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Ödemål, Kville sn, Bohuslän

Hällristning
Fiskare från
bronsåldern

Rock carving
Bronze age
fishermen



MEDDELANDE från
HAVSFISKELABORATORIET • LYSEKIL

nr

72

Data about the Herring Analyses Prepared for the
Meeting of the North Sea Herring Assessment Group
in Copenhagen, 4-12 December 1969

by

Hans Ackefors

December, 1969

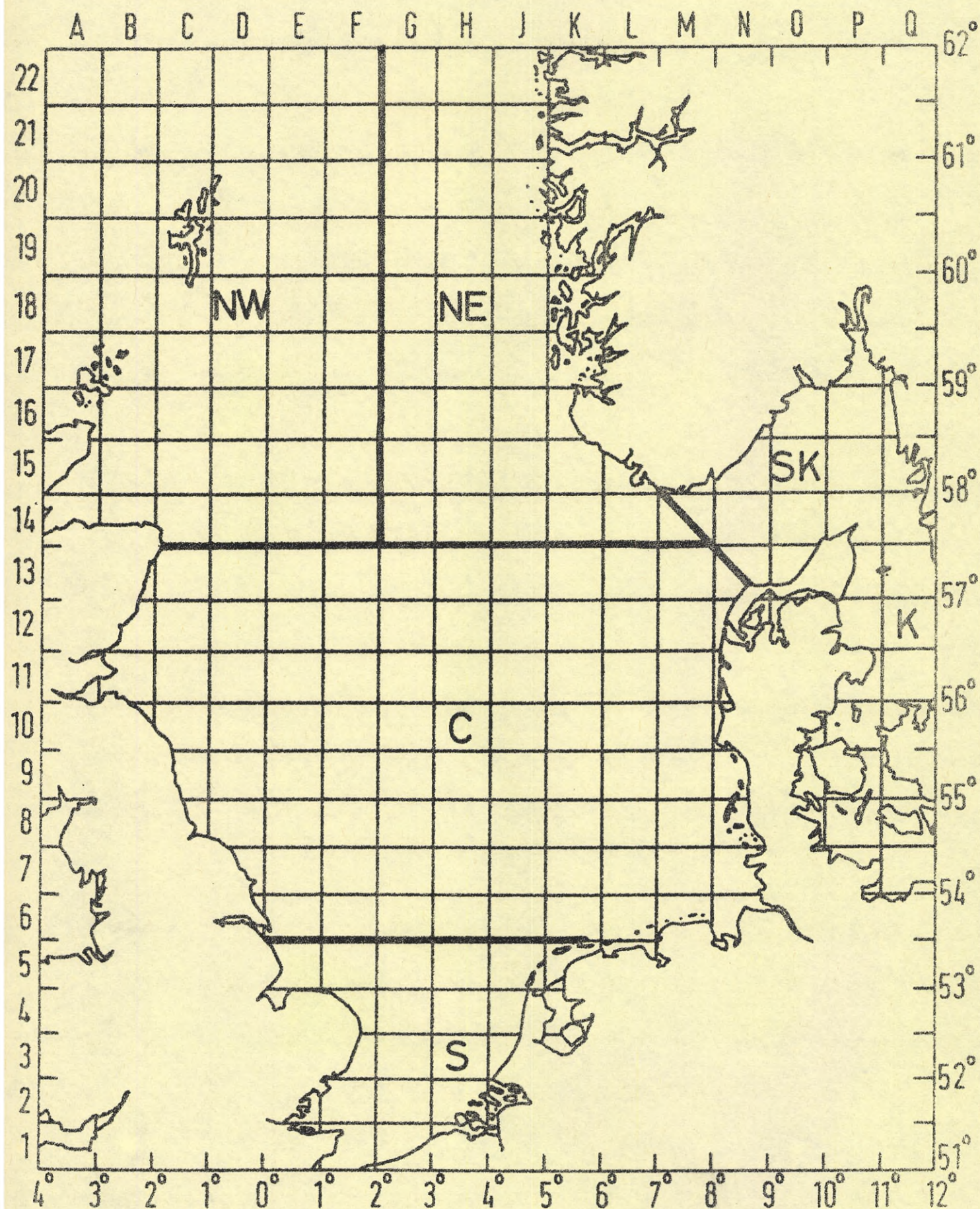
INTRODUCTION

According to the chairman of the North Sea Herring Assessment Group more detailed information of the autumn spawning herring is wanted. The data presented at the meeting of the Assessment Group in Copenhagen (January, 1969) should be completed.

Sweden has therefore asked fishermen to give all available data about catches 1960-1968 from the North Sea, Skagerak and Kattegat. Unfortunately we have not yet got the information.

In this paper, however, we have given all our data about mean weight of herring and age composition with reference to each sub-area, NW-, NE- and C North Sea, Skagerak and Kattegat in order to give the Assessment Group supplementary information for its conversion of the total catches in numbers by age-groups. Each sample consists of at least 100 herrings and most of the samples of 150-200 herrings. Information about VS, l_1 , etc. is not included because the data have been published in Statistical News Letters.

The samples have been analysed at the Institute of Marine Research during 1960-1969. Dr Hans Höglund has been responsible for the investigations 1960-1966 and the author 1967-1969. The chief assistant for the whole period has been Mrs Britt-Maj Karlsson.



The division of the North Sea into sub-areas (NW-, NE-, C- and S) and the distribution of these areas, the Skagerak and the Kattegat with regard to fishery investigations.

CONTENTS

Analyses of commercial herring samples (only autumn spawners) of NW-, NE- and C North Sea, Skagerak and Kattegat with regard to age groups and weight. The figures indicate page. Number of samples in brackets.

	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
<u>1960</u>												
NW							6(2)	6(3)	6(1)			
NE	7(1)		7(1)				7(1)				7(1)	
C												
SK												
K									8(1)	8(1)		
<u>1961</u>												
NW												
NE	10(1)	10(2)					9(3)		9(2)		9(1)	10(1)
C												
SK												
K												
<u>1962</u>												
NW												
NE	12(1)	12(1)	12(1)				11(1)		11(1)			12(1)
C												
SK												
K												

<u>1963</u>	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
NW						14(2)						
NE	15(1)						15(1)			15(1)		
C												16(1)
SK												17(1)
K									18(1)			

1964

NW						19(1)	19(2)	19(1)				
NE	20(1)		20(1)									
C										21(2)		

1965

NW							22(2)	22(2)	22(2)			
NE	23(2)	23(1)	23(1)	23(1)		23(1)				23(1)		
C											24(1)	
SK											25(2)	25(3)
K												26(3)

<u>1966</u>	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
NW						27(1)	27(1)	27(1)				
NE	28(1)			28(1)					28(1)			
C						29(1)						
SK										30(1)		
K									31(1)			
<u>1967</u>												
NW								32(1)		32(1)		
NE				33(1)						33(1)	33(1)	
C												
SK		34(1)										
K	35(4)								35(1)	35(1)		

<u>1968</u>	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
NW												
NE												
C												
SK												
K												
<u>1969</u>												
NW												
NE	37(1)	37(1)	37(2)									
C												
SK	38(1)	38(3)										
K		39(2)										

Area: NW North Sea

Year: 1960

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
21.7 E 17		120.0	0.5	152.9	10.5	175.5	66.0	183.8	13.0	192.2	9.0	265.0	1.0	215.0	5.3	240.0	5.8	273.3	1.6	253.3	3.2	243.3	1.6	276.7	1.6		
29.7 F 17				160.7	14.8	188.4	42.8	205.5	14.3	216.5	9.0	224.8	13.7	237.5	7.1	243.7	4.8	245.0	2.4	270.0	2.4	270.0	0.6	250.0	0.6		
5.8 E 19				150.0	0.6	197.6	34.5	207.5	7.1	219.6	24.4	175.0	3.0	197.5	4.0	180.0	0.5	240.0	0.5	235.0	2.0	235.0	0.5	230.0	0.5		
25.8 E 14				138.1	8.0	153.0	69.0	163.1	8.0	176.7	4.5	223.3	3.0	236.0	5.0	203.3	3.0	270.0	1.0	270.0	1.0	270.0	0.5	250.0	0.5		
27.6 E 17				130.0	7.0	145.0	70.0	158.9	9.0	190.0	2.0	210.0	3.3	205.0	3.3	195.7	2.9	250.0	0.4	250.0	0.4	250.0	0.4	250.0	0.4		
9.9 E 20		60.0	0.4	147.3	4.5	161.9	68.0	164.4	10.2	184.1	7.0	210.0	3.3	205.0	3.3	195.7	2.9	250.0	0.4	250.0	0.4	250.0	0.4	250.0	0.4		

Area: NE North Sea

Year: 1960

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
15.1 J 15			6.0	79.2	76.5	112.4	6.0	114.2	5.0	144.0	1.5	156.7	0.5	160.0	0.5	170.0	0.5	180.0	0.5	160.0	0.5	190.0	0.5	180.0	0.5	190.0	0.5	180.0
18.3 H 16			36.2	78.3	44.8	100.7	4.8	121.0	4.3	135.5	3.3	151.4	3.3	142.9	0.9	140.0	0.5	170.0	0.5	170.0	0.5	175.0	0.5	190.0	0.5	175.0	0.5	190.0
16.8 G 17					5.1	170.0	65.1	185.4	5.7	167.0	6.9	215.8	4.6	216.2	7.4	238.5	1.7	216.7	1.7	263.3	1.7	240.0	0.6	235.0	1.2	240.0	0.6	235.0
18.11 H 16			1.3	100.0	8.4	153.0	61.3	157.7	8.4	184.6	8.4	192.3	5.8	233.3	3.9	220.0	0.6	180.0	0.6	216.7	1.9	216.7	1.9	216.7	1.9	216.7	1.9	216.7

Area: Kattogat

Year: 1960

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
28.9 Q 13			105.9	132.5	192.0	220.0	244.3	254.0	285.5	290.0	310.0																	
			13.7	12.4	47.2	2.5	14.3	3.1	5.6	0.6	0.6																	
12.10 Q 13			115.7	145.0	196.5	230.0	240.7	264.3																				
			9.6	4.1	69.2	2.7	8.9	4.8	0.7																			

Area: NW North Sea

Year: 1961

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?	
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
2.8 E 18					180.0	207.7	219.3	234.4	230.5	257.9	263.9	264.0	270.0	283.3												
					5.8	12.3	33.3	6.5	13.0	10.1	10.1	3.6	2.9	2.2												
12.8 E 18			60.0		165.0	207.3	258.4	230.0	239.4	243.0	250.0	240.0	275.0													
			0.7		5.5	15.2	46.2	6.9	11.7	9.0	2.8	0.7	1.4													
18.8 E 18						172.0	173.3	193.6	210.0	234.4	206.0	266.0														
						28.9	42.1	9.2	7.2	5.9	3.3	3.3														
1.9 F 16			80.0		160.3	167.0	172.8	205.0	201.0	205.0	223.3	263.3	270.0													
			0.5		4.7	8.8	65.8	8.3	5.2	3.1	1.5	1.5	0.5													
9.9 E 17					143.3	157.2	162.6	174.4	180.0	204.0	180.0	190.0	240.0													
					1.6	24.7	61.6	4.7	2.1	2.6	1.6	0.5	0.5													

Area: NE North Sea

Year: 1961

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
14.1 H 17			88.3	136.2	143.6	150.8	165.0	188.0	168.8	186.0	195.0	200.0	190.0	190.0	200.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0	190.0
			2.7	9.5	58.6	5.5	12.7	2.3	3.6	2.3	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
2.2 H 17			86.7	124.7	142.6	152.7	170.0	180.0	190.0	190.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
			1.5	15.2	62.1	7.6	5.5	3.0	3.0	0.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
18.2 H 17			115.0	121.7	132.3	148.0	156.7	164.0	170.0	178.3	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
			1.9	11.0	47.4	7.2	10.5	9.5	5.3	2.9	1.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
19.11 J 15			81.8	138.1	144.2	138.3	166.7	176.7	183.3	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0	180.0
			21.7	11.2	17.1	42.5	3.7	1.2	1.2	0.4	3.7	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2

Area: NW North Sea

Year: 1962

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
9.8							16.1	205.9	7.2	202.3	53.9	203.0	5.0	225.5	6.1	242.7	3.9	238.6	5.0	247.8	2.2	237.5	0.5	250.0				
E 17																												
1.9			3.1	224.0	14.4	210.8	55.6	191.5	6.9	191.8					11.2	204.4	4.4	224.3	1.2	215.0	1.9	213.3	1.2	300.0				
E 18																												

Area: NE North Sea

Year: 1962

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
19.1 J 15		86.0	4.9	179.7	15.1	160.6	48.8	159.4	10.2	167.6	3.9	165.0	1.5	186.7	1.9	205.0	0.5	190.0	1.5	196.7					
26.2 H 19		76.7	1.4	160.8	8.6	151.7	58.1	152.5	5.7	165.0	9.0	163.2	7.6	176.3	1.4	190.0	1.4	180.0	0.5	180.0					
23.3 H 18		76.7	1.5	139.3	11.6	152.5	48.0	158.0	5.4	161.6	11.3	173.0	7.6	179.4	4.4	182.2		193.3	1.5	185.0	1.0	185.0			
23.11 J 15		120.0	5.1	165.5	6.2	219.1	10.2	175.5	54.2	181.8	6.2	201.8	7.9	186.4	3.4	201.7	0.6	230.0	0.6	220.0	0.6	200.0			

Area: C North Sea

Year: 1962

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
4.9 G 13			117.6	171.4	214.1	198.3	199.4	227.3	226.4	210.0	246.0	310.0	265.0															
			9.3	18.1	19.9	10.6	22.6	9.7	4.9	1.3	1.8	0.9	0.8															
21.9 G 13		120.0	102.6	137.0	180.0	173.3	193.3	180.0	270.0																			
		0.5	85.5	5.0	1.5	1.0	4.5	1.0	0.5																			

Area: NW North Sea

Year: 1963

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
6.6 E 18					129.9	175.0	185.0	213.3	218.3																		
			90.9	2.0	3.0	3.0	1.0	3.0	3.0																		
28.6 F 17					155.7	190.0	238.0	230.0	261.9	286.7	295.0																
			71.3	2.6	2.6	2.6	2.6	18.5	1.5	1.0																	

Area: NE North Sea

Year: 1963

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
22.1 H 16		97.1	58.8	97.5	160.0	164.4	163.7	185.0	170.0	180.0																	
30.7 G 17				180.3	213.3	241.4	280.0	265.7										250.0	295.0								
11.10 K 14		114.4	14.4	156.7	191.4	205.0	195.0	208.0	220.0																		
				75.9	4.0	1.1	1.1	2.9	0.6																		

Area: C North Sea

Year: 1963

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
6.12			1.5	96.7	77.7	152.6	2.5	182.0	2.5	204.0	2.5	192.0	12.9	191.9			0.5	220.0									
M 13																											

Area: Kattogat

Year: 1963

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
24.9		80.0		161.3		206.0		256.0		305.0		283.3		340.0		320.0											
Q 14		2.0		88.0		2.5		2.5		1.0		3.0		0.5		0.5											

Area: NW North Sea

Year: 1964

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0	1	2	3	4	5	6	7	8	9	10	> 10	?
	% gr	% gr	% gr	% gr	% gr	% gr	% gr	% gr	% gr	% gr	% gr	% gr	% gr
4.6 E 17			135.9 12.8	170.7 73.4	172.9 3.4	202.2 4.4	228.0 2.5	234.3 3.4					
4.7 E 17			153.4 26.4	196.9 64.2	203.3 3.0	258.3 1.5		243.3 3.0	270.0 1.5	250.0 0.5			
16.7 F 17			166.7 7.4	205.0 79.1	248.0 3.1	245.0 3.7	265.0 1.2	200.0 1.8	270.0 1.2	273.8 1.8		260.0 0.6	
14.8 E 14		90.0 1.6	166.6 20.8	200.6 57.4	180.0 1.6	258.0 2.7	230.0 4.9	235.9 9.3	285.0 1.1		310.0 0.5		

Area: NE North Sea

Year: 1964

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
29.2			83.1	135.0	153.3	185.7	170.0	185.0	207.5	195.0	180.0	220.0															
J 15			8.0	64.2	4.5	3.5	3.0	12.9	2.0	1.0	0.5																
2.3			69.0	117.2	120.0																						
J 15			90.8	8.7	0.5																						

Area: C North Sea

Year: 1964

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
7.9																												
F 13			38.6	162.6			49.3	195.0	2.4	240.0	1.0	245.0	1.0	205.0	6.3	235.4	1.0	325.0										
10.9			47.3	166.8			46.0	197.6	1.3	216.7	0.4	220.0	0.4	260.0	3.1	221.4	0.4	230.0	0.4	230.0								
F 12																												

Area: NW North Sea

Year: 1965

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
14.7 E 16				195.0	235.2	264.7	285.0	300.0	278.0	290.0												400.0			
				22.4	33.5	37.3	1.2	1.2	3.1	0.6												0.6			
19.7 E 15				70.0	229.1	261.1	307.5	297.5	303.3	300.0												300.0			
				0.6	35.1	33.3	2.4	2.4	1.8	1.2												0.6			
1.9 F 16				99.3	198.9	227.9	258.3	230.0	246.2	235.0															
				34.6	17.6	20.5	2.9	2.4	3.9	2.4															
8.9 F 16				98.9	185.9	225.9	246.7	235.0	230.0	235.0															
				49.8	14.1	10.7	1.5	1.0	2.4	1.0															

Area: NE North Sea

Year: 1965

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0	1	2	3	4	5	6	7	8	9	10	> 10	?
	%	%	%	%	%	%	%	%	%	%	%	%	%
	gr	gr	gr	gr	gr	gr	gr	gr	gr	gr	gr	gr	gr
4.2 K 15		88.2 18.6	140.2 28.9	176.6 36.3	190.0 1.5	217.5 2.0	205.0 2.9	199.4 8.3	210.0 0.5	195.0 1.0			
16.2 L 14		87.8 17.6	139.8 25.4	162.0 35.6	185.0 5.8	202.0 2.4	225.0 1.0	196.8 10.7		225.0 1.0	210.0 0.5		
11.3 J 15		100.6 8.0	141.5 19.4	170.3 52.7	175.7 3.5	186.7 1.5	202.0 2.5	205.2 10.4	210.0 1.0	200.0 1.0	180.0 0.5	210.0 0.5	
12.4 J 15		94.0 9.9	127.6 20.2	164.1 45.8	178.5 6.4	193.7 1.5	195.0 3.9	198.6 10.3	210.0 1.0	210.0 1.0			
14.6 H 14			140.5 29.8	173.1 29.8	220.5 27.5	214.0 3.8	237.5 3.0	230.0 1.5	285.0 3.0	270.0 0.8		280.0 0.8	
7.10 L 14		108.0 3.0	166.7 7.3	200.8 30.3	242.9 24.9	244.3 4.2	277.1 4.2	233.3 1.8	258.6 21.9	263.3 1.8	240.0 0.6		

Area: C North Sea

Year: 1965

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
23.9		91.3	48.8	145.2	188.2	191.8		200.0	215.0	190.0																	
F 11			21.7	10.8	16.2		1.0	1.0																			

Area: Skagerak

Year: 1965

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
16.11 M 14			37.8	100.2	22.3	140.0	15.5	177.7	19.4	198.4	1.1	233.3	1.1	246.7	1.4	265.0	1.4	222.5							
17.11 M 14			46.4	95.6	17.2	137.2	12.0	171.5	15.7	203.0	1.1	246.7	0.4	310.0	3.6	214.0	3.6	210.0							
14.12 P 14	35.9	29.1	50.6	79.1	4.7	130.0	3.4	166.2	3.4	175.2	0.3	205.0	0.3	220.0			1.0	215.0	0.2	210.0					
15.12 P 15	32.3	31.0	59.9	72.5	5.6	108.3	0.8	156.7	0.5	160.0	0.2	230.0	0.2	330.0	0.2	190.0	0.2	190.0					0.2	250.0	
16.12 P 14	46.2	28.0	51.6	65.6	1.8	102.0	0.4	170.0																	

Area: Kattogat

Year: 1965

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?				
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr			
6.10 Q 13				183.3		219.0		239.9		272.5		288.7		310.0		314.7		300.0		360.0		310.0		310.0					
				3.0		10.5		64.0		2.0		8.0		1.5		8.5		0.5		0.5		1.5		1.5					
6.10 Q 13		25.7		132.5				213.3				280.0		240.0															
		6.3		3.6				2.7				0.9		0.9															
7.10 Q 13				90.0		208.7		220.0		256.7		313.3		276.7		295.7		250.0		270.0									
				0.9		13.2		59.7		2.6		2.6		5.3		6.1		0.9		1.7									

Area: NW North Sea

Year: 1966

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
10.6 D 16					81.7	117.0	17.4	123.0	0.4	160.0					0.4	160.0												
9.7 D 19			1.6	150.0	6.4	223.7	15.3	266.3	36.3	274.9	8.1	268.0	4.8	291.7	3.2	270.0	21.8	303.3	1.6	330.0	0.8	290.0						
17.8 E 18			38.6	154.3	11.2	180.8	18.1	213.1	15.8	225.3	5.1	248.2	3.3	238.9	4.6	246.0	3.3	241.4										

Area: NE North Sea

Year: 1966

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
7.2 J 16			88.4	141.4	179.6	200.8	208.0	214.0	213.3	208.6	210.0	223.3															
			33.1	14.4	11.4	24.9	2.5	3.0	1.5	7.0	0.5	1.5															
28.4 X 15		30.0	82.5	118.2	164.1	182.8	190.0	200.0	193.3	200.0																	
		0.3	71.7	7.3	9.0	8.3	0.7	1.0	1.0	0.7																	
8.9 H 16			80.0	163.8	183.5	211.9	241.1	257.5	250.0	270.0	251.8	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0	210.0
			0.5	58.8	14.8	7.6	8.6	2.0	1.4	0.5	5.3	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Area: C North Sea

Year: 1966

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
7.6 K.13			5.1	140.0	20.5	187.2	29.2	227.4	34.9	247.1	1.5	240.0					4.1	253.7	4.1	268.7			0.5	260.0				

Year: 1966

Area: Kattogat

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
19.9		150.0		201.5		253.3		285.5		320.4		305.0		356.7		362.0							317.5		
Q 13		0.5		16.0		5.6		13.1		55.8		2.9		1.5		2.4							1.9		

Area: NW North Sea

Year: 1967

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?				
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr			
29.8 E 18			27.7	106.4	11.9	176.7	35.6	196.7	5.4	226.4	4.0	245.0	4.9	273.0	4.5	257.8	2.5	248.0	2.0	265.0	0.5	270.0					1.0	260.0	
13.10 E 17			18.3	170.0	18.3	170.0	58.3	201.9	10.3	210.5	6.3	223.6	4.6	247.5	1.1	245.0			1.1	245.0									

Area: NE North Sea

Year: 1967

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0	1		2		3		4		5		6		7		8		9		10		10		?			
		%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr
28.4 G 20				139.4 10.7		170.0 6.0		202.7 17.3		202.9 22.7		216.9 6.7		212.0 6.7		229.5 13.3		233.3 10.0		210.0 0.7		210.0 0.7		223.3 4.0			
12.10 J 15				179.4 9.8		207.6 41.5		226.5 12.6		245.4 13.1		261.1 9.8		258.9 4.9		257.5 2.2		248.3 3.3		252.0 2.7							
17.11 L 14			110.2 68.3	160.4 11.7		187.8 13.2		186.7 4.4				246.7 1.5						280.0 1.0									

Area: Skagerak

Year: 1967

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
2.2 P 15	98.0	26.1		77.5																							

Area: Kattogat

Year: 1967

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
16.1 Q 14	83.9	21.3	11.2	65.6	1.9	117.5	1.9	210.0			0.5	250.0					0.5	370.0							
18.1 Q 13	18.8	26.0	73.8	76.2	5.4	102.7	0.5	80.0	1.0	230.0	0.5	200.0													
18.1 Q 13	30.8	24.2	5.8	50.8	1.0	80.0	1.0	215.0	0.5	100.0	0.5	330.0	0.5	250.0											
19.1 R 12	63.6	20.5	35.4	30.8	1.0	70.0																			
19.9 Q 12	0.5	40.0	55.2	64.6	32.9	128.3	1.4	160.0	1.9	252.5	2.9	310.0	3.8	315.0					0.5	360.0			1.0	330.0	
17.10 Q 14	3.9	33.7	44.9	74.2	36.1	145.5	3.4	191.4	1.5	246.7	3.9	296.2	1.5	330.0	1.9	282.5	0.5	270.0	0.5	390.0	0.5	350.0	1.5	353.3	

Area: Kattegat

Year: 1968

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?		
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
19.9 Q 13			90.0	166.4	227.3	280.0	316.7	295.0	352.9	300.0	376.7																
			0.7	42.7	36.0	1.5	2.2	1.5	12.5	0.7	2.2																
23.9 Q 13				185.9	257.2	278.0	272.2	327.0	318.8	310.0	430.0																
				20.3	18.8	7.5	6.8	7.5	30.8	0.7	0.7																
15.10 Q 12			32.1	75.3																							
			16.0	8.3																							
22.10 Q 12			20.0	87.7	150.0																						
			1.9	34.0	1.9																						

Area: NE North Sea

Year: 1969

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	
16.1 J 15			40.0	96.2	21.0	142.4	7.0	161.4	13.0	180.0	4.0	205.0	8.0	227.5	2.0	230.0	4.0	202.5							
11.2 J 15			74.0	96.6	15.0	149.3	4.0	167.5	3.0	186.7	1.0	140.0	2.0	205.0	1.0	210.0			1.0						
24.3 H 18			67.3	99.1	14.0	127.1	4.0	166.7	11.3	176.5	2.7	195.0			0.7	210.0									
29.3 H 17			2.7	110.0	10.7	159.4	14.0	183.3	28.7	185.8	17.3	202.7	11.3	212.9	6.0	213.3	4.7	228.6	3.3	216.0	0.7	200.0	0.7	210.0	
4.8 J 15					51.3	205.2	26.2	239.8	10.6	287.6	0.6	330.0	3.1	290.0	3.1	364.0	3.8	408.3						1.3	395.0

Area: Skagerak

Year: 1969

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		> 10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
17.1 Q 15	54.0	11.7	35.0	46.6	10.0	104.0	1.0	230.0																				
18.2 P 14	58.7	31.1	30.6	68.4	10.6	111.8																						
19.2 P 14	87.0	30.8	12.0	53.3	1.0	70.0																						
20.2 O 14	86.7	34.5	13.3	48.2																								
28.8 P 15			52.7	120.3	30.0	151.3	6.0	177.8	1.3	185.0																		
6.10 Q 16			48.0	81.9	38.7	165.5	8.0	200.0	3.3	274.0	0.7	310.0		290.0														

Area: Kattegat

Year: 1969

% of age groups (no. of rings) and mean weight (gr); autumn spawners

Date statistical square	0		1		2		3		4		5		6		7		8		9		10		10		?			
	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr	%	gr		
28.2	27.6	54.0	100.0																									
Q 14	82.0	15.3	2.7																									
28.2	22.8	29.3	40.0																									
Q 14	90.8	8.6	0.6																									

