Gdynia 1972/.

Szlachcikowska L.: Rozmieszczenie i stan ilościowy larw śledzia
w Atlantyku Północnym w 1972 r.

/maszynopis, Morski Instytut Rybacki - Gdynia 1973/.

Szlachcikowska L.: Rozmieszczenie oraz stan ilościowy larw śle-
dzia na Morzu Północnym w 1973 r.

/maszynopis, Morski Instytut Rybacki - Gdynia 1974/.

Table I

Number of larvae caught at different stations of the North Sea
27.09 - 22.10. 1976

STN No	Date	Max. tow depth /m/	Water filte- red /m ³ /	Herring larvae			
				No catch	No m ²	10-15 mm	> 15 mm
993	27.09.76	75	222	1	0,3		0,3
995	27.09.76	82	190	5	2,2	0,4	1,8
996	28.09.76	68	173	4	1,6		1,6
997	28.09.76	62	131	1	0,5		0,5
998	28.09.76	49	86	1	0,6		0,6
1002	29.09.76	59	77	1	0,8		0,8
1012	08.10.76	60	69	1	0,9		0,9
1015	09.10.76	99	98	1	1,0		1,0
1024	10.10.76	82	79	1	1,0		1,0
1025	13.10.76	68	88	1	0,8		0,8
1028	13.10.76	60	62	1	1,0		1,0
1033	21.10.76	21	18	1	1,2		1,2
1034	21.10.76	24	25	1	1,0		1,0
1035	21.10.76	60	67	1	0,9		0,9
1038	21.10.76	50	69	1	0,7		0,7
1039	21.10.76	47	64	1	0,7		0,7
1041	22.10.76	39	27	2	2,9		2,9