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Mean weight at age of the 1970 year-class  
herring in ICNAF Div. 5Z

by

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Introduction

Because of an apparent change in growth rate a review of mean weights at age of the 1970 year-class was recommended by the ICNAF Herring Working Group.

Methods

The 1970 year-class was observed in catches taken during the spring YHS 1973 and 1974 and in commercial catches during the fall fishing period 1973 and 1974 in ICNAF areas 4 X, 5 Z and 6 A. All samples taken at random from individual hauls made by midwater- (commercial) and bottom - (YHS) trawls were frozen. Length measurements were made to the nearest millimeter, age determinations by reading both otoliths and scales.

Results and discussion

Results (Table 1) show a considerable difference in mean weight between spring - (March) and summer/fall - (July to October) 1970 year class herring in 1973 and 1974. The relatively large difference of about 70-80 gm in mean weight between the two periods in 1973 is partly due to the increase of the mean length of approximately 40 mm during the main growth period April to June partly to the maturation and development of the gonads during summer months. This fact is valid, too, for the concerning period in 1974 with the only difference of the reduced length-growing of this year-class of about 20 mm. While in March during the 73 YHS nearly all herring examined show maturity stage 2 (967 %) and during the March/April 73 YHS the (biologically seen) comparable stage 8 (977 % and 983 %, resp.) - both stages

are followed by maturity stage 3 - from July to October stages 3, 4 and 5 were predominating which resulted in an increase of the mean weight. No samples are available from the winter-period 1973/74 to show the decrease of the mean weight caused by the predominance of spent herring (stage 8) but samples from the 1974 spring YHS containing mostly the 1970 year-class indicate a reduction of the mean weight of the 1970 year-class of about 15 gm (mean weight in October 73/ 149 gm, in March-April 74/ 135 gm).

The seasonal differences in mean weight within one age group indicate that the calculation of number per age group in the catch should be based on comparatively short periods e.g. at least per month or per half month for the period of main growth, otherwise the catch per number could easily be underestimated.

Table 1: Biological parameters (mean length in mm, mean weight in gm) of the 1970 year-class herring in 1973 and 1974, ICNAF Div. 5Z

Mat. Stages	1973				1974			
	Mar	Jul	Aug	Sept	Oct	Mar	Apr	Sep
1	mm 189 gm 44 n 23 % 31	-	-	-	-	-	-	-
2	225 79 724 967	-	253 122 21 48	262 130 25 34	268 133 4 27	265 140 1 1	-	285 173 1 1
3	245 117 1 1	260 153 27 491	261 143 125 287	268 141 29 39	280 - 2 14	275 149 15 21	268 134 3 17	-
4	- 4	266 166 23 418	263 155 178 219	270 150 163 221	273 184 4 27	275 180 1 1	-	279 198 34 23
5	-	268 195 4 73	265 163 111 255	267 162 386 523	265 156 112 767	-	-	288 217 1126 763
6	-	-	-	267 156 123 167	269 144 14 96	-	-	289 203 207 140
7	-	-	-	271 150 7 9	269 150 7 48	-	-	292 186 91 62
8	285 101 1 1	265 142 1 18	-	275 - 5 7	278 - 3 21	268 140 691 977	266 130 177 983	291 182 16 11
Total	224 78 749 1000	263 161 55 1000	262 152 435 1000	268 155 738 1000	266 149 146 1000	268 140 708 1000	266 130 180 1000	288 212 1475 1000

