

International Council for the
Exploration of the Sea



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Gear and Behaviour Committee

The size and position of the salmon
caught in drift nets in the Baltic

by

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The drift nets for salmon fishing were up to a few years ago usually hung up in a distance of about 60 cm from the water surface. In recent years this has been changed so that the straps (Swedish: "stintor") between the lines floating on the surface and the nets were reduced to 10-15 cm or even less. This has led to an increase in the number of salmon caught, and is considered to be one of the causes for the present unfortunate dominance of very young salmon in the catches.

A record of the size-distribution of the fish in the catches in relation to the position in the net was made during a fishing trip in the middle Baltic in the end of August, 1967. A total of 430 nets were used each of five consecutive nights. The nets were put out in groups of 30. Each net was 30 meters long; the total length was accordingly 12 km. The nets were 43 meshes deep (except group nr 14, which consisted of 40 nets 25 meshes deep). The distance between the nets and the surface was about 15 cm (except in group nr 4, where it was 30 cm). The mesh size was 160 mm and the material was spun synthetic fibers. The nets were set out roughly between 17.00 and 21.00 hours and taken up between 01.00 and 08.00 hours, so that group 1 was in the water for 15 hours and group 14 only 4 hours.

For each salmon the fork length was recorded (which for smaller salmon is roughly 3 cm less than the total length) and also the position in the net. For the upper ten meshes (the triangular mesh counted as nr 1) the position was noted exactly, whereas for the others the time did only allow for an estimate. There was no time for recording the sex, but the dominance of females was very considerable. The result is presented in Table 1.

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The total number of salmon caught was 553; only 79 of these, or 14 %, where 72 cm in length or more. That means that approximately 86 % was taken during the second winter of the sea-life. According to information obtained in the communication radio between the fishermen, the proportion of small salmon in the catch of this vessel was somewhat below the average of the whole fishing fleet at this time. Also, the proportion of undersized salmon (below 60 cm total length) was stated by the fishermen to be smaller than at the same time in 1966.

The distribution of the catches in the nets is diagrammatically shown in figs. 1-5. The first night (Aug. 26/27) the nets were set 20 nautical miles E Fårö. Only a small number of salmon was caught, all in the upper half of the nets, but not particularly concentrated in the uppermost meshes.

The following four nights the fishing took place 60 NM east Fårö. The second and third night the wind velocity was about 5 m/s. The catch was good and the majority of the fish was concentrated in the uppermost five meshes.

The fourth night was calm. The catch was very evenly distributed in the nets, with no preference for the area near the surface.

On the fifth night, the wind was ca 5 m/s and the catches were again concentrated near the surface, although not quite as pronouncedly as in the second and third nights.

The length distribution of the salmon is shown in fig. 6. Undersized salmon occurs mainly in the two upper meshes, most of the salmon over 75 cm in the meshes 6-43. The same material is also presented in the figs. 7 and 8 showing the relation between size groups and position in the nets.

It should be remarked that the observations were made in the beginning of the fishing season, and that the situation may be different later on.

Table 1. Length distribution and position in the nets.

Date	mesh number	Number of salmon				Percentage of the catch in each mesh group				Percentage of the catch in each length group					
		<57 cm	57-66	67-76	> 76	total	< 57	57-66	67-76	> 76	< 57	57-66	67-76	> 76	total
Aug 26/27	1- 2	-	5	-	-	5									21
	3- 5	-	10	-	2	12									50
	6-10	-	2	1	1	4									17
	11-43	-	1	1	1	3									12
	total	-	18	2	4	24	-	75	8	17					
Aug 27/28	1- 2	11	48	8	3	70	16	69	11	4	92	46	38	21	46
	3- 5	-	35	8	3	46	-	76	17	7	-	33	38	21	30
	6-10	1	18	1	4	24	4	75	4	17	8	17	5	29	16
	11-43	-	4	4	4	12	-	33	33	33	0	4	19	29	8
	total	12	105	21	14	152	8	69	14	9					
Aug 28/29	1- 2	9	55	7	-	71	13	77	10	-	82	37	28	-	35
	3- 5	2	63	8	5	78	3	81	10	6	18	42	32	25	38
	6-10	-	17	5	3	25	-	68	20	12	-	11	20	15	12
	11-43	-	14	5	12	31	-	45	16	39	-	9	20	60	15
	total	11	149	25	20	205	5	73	12	10					
Aug 29/30	1- 2	-	2	-	-	2	-	100	-	-	-	5	-	-	4
	3- 5	-	7	1	-	8	-	88	12	-	-	16	25	-	14
	6-10	-	9	1	1	11	-	82	9	9	-	21	25	11	20
	11-43	-	25	2	8	35	-	71	6	23	-	58	50	89	62
	total	-	43	4	9	56	-	77	7	16					
Aug 30/31	1- 2	2	16	-	2	20	10	80	-	10	40	17	-	18	17
	3- 5	1	30	3	1	35	3	85	9	3	20	32	50	9	30
	6-10	1	36	2	1	40	3	90	5	3	20	38	33	9	35
	11-43	1	12	1	7	21	5	57	5	33	20	13	17	64	18
	total	5	94	6	11	116	4	81	5	10					
Total	1- 2	22	126	15	5	168	13	75	9	3	79	31	26	9	30
	3- 5	3	145	20	11	179	2	81	11	6	11	35	34	19	32
	6-10	2	82	10	10	104	2	79	10	10	7	20	17	17	19
	11-43	1	56	13	32	102	1	55	13	31	3	14	23	55	18
	total	28	409	58	58	553	5	74	10	10					

Fig. 1-5 Distribution of the salmon in the nets

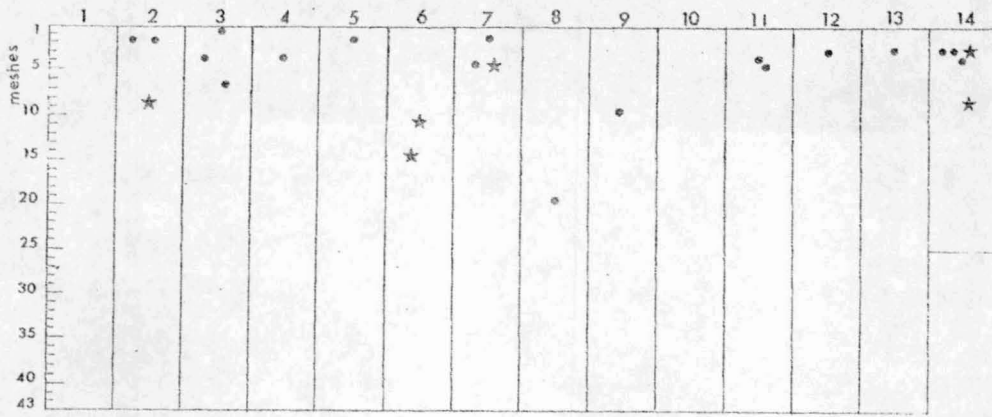


Fig. 1.
26-27 Aug.

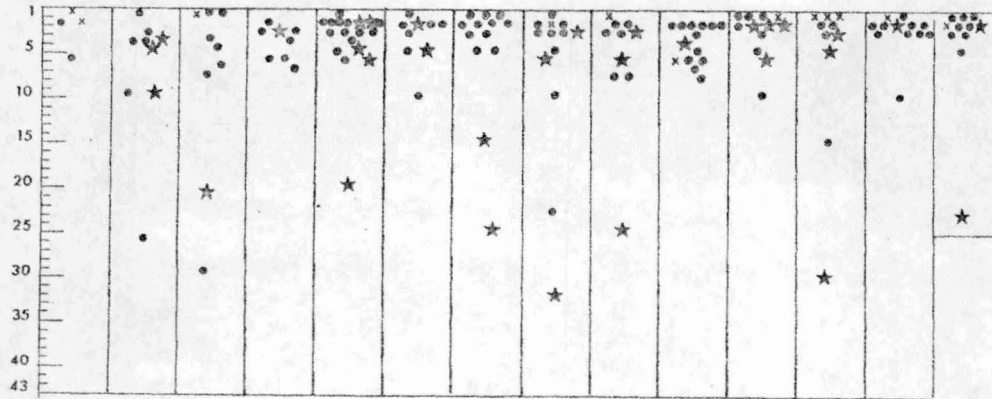


Fig. 2.
27-28 Aug.

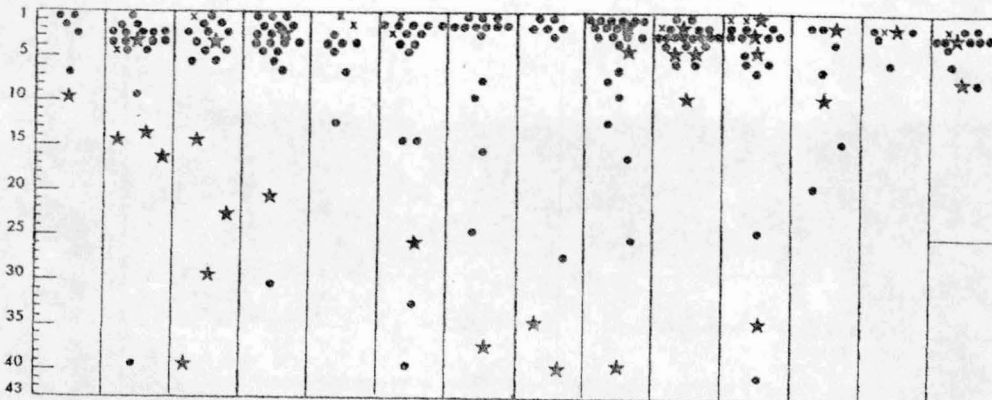


Fig. 3.
28-29 Aug.

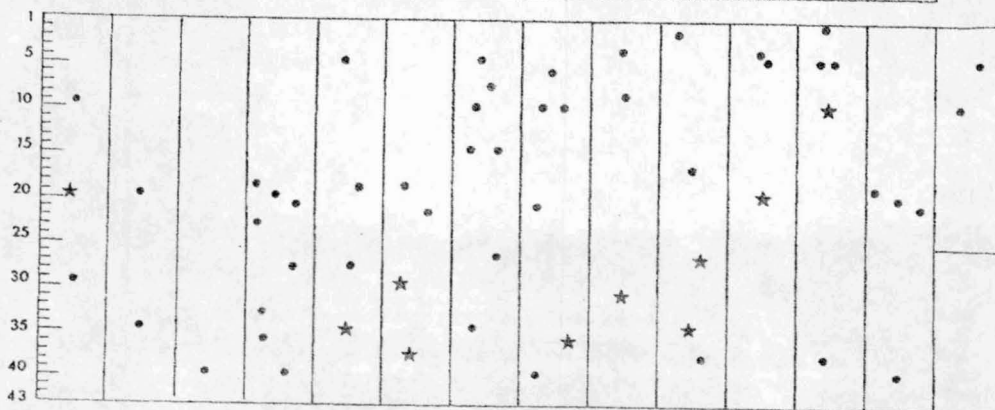


Fig. 4.
29-30 Aug.

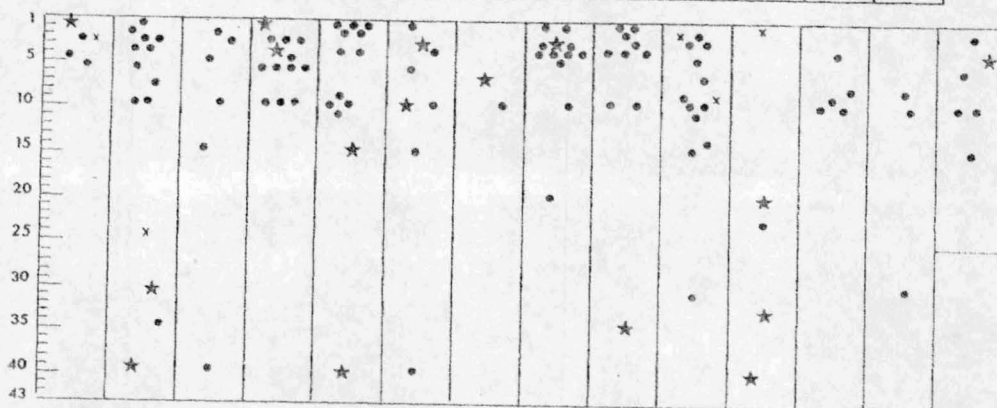


Fig. 5.
30-31 Aug.

x < 57 cm fork length
 • 57-76 " " "
 ★ > 77 " " "

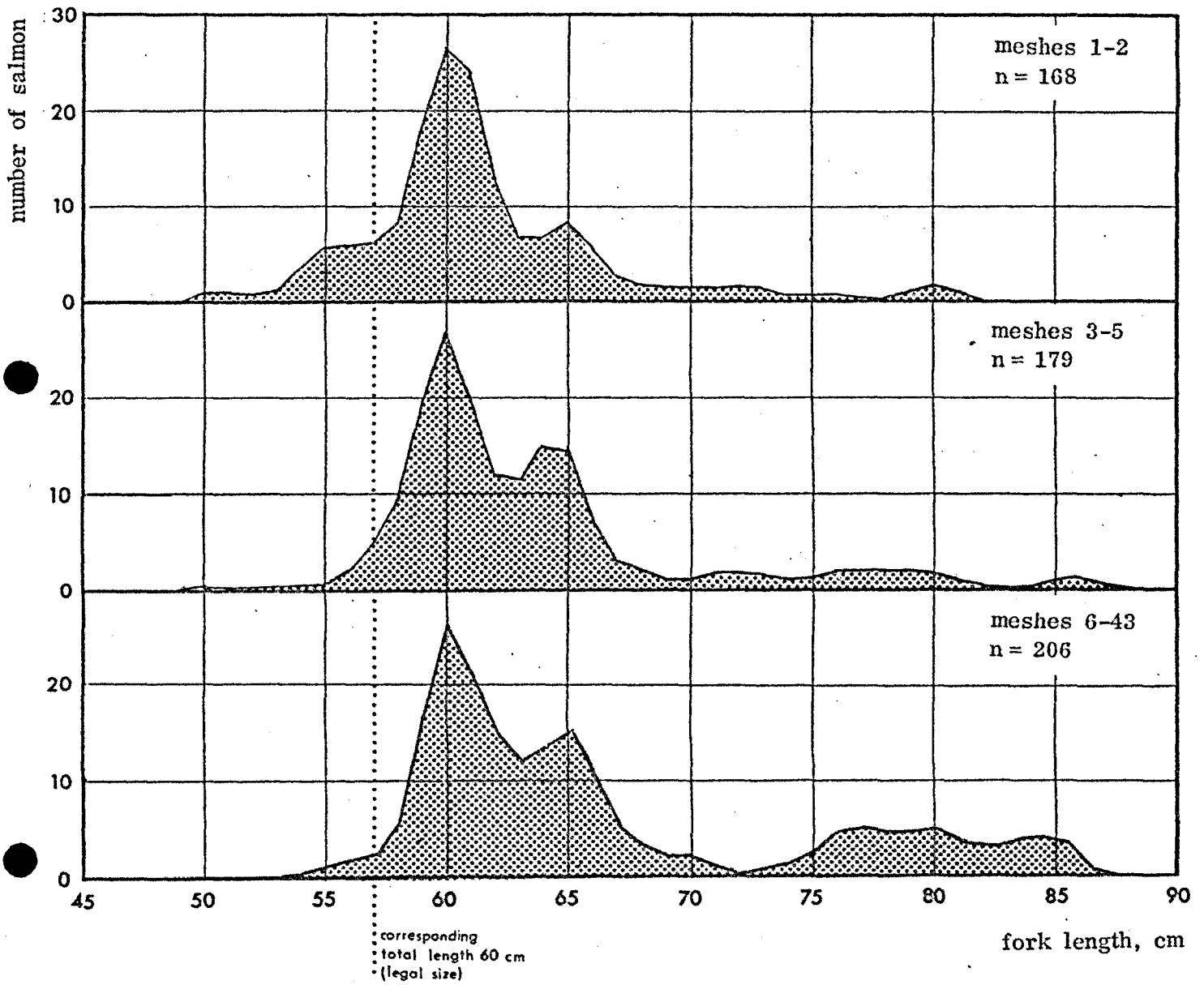


Fig. 6

Length distribution of salmon caught in various distance from the water surface.

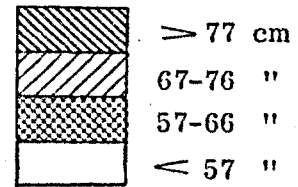
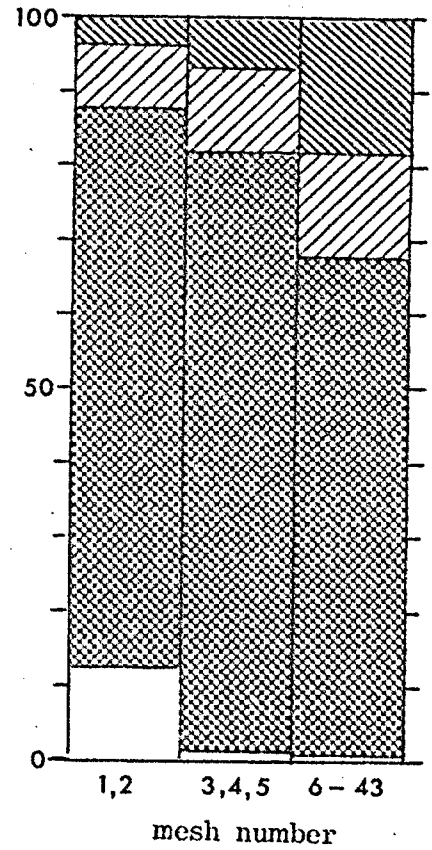
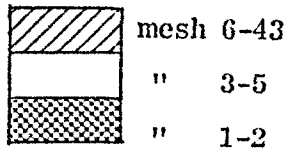
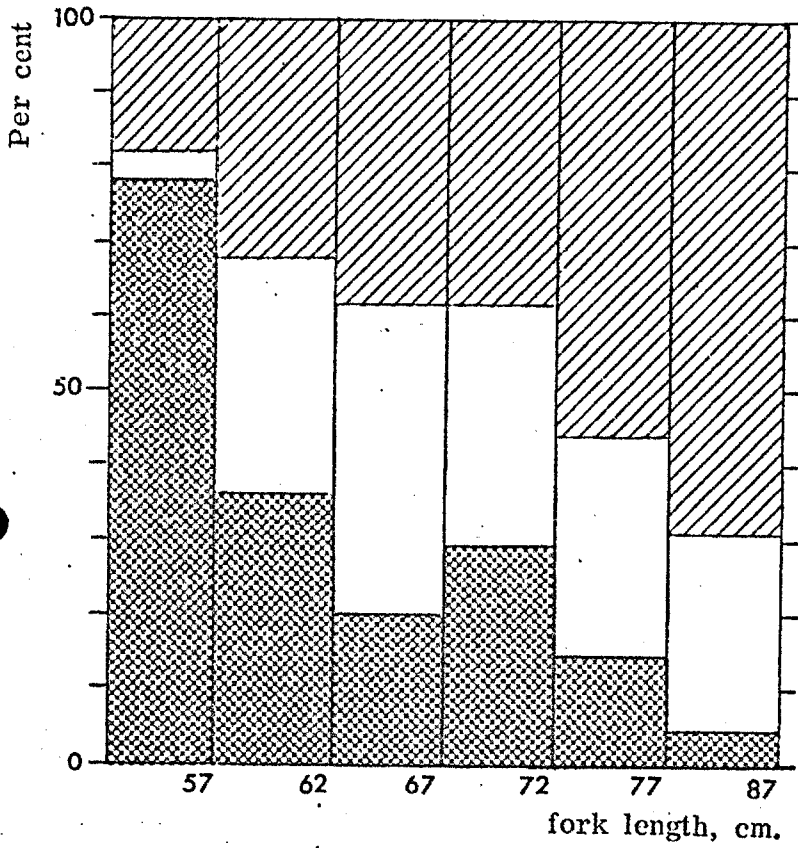


Fig. 7.
Catch in different positions of the net
in relation to length of the fish

Fig. 8.
Catch of fish of different length
in relation to position in the net