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HERRING STOCKS IN 1979

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by

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During the joint Soviet-Icelandic investigations on hydrobiological conditions in the Norwegian Sea and Icelandic waters in May-June 1979, abnormally low water temperatures were recorded. The 0-Group Fish Survey in Icelandic and East Greenland waters in August-September 1979 recorded close to normal temperatures in the surface layer of the Irminger Sea. However, temperatures of the waters covering the Icelandic shelf remained below normal, particularly off the north and east coasts. Such temperatures are known to have an adverse effect on nutrient supply, primary production, and feeding conditions in the area. Practically no 1-group herring of the summer-spawning stock were caught during the survey. A resumption of spawning in the Vestmann Island area was confirmed by a survey conducted in June 1979. It is also interesting to note that in November herring concentrations were registered solely in the traditional area off the southeastern coast of Iceland, and that during the acoustic survey in December the overwintering area of herring shoals was found to shift eastwards, with water temperatures lower than those previously observed on the overwintering grounds farther west and south. The total echo abundance estimate of the stock was about 10% higher than that for 1978. The purse-seine fishery caught more than 25 000 tonnes, and over 19 000 tonnes were harvested by drift nets. Catches were dominated by the 1974 year class, followed by the 1975 year class for purse seines and by the 1971 year class for drift nets. As in 1978, spring spawners were still only a negligible proportion, 0.5%. It should be noted that the trend of recent years towards delayed maturation and declining average weight of 3-ringed herring continued in 1979; this may be an indication of density-dependent growth.

Some by-catches of spring spawners were reported in trawl fisheries on the Faroe Plateau. The results of the International 0-Group Survey in Faroe waters in 1979 indicate that the distribution area and the abundance estimate of 0-group herring were comparable with those for 1978. Abundance of the bank spawning component appears to continue at a very low level.

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Both the Norwegian contribution on Atlanto-Scandian spring-spawning herring and the Report on the International 0-Group Fish Survey in the Barents Sea and adjacent waters in August-September 1979 indicate a somewhat wider distribution of 0-group herring than in 1978. The overall density, however, was estimated to be lower. Water temperatures in the Barents Sea recorded during the survey were below average. Experimental fishing, together with mixed herring fishery and by-catches, yielded less than 3 000 tonnes of Atlanto-Scandian herring in 1979 in comparison with nearly 10 000 tonnes in 1978. Generally, the same year classes as in 1978 were dominant, with the proportion of the 1969 year class even smaller in the northern component and that of the 1976 year class greater in the southern component. The Report of the Atlanto-Scandian Herring Working Group, which notes the results of the Norwegian tagging experiments, estimates no increase in the northern stock component during the past three years owing to poor recruitment, particularly that by the 1975 year class. The smaller southern component, however, was estimated as having much better recruitment, particularly by the 1974 and 1976 year classes.

Removal of North Sea herring nearly doubled in 1979 in comparison with 1978. Since a ban imposed on directed North Sea herring fisheries continued throughout the year, this was mainly by-catch in other fisheries with the juvenile component (0- and 1-group herring) preponderant. As indicated in contributions from the Federal Republic of Germany and Norway and by the results of the International Acoustic Survey, the 1973 and 1974 year classes were dominant amongst older age-groups in the western part of the northern North Sea; the 1977 and 1976 year classes prevailed amongst younger age-groups. In the Norwegian purse-seine and trawl samples in the eastern part, the 1976 year class was predominant in summer; in the November trawl samples the 1978 year class was exclusively represented.

The Norwegian and English contributions indicate the predominance of the 1974 year class and the weakness of the 1975 year class in the Buchan area and the central North Sea. Together with the Federal Republic of Germany contribution they show the considerable importance of the 1976 year class, which is also estimated in the English contribution as providing good recruitment to the spawning stock in the southern North Sea. Results of the International Young Herring Survey (IYHS) estimate the abundance of the 1978 year class of autumn spawners as 1-ringed herring to be considerably above that of the preceding year class and at the same level as the 1976 year class. Both the extent of the distribution area and the numbers caught per tow of herring larvae of the 1979 year class were very much greater during the IYHS in February 1980 than during the previous three years. As a particularly encouraging sign, the presence of high numbers of larvae was noted in the eastern part of the North Sea, which is known as the traditional nursery area for North Sea herring.

In the Skagerrak and Kattegat, the abundance index of 1-ringed herring was very low during the IYHS in 1979, but close to the average of recent years in 1980. It should be kept in mind that a considerable proportion of 1-ringers could originate from indigenous spring-spawning stocks. In 1979, high numbers of larvae were caught in the area for the first time since 1973, and during the IYHS in February 1980 the numbers of larvae caught per tow were even higher. The Norwegian contribution indicates that most of the herring caught in the area from Lindesnes to Stadt in 1979 were juveniles; 70% of the catch consisted of spring spawners, predominantly of the 1977 year class. Of juveniles caught in the open area of the Skagerrak, about 40% were spring spawners of the 1976 and 1977 year classes. Preliminary statistics for 1979 indicate that the total landings from Division IIIa decreased to about 66 000 tonnes from 102 000 tonnes in 1978.

Owing to the closure of the herring fishery in the West of Scotland area (Division VIa) in 1979, the total removal, mainly as by-catch, dropped sharply to about 8 000 tonnes (including about 2 000 tonnes caught in the Clyde) from 34 000 tonnes in 1978. During the Federal Republic of Germany survey off the Hebrides, older age groups, particularly the 1973 and 1974 year classes, prevailed in the stock. Commercial removals, however, from Division VIa as a whole, were dominated by 2-ringed herring of the 1976 year class, as indicated in the 1980 Report of the Herring Assessment Working Group for the Area South of 62°N. Results of Scottish larval surveys suggest a very substantial increase in the spawning stock biomass (2-ringers and older herring) from 1978 to 1979.

In the West of Ireland area (Division VIIb,c) the total catch increased to 15 000 tonnes from the 1977-1978 level of 12 000 tonnes.

In the South of Ireland area (Division VIIg-k) the total catch is expected to have increased from the 1978 level of 6 000 tonnes. The Federal Republic of Germany survey indicates the predominance of the 1975-1973 year classes in the stock.

The total 1979 catch from the Irish Sea remained at the 1978 level of 12 000 tonnes, of which 10 000 tonnes are estimated to be Manx stock herring and 2 000 tonnes to be Mourne stock herring. A contribution from the Isle of Man reports that herring fishing followed very much the usual seasonal and distributional pattern. It is encouraging to note the closing of the Mornington fishmeal plant in February 1979, which led to a drastic decrease in the industrial catch of immature herring from the Mourne stock. The originally strong 1975 year class continued to play an important role in the fishery, but as in all recent years the recruiting 2-ringers (of the 1976 year class) predominated in the samples throughout the main fishery. Catches taken off the west coast of the Isle of Man and on the Ballynahinch ground near the Irish coast in the late fishery in November were dominated by the 1977 year class.

Data presented to the ICES Working Group on Assessments of Pelagic Stocks in the Baltic, which include herring by-catches in sprat fisheries and exclude sprat by-catches in herring fisheries, indicate that the 1979 total catch in the Baltic increased to a record-high level of 463 000 tonnes from 434 000 tonnes in 1978. The German Democratic Republic, Polish, Finnish and Soviet contributions report the continued predominance of spring-spawning herring. The German Democratic Republic contribution indicates that the strong 1976 year class dominated in the Rügen spawning fishery, followed by the 1975 and 1977 year classes. Together with the Soviet contribution, it notes the delayed maturation of spring-spawning herring and the delayed fishing season resulting from below average water temperatures in the 1978/1979 winter period. The Polish contribution reports greatly increased catches in Subdivisions 24 and 25 as well as a certain decrease in Subdivision 26. The age composition of coastal spring spawners was the same as that of the Rügen herring. The 1978 year class appears to be weak in these areas. The Finnish contribution confirms the continued dominance, for the third consecutive year, of the catches in the northern and eastern areas of the Baltic by the strong 1975 year class. The 1976 and 1974 year classes were also well represented in the catches. On the basis of the abundance and the average size of larvae the 1979 year class is estimated as strong. In addition, as in 1978, only negligible numbers of larvae of autumn-spawning herring could be fou d off the Åland Islands.

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