

THE EFFECT OF THE 1983 HERRING YEAR-CLASS
ON THE 1983 CAPELIN ~~CAPELIN~~ YEAR-CLASS

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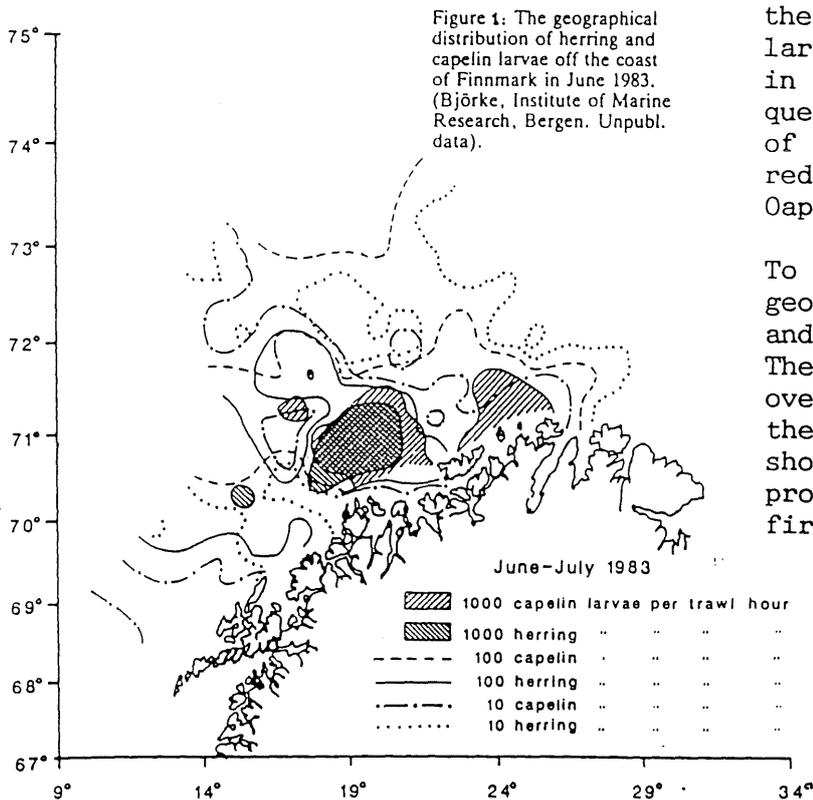
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The 1983 year-class of herring was extremely good, in comparison with previous years. The herring spawn along the norwegian coast south of the Barents Sea, but in 1983 a large proportion of the fry were injected by the currents into the southern Barents Sea, where they overlapped with the capelin larvae during the summer and autumn.

The herring larvae hatch about one to two months earlier than the capelin larvae. The greater size of the individual herring larvae when larvae of these two species appear in the same area leads, to the question: are herring larvae capable of preying upon capelin larvae, thus reducing the recruitment of capelin?.

To the left is shown the geographical distribution of herring and capelin larvae in June 1983. There was also a considerable overlap between these two species at the 0-group survey in August (not shown), showing that the overlap probably lasted for most of the first year's growth season.



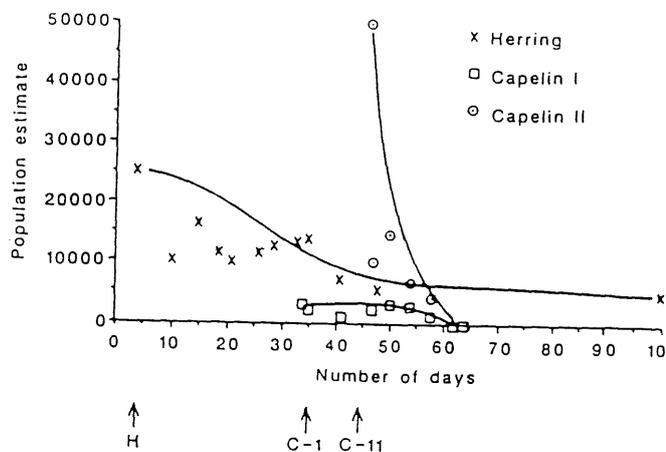
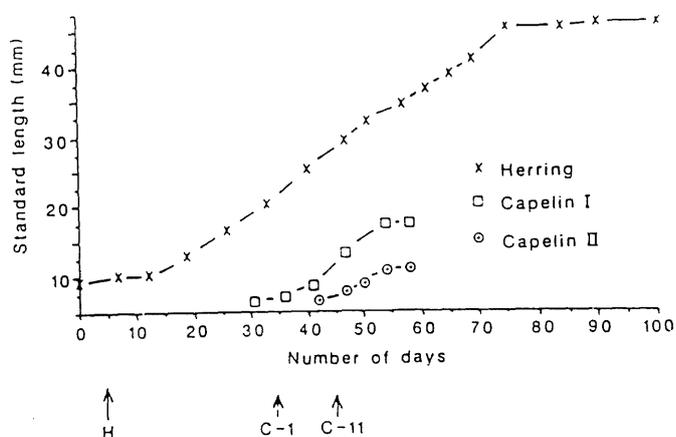
A LABORATORY EXPERIMENT INDICATING THAT HERRING
MAY PREY ON CAPELIN LARVAE

In Flødevigen Biological Station, Arendal, Southern Norway, the following experiment was performed in 1979: Herring larvae were released in a basin. Two different groups of newly hatched capelin larvae were subsequently released when the herring larvae were 34 days old and 46 days old.

Both groups of capelin larvae disappeared when the herring larvae started schooling. Control groups in plastic bags survived to the end of the experiment.

Although capelin larvae not were found in the stomachs of the herring larvae, this experiment strongly suggests predation as the cause of the observed capelin larvae mortality

The figures beneath show growth (left) and population estimates (right) of herring larvae and the two groups of capelin larvae. Both groups of capelin larvae had suitable feeding conditions



The experiment in Flødevigen shows that herring larvae can reduce the number of capelin larvae drastically through predation.

The experiment was performed early in the life of herring and capelin larvae. However, it is possible that juvenile herring may also prey on juvenile capelin at later stages. The geographical distributions of herring and capelin juveniles in 1983 might thus have provided conditions for herring predation on capelin larvae for several months.

Herring predation on capelin larvae might thus have been a major cause of recruitment failure of capelin from 1983.