

The Norwegian Small and Fat Herring Fishery; Changes in  
 Size and Composition.

by

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The total catch of immature herring ( small and fat herring ) landed in Norway in the period 1900-1960 has varied considerable from year to year (Fig. 1). Nevertheless the amount of small herring has increased in this period, especially from 1910 and onwards. In the period 1900-1910 the average catch per year was 0.218 mill. hl, whereas the average catches per year in the following two decades were 0.637 and 0.769 mill.hl., respectively (Table 1.). The main reason for this increase in the landing figures was the development of the oil and fish meal industry, which took place during and after the first World War. In the next three decades ( 1930 - 1939, 1940 - 1949 and 1950 -1959) the average figures landed per year amounted to 1.379, 1.334 and 1.705 mill. hl., respectively.

The yield of the fat herring fishery, however, has not shown the same increase as the small herring fishery. Excluding the period 1950-1959, when the average catch per year was 0.737 mill.hl., the figures have changed between 0.372 - 518 mill.hl. in the other periods in question (Table 1.).

The main fishing districts for small herring have been Troms and Nordland - North-Trøndelag. Between 50 and 65 % of all the small herring landed have been caught in these three counties in the last 50 years. (Fig.2.). Before the oil and meal factories were built up most of the small herring were landed in the southern part of Norway, where also the majority of the canning companies were situated. The landing figures in the first ten years period, is thus no indication of the abundance of the herring present in this area.

The small herring fishery takes place mainly in two seasons, during the spring - early summer and during the autumn. Data of the distribution of the landings with time are available only for the last 20 years (Fig. 3). Judging from the figure there seems to be a greater distinction between the spring-early summer and the autumn season in the last ten years than in the previous period.

The small herring caught in May-June were mainly landed in southern Norway in 1951 - 1960, whereas the majority of the herring caught during the autumn were landed in the northernmost counties (Fig.4).

The minimum in February - April is due to the fact that the fishermen are occupied on other fishing grounds, whilst the reason for the minimum in August-September must be the scarcity of small herring inside the skerries at that time. In October - November, however, the herring immigrate into the fjords and become available for the fishing fleet.

The small herring landed in the autumn consist of the 0- and I-groups, the 0-group predominating. During the spring-early summer season these same year-classes predominate in the catches but the herring are now one and two years old respectively. The II-group gradually appears in the fat herring catches during the summer and later in the autumn a new year class (the 0-group) also appears in the catches. Thus there are three different year-classes represented in the landings during the calendar year.

If however, the year is divided from the 1. September - 31. August, the yield mainly consists of two year-classes. (Fig.5). Data for dividing the landings according to yearclass are only available from 1950 and onwards. The relatively big catches in 1950/51 are due to the 0-group (1950-year class) whereas the 1950 and 1951 year-classes yielded about the same in the following year.

In 1952/53 the 0-group ( the 1952 year-class) again predominated the catches. This was also the case during all the following years, and in 1959/60 the 1959 year-class yielded more than 90 % of the total landing of small herring. No correlation has been found between the yield of a year-class as 0-group and the relative strength of the same year-class in the mature stock; however, there seems to be a positive correlation between the yield of the I-group, and the subsequent relative strength of a year-class as adults. (Fig.6).

When considering the fat herring, the South-Trøndelag-Møre region has been the most important fishing district during the last ten years; whereas Nordland-North-Trøndelag and to some extent Troms have been the main fishing areas in former years (Fig.2).

In the northernmost districts the fat herring fishery mainly takes place during the second part of the year, whereas in Southern Norway most of the herring is landed during the spring (Fig.4). The herring landed in April-June is called "forfangstsild"; which is a mixture of first time spawners and fat herring.

Because of the wide spread in time and place of the catches it is very difficult to obtain representative samples of the herring which are landed. Nevertheless an attempt has been made to give the age composition of the fat herring landed in the different districts in the period from 1952-1959.(Fig.7).

The "forfangstsild" samples are taken as representative for the catches landed in Southern Norway (Sør-Trøndelag-Rogaland) during the first part of the year ( 1.January-30.June), whereas the fat herring samples taken in the rest of the year in this district will be taken as representative for the landings from 1.July-31. of December. In northern Norway most of the fat herring samples are taken in the second part of the year, when the majority of the herring are also caught. As will be seen from the age composition, the strong 1950 year-class has predominated in the catches, followed by the 1953 year-class.

Table 1. The yearly average catch of small and fat herring in mill. hl. landed in ten year periods from 1900-1959.

Period	Small herring	Fat herring
1900 - 1909	0.218	0.406
1910 - 1919	0.637	0.462
1920 - 1929	0.769	0.462
1930 - 1939	1.379	0.518
1940 - 1949	1.334	0.372
1950 - 1959	1.705	0.737

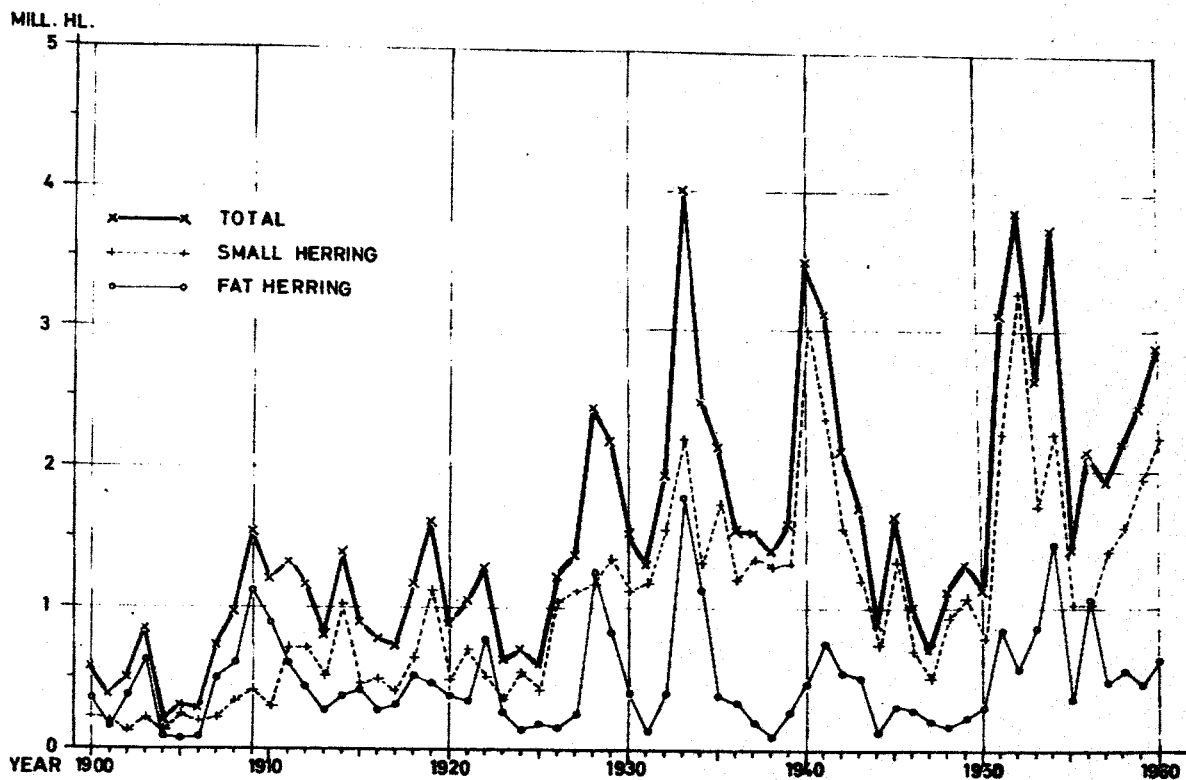


Fig. 1. The catch of immature herring landed in Norway from 1900-1960.

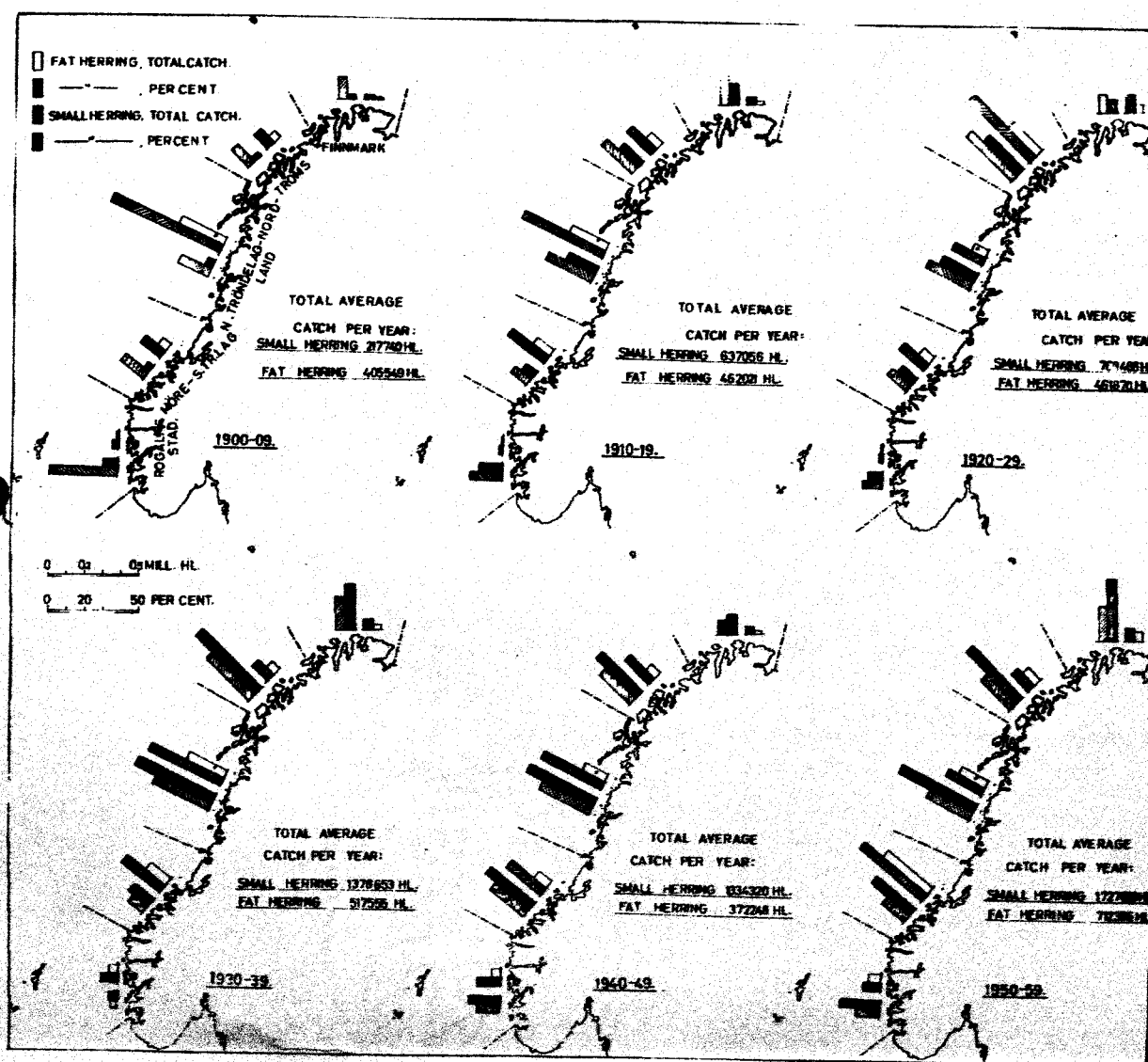


Fig. 2. The average catch per year of small and fat herring landed in different districts in ten year periods from 1900-1959.

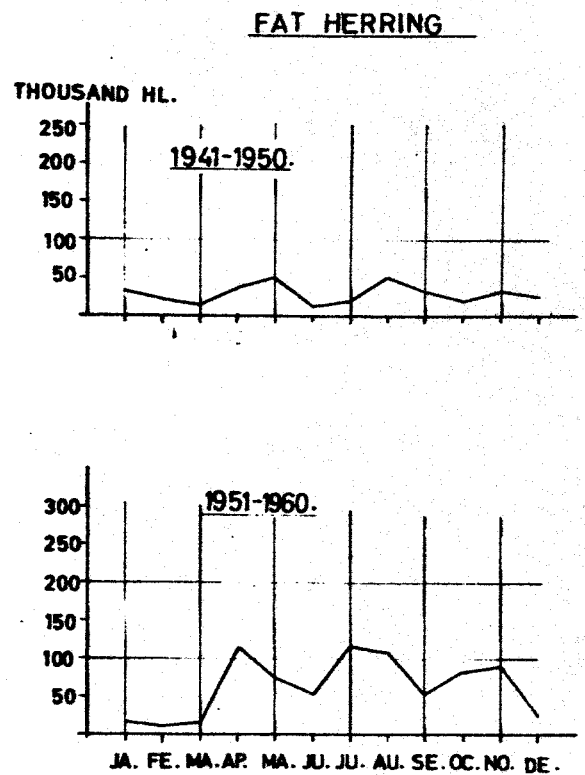
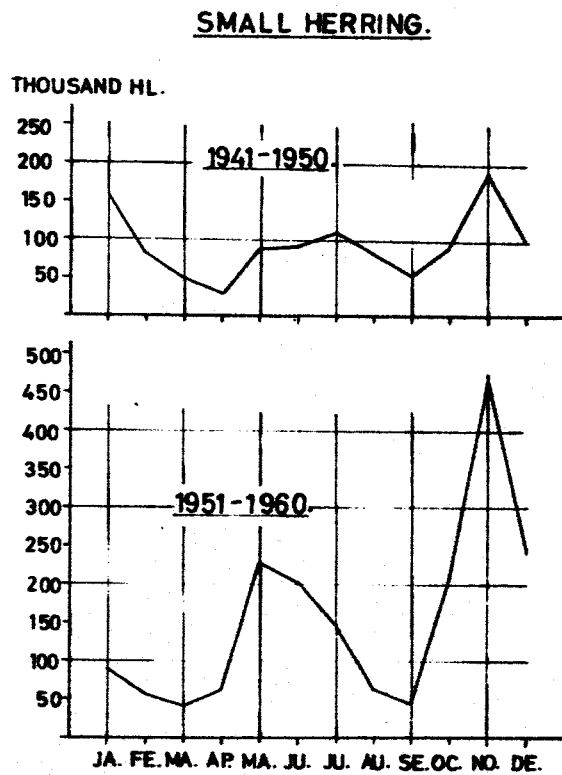


Fig. 3. The average catch per month of small and fat herring, landed in the last two decades.

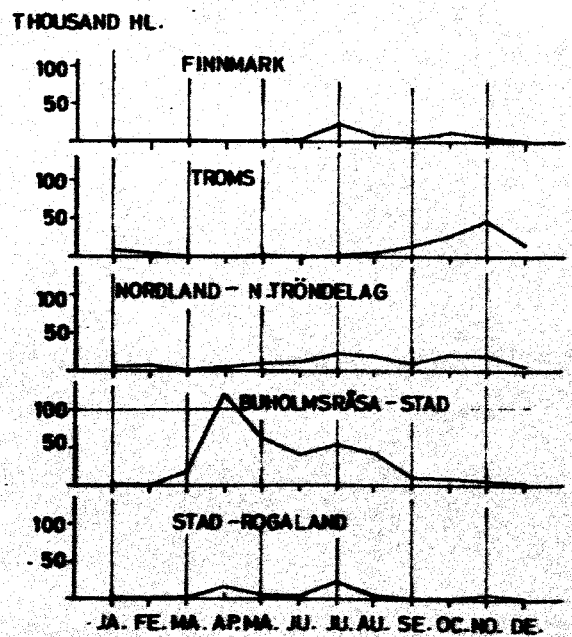
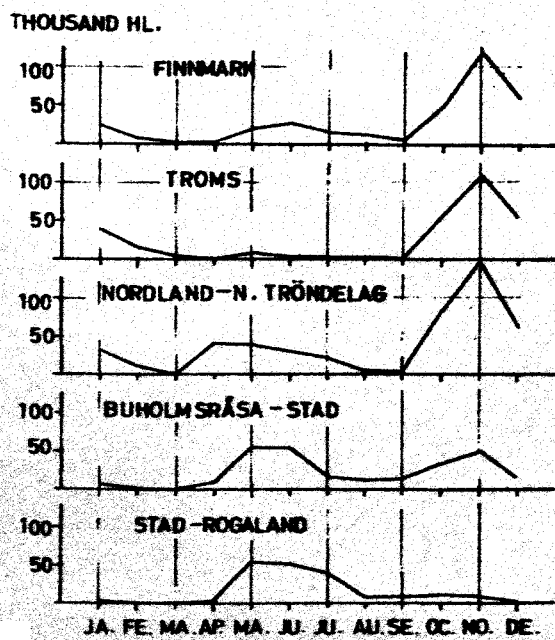


Fig. 4. The average catch per month of small herring (left) and fat herring landed in the different districts from 1951 - 1960.

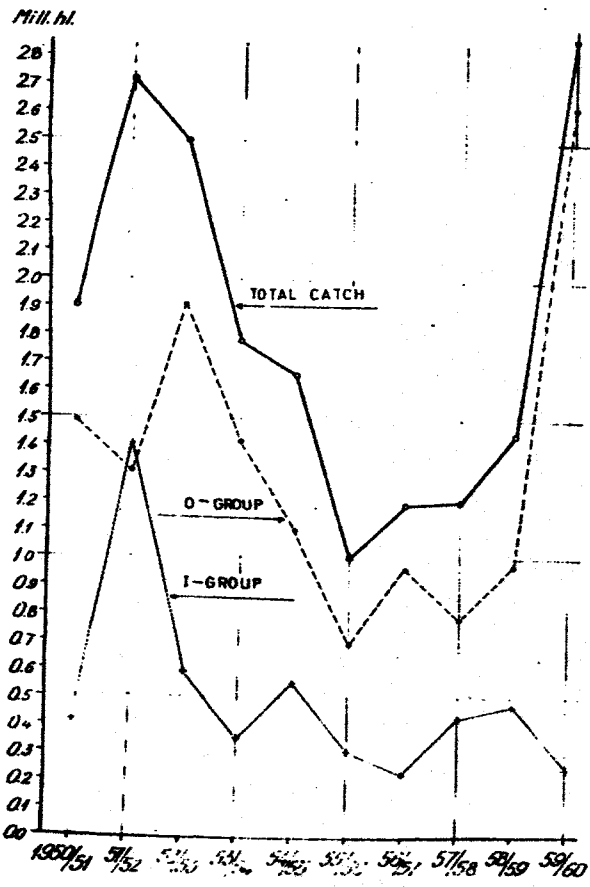


Fig. 5. The yield of small herring landed from 1950/51 - 1959/60 divided according to the O- and I-group.

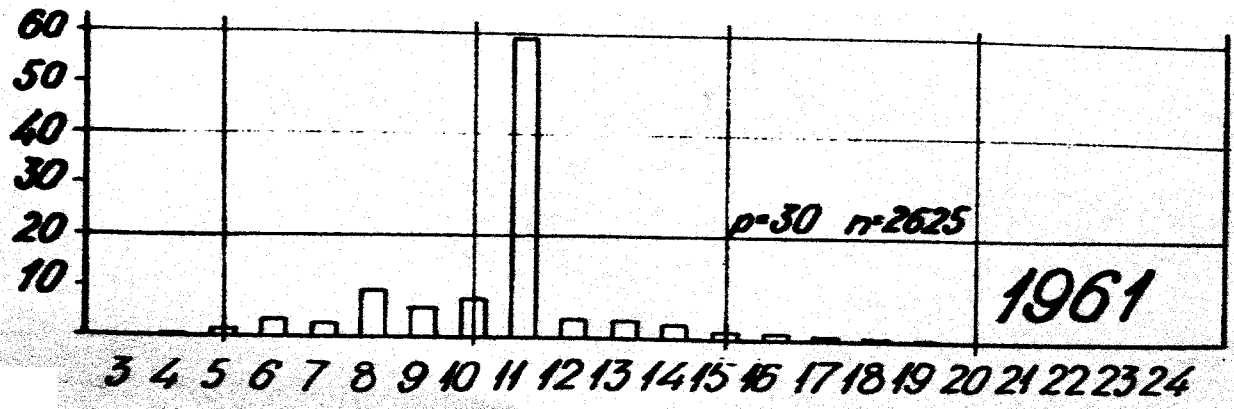


Fig. 6. The age composition of Norwegian winter herring, 1961.

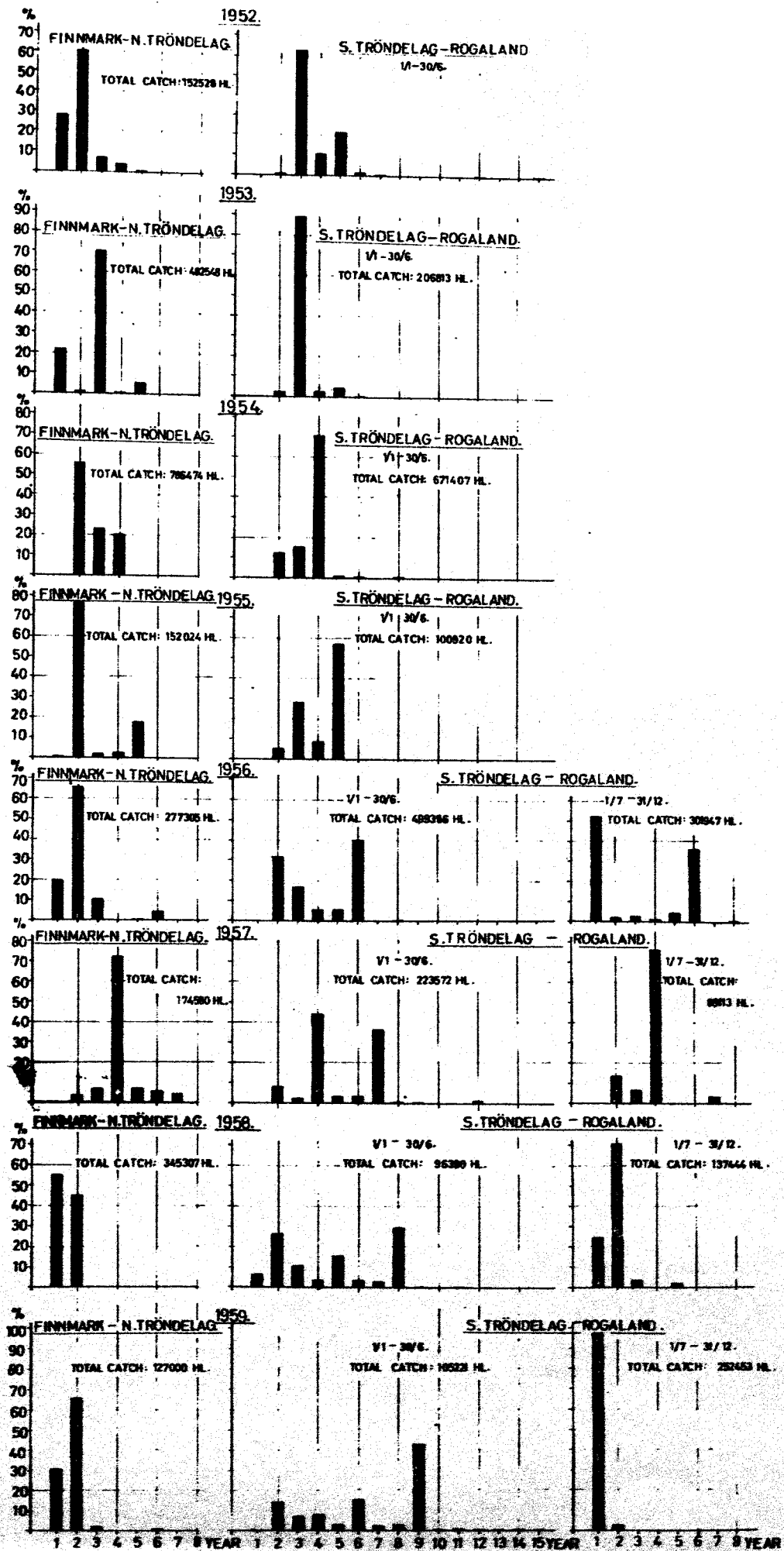


Fig. 7. The age composition of fat herring ( the "forfangstsild" included) in different districts from 1952 - 1959.