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The present capelin situation in the Barents Sea¹

by

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In a paper presented to the ICNAF Assessments Subcommittee at the Annual Meeting 1974 (Ulltang, 1974), a summary was given of the history of the capelin fishery in the Barents Sea, of the national Norwegian regulations of this fishery and of the methods used in stock assessment. Some additional information concerning the present situation in the Barents Sea will be given here.

Acoustic surveys in autumn are the main source of data for estimating the size of the spawning stock the next winter season and the strength of the younger year-classes of capelin. In the autumn of 1974 the number of 1-year-old and older capelin in the Barents Sea was the highest ever recorded. For the 0-group capelin it is possible only to get an index of abundance rather than a direct estimate of the absolute number during these surveys. The index shows that the 1974 year-class also is definitely above average in strength.

The year-class which was expected to spawn next winter season would have given a spawning stock of at least 3-4 million tons if the growth rate had been normal. This would mean a spawning stock at the same level as the highest ever recorded. However, the length and weight by age observed in the Barents Sea this autumn was far below what has been observed in earlier years. The year-class which normally should be maturing at this time had an average length of only 12.9 cm against 15-16 cm in a normal development. In addition, the condition factor was very low. Only a small part of the year-class showed signs of maturing. The result is therefore that the spawning stock in 1975, which earlier has been expected to be very high, will probably be very low.

The most reasonable explanation for this situation is that there at present is too much capelin in the Barents Sea. The supply of food for the capelin is apparently too low for the strong year-classes present, and this has resulted in a growth rate far below the normal one.

It should be noted that the appearance of several abundant year-classes in succession came after the Norwegian fishery for capelin started to remove a substantial part of the spawning stock each year, taking an annual catch of 1-1.5 million tons in the period 1970-1974. One has at present no means of determining whether this situation is an example of a typical Ricker stock-recruitment relationship or if the increased recruitment is a result of other changes in the Barents Sea. Whatever the explanation is, after several years with heavy fishing on pre-spawning and spawning capelin, the stock in number has grown to a level which makes it necessary to introduce a heavier fishing on young capelin if one wants to exploit the resource rationally. At least this indicates that there is a potential high surplus production in a capelin stock which could be harvested without taking any risks for introducing unwanted effects on, for example, the cod stocks.

Reference

Ulltang, Ø. 1974. On the management of a capelin fishery. *Annu. Meet. int. Comm. Northw. Atlant. Fish.*, Research Document 74/90, Serial No. 3326, 7 p.

¹ Presented to the Sixth Special Commission Meeting, January 1975, Bergen, Norway as Res.Doc. 75/4.