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Odsmål, Kville an, Bohuslän

Hällristning
Fiskare från
bronsåldern

Rock carving
Bronze age
fishermen



MEDDELANDE från
HAVSFISKELABORATORIET • LYSEKIL

nr
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Swedish herring fishery in the Baltic 1971-1973

by

Gunnar Otterlind

November 1973

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A b s t r a c t

A report is presented on Swedish herring fishery in the Baltic during the period 1971-1973. The catch for human consumption shows a slightly rising trend (a rise of about 3 000 tons since 1970) and a greater proportion of larger herring. Spring-spawners born in 1967 are now the most important year-class off the Swedish east coast. Fishing for herring and sprat for industrial purpose (reduction) by boats from the west coast of Sweden rose to more than 9 000 tons in 1972 and to 29 000 tons in 1973. This catch comprises mainly herring caught off the central and northern parts of the Swedish coast of the Baltic proper.

A survey of the Swedish herring fishery in the Baltic up to the beginning of 1971 was given in a report to the ICES C.M.1971 (Special Meeting on Cod and Herring in the Baltic, Herring No. 4). A summary of the further development of this fishery during the period 1971-1973 is given in the following.

Herring catch for human consumption

No great changes have occurred in respect of the local fishery from the south and east coasts of Sweden. Fishing by boats from the west coast, on the other hand, has altered considerably. Annual landings are given in table 1, in so far as statistics are available. The figures for 1972 are preliminary ones, as are those mentioned below for the first half of 1973. Thus the total catches of south and east coast fishery were 33 537 tons in 1972 as against 29 806 tons in 1970. To these figures may be added about 2 000 tons of herring landed for mink food or for industrial purposes. The west coast boats landed only small amounts of herring for human consumption compared with their catches in 1968 and 1969: 16 243 and 6 745 tons. Rounded values are given in table 1 with a maximum of 2 500 tons in 1970 (the main part landed in Denmark) and very small quantities - if any - during the first half of 1973. This was compensated for, however, by the catches of fish for reduction (mainly herring; see below). The total Swedish catches of Baltic herring for consumption were in the years 1970-1972 (in rounded figures): 32 300, 32 700 and 35 500 tons respectively.

A slightly rising trend can thus be discerned since 1970, which became distinct particularly on the east coast in 1972 and still more during the period January-June 1973. Fishing was then favoured by the very mild winter with little ice. In the Bothnian Sea the catch of Baltic herring was almost doubled during the first half year compared with 1972 (from about 1 700 to 3 200 tons). Greater catches were reported for the southern half of the east coast, too. The catches landed on Gotland showed a remarkable reduction, however, already in 1972: from 2 150 tons in 1971 to 1 533 tons. The decline here was rather small during the first half of 1973: from 1 130 tons in 1972 to 944 tons and probably due partly to the transfer to salmon fishing during the spring. It is quite clear that in 1972 there was a real decline in the abundance of herring off the east coast of Gotland, where most of the fishing is located. The smaller catch may possibly be associated with the very intensive trawl fishery by foreign vessels east of the island.

In 1972 there was also a shift in herring fishery in the southern Baltic towards the first half of the year. Normally, only a third of the annual catch from the south coast fishery has been taken during the period January-June, but in 1972 almost half, or about 7 500 tons of herring, was caught there. The tendency is the same for 1973, when fishing from Blekinge during the first half of the year yielded 4 940 tons or approximately the same as during the corresponding period in 1972 (5 018 tons of a total of 10 337 tons for the whole year). This change must at least partly be ascribed to an increased use of mid-water trawls. Off the east coast up to the Åland Sea and also off Gotland, on the other hand, only about one-third of the catch is taken during the second half of the year as a rule. The usual distribution of herring fishing into mainly winter-spring off the southern half of the Swedish east coast and summer-autumn off the south coast may to a great extent be founded on the migration habits of the herring. A large proportion of the spring-spawning Baltic herring migrate southwards from the east coast after spawning aggregation against the coast, and the remaining fish - on an average younger herring - are less concentrated during the summer. Fishing off the southern half of the east coast has, therefore, a low season during the summer. In the Gulf of Bothnia - mainly in the Bothnian Sea - the distribution of catches may be more equal in both halves of the year, but varies greatly otherwise according to the ice situation during winter and spring (cf. 1973 above).

Figure 1 shows the development of size distribution in catches of herring in the southern (A) and central (B) parts of the Baltic proper 1965-1972. The following four size groups of herring are applied on the south coast of Sweden. No. 1, maximum 10 fishes per kg; No. 2, 11-18/kg; No. 3, 19-24/kg, and No. 4, 25-32/kg. On the east coast, No. 1 has a maximum of 12 fishes per kg; No. 2 12-18/kg; No. 3, 18-24/kg, and No. 4, 24-32/kg. Thus there is a slight difference between the symbols in figure A and B (up to and including July 1970, No. 1 on the south coast had a maximum of 12/kg, and No. 2, 13-18/kg). As will be seen from the diagrams (which refer almost exclusively to herring caught in trawls), the proportion of small herring - groups 3 and 4 - was very great in 1970 and increasing up to that year. Since then it has declined gradually in favour of size 2 and to a certain extent of size 1. During the summer of 1973, size 4 was often strikingly scarce in catches made in the Bornholm Basin.

Generally speaking, the proportion of older herring in the catches has risen along the main parts of the Swedish coast. For the first half of 1973, for example, the percentages of sizes 1 and 2 in the landings on the coast of Blekinge have increased to 10.7 and 51.5 per cent respectively (as against 8.5 and 47.1 per cent during the corresponding period in 1972), and in landings on Gotland to 8.2 and 47.8 per cent (as against 4.4 and 33.2 per cent) respectively. In the Arkona Basin (W Bornholm) landings

made at Trelleborg show a decline in sizes 1 and 2 and an increase in size 4 - the herring catch is small here, however (121 tons caught in trawls during the first half of 1973).

To sum up, it may be said that catches of herring, at least in the western parts of the Baltic proper and the Gulf of Bothnia, have increased from 1970 to 1973 at the same time as the share of larger herring has risen to more "normal" proportions. The improved catch situation is due largely to the great spring-spawning year class from 1967, represented most richly in samples from our east coast in the Baltic proper, but also as far north as in the Bothnian Bay. It must be mentioned, however, that the two mild winters - particularly the winter of 1973 - made increased fishing possible. They may also have modified somewhat the migration habits of the spring-spawning herring. The rich catches in the southern Baltic during the first half of 1972 were, in comparison with earlier years, followed by poorer results during the second half of the same year. It remains to be seen whether development will be the same in 1973.

Herring fishing for industrial purposes

The report of 1971 gave an account of the increased fishing activities in the Baltic by boats from the Swedish west coast, formerly engaged in herring fishery in the North Sea. Their catches of herring for human consumption in 1970-1972 are given in table 1 (small quantities landed in Sweden may not have been reported for the Baltic). Table 2 gives their landings of industrial fish. During the period 1968-1971 the quantity remained unaltered on the whole, 2 200-2 500 tons a year (cf. the report of 1971). There was a great increase from 1972, 9 100 tons and no less than 29 000 tons for 1973. Thus parallel with this, their interest in Baltic herring fishery for human consumption has declined so that no catches of such fish have yet been reported for the west-coast boats during 1973.

There are two reasons for this change in development: a higher price for fish-meal, and restrictions for the herring fishery in the North Sea. The Swedish west coast fishermen - like those on the south and east coasts - have long entertained serious misgivings regarding the intensification of the fishery for industrial purposes in view of the development of herring and mackerel fishing in the North Sea and the Atlantic. But their reduced economic situation has more or less forced them to go over partly to industrial fishing. With the rise in the price of fish for reduction in 1972 from 0.18 to 0.34 Sw. kr per kg, in conjunction with the low catches of anchoveta in Peru, fishing for industrial purposes became profitable for them in the central and northern parts of the Baltic proper. Landings mainly from the southern Baltic which, from 1968-1970 were made in Denmark only, began in 1971 on a small scale to go to a fish-meal factory on the west coast of Sweden. During 1972-1973 this factory received most of the industrial fish from the Baltic, while the rest was landed in Denmark (mainly at Skagen).

As fishing with fine-meshed cod-ends on the herring trawls from Swedish boats has been prohibited since 1971 during the period 1 May - 31 December (stipulated minimum mesh-size is at present 30 mm), the fishery is carried out preferably during the first four months of the year. Two-boat mid-water trawls have mainly been used, as a rule with sprat cod-ends (bar-length 11 mm). The most important region for this fishery in 1973 was the waters from the north point of Öland up to Sandhamn on the outskirts of the Stockholm archipelago. The catching period was from the beginning of February to the middle of May. Thirty to thirty-five west coast boats took part to different extents in this fishing. The greater part of the catches comprised herring of various sizes. At times, however, there was a considerable proportion of sprat. Occasional catches of almost only sprat

were made in this area and also in the Bornholm Basin.

The increase in the catch of industrial fish by the Swedish west coast fishermen to more than 29 000 tons in 1973 has been accompanied by an increase in Danish catches for industrial purposes (and for animal food) in the Baltic to about 10 600 tons during the first half of 1973 (compared with about 3 400 tons for the whole of 1972). The total Swedish catch of industrial fish and "mink fish" in the Baltic is for the whole year 1973 expected to be about 34 000 tons.

Of course, the Danish and Swedish catches of industrial fish are fairly small in relation to the total catch of herring and sprat in the Baltic, which, in 1970, including the catch by the DDR, was 435 635 tons (probably higher in 1971, but total statistics are not yet available for later than 1970). Thus the industrial fishing mentioned accounts for about 10 per cent of the whole catch of herring and sprat. But a continued increase of the total catch can hardly occur without jeopardising the stock of fish.

At the Baltic Sea Conference in June 1972, held in Stockholm and convened by the Swedish federation of fishermen's unions, with the participation of members of corresponding organizations from all the countries surrounding the Baltic, a resolution was passed recommending the prohibition of industrial fishing in the Baltic. This was not, however, accepted by the Danish fishermen organizations. It is possible that the present situation will result in the introduction of rationing of the catches in the Baltic. The choice is, no doubt, between a ban of industrial fishery and a rationing. This is, perhaps, the most urgent problem to be solved in conjunction with the new international convention on fishing in the Baltic.

In this context, the need for better statistics and regular stock assessments must be emphasized. The occurrence of e.g. several herring populations with different biological features and migration habits - probably varying not only with the individual age of the fish but also with variations in the environment - justifies strongly increased resources for such activities.

Acknowledgement. I am indebted to Fiskeriministeriet, Copenhagen, AB Väst-kustfisk S V C, Gothenburg, and Swedish sea fisheries organizations for valuable information on recent fisheries statistics.

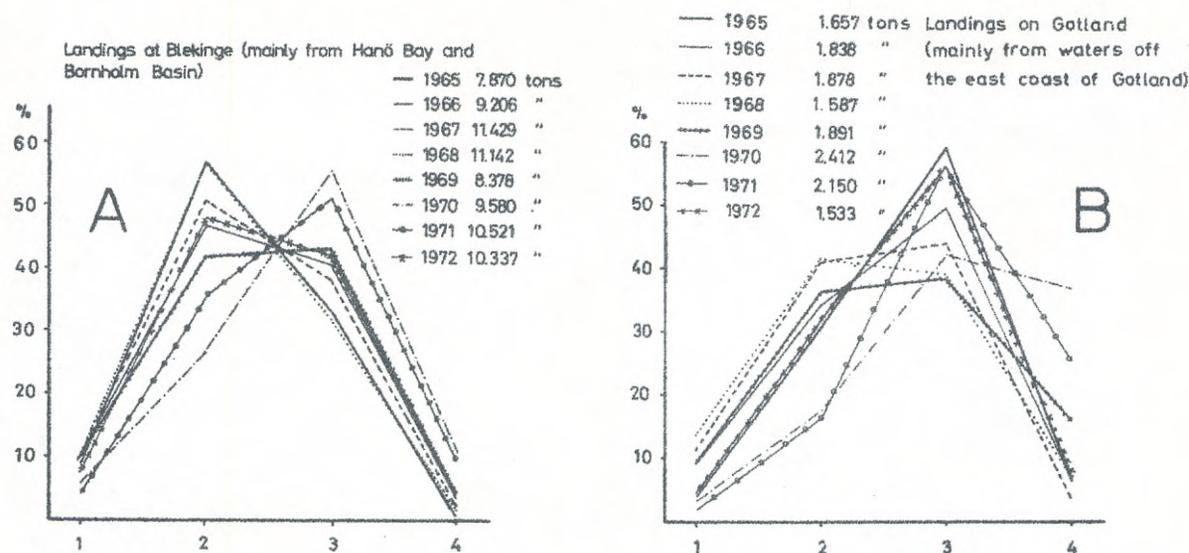


Fig. 1. Distribution of the catches of Baltic herring (for human consumption) on the different assortments 1 - 4 (large - small fish, cf. the text) at Blekinge on the south coast (A) and at Gotland off the east coast (B).

Table 1. Swedish catch of Baltic herring for consumption (tons)

	1970	1971	1972
East coast fishery	15 293	16 386	17 500
South coast fishery	14 513	15 733	16 037
Total local fishery	29 806	32 119	33 537
West coast boats	2 500	600	2 000
Total catch	32 306	32 719	35 537

Table 2. The catch of industrial fish (tons, mainly Baltic herring) by Swedish west coast boats

	1970	1971	1972	1973
Landings in Denmark	2 436	1 223	3 602	10 790
Landings in Sweden	-	1 100	5 500	18 270
Total	2 436	2 323	9 102	29 060

