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SOUTH COAST (WATERFORD AND CORK)

HERRING FISHERY 1969-70.

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by

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The South Coast Herring Fishery 1969/70

Introduction

The 1969/70 herring fishery began on the south coast in the week ending 15th November, 1969, and ended on the 25th February, 1970. Some small amounts of herrings had, however, been taken prior to the middle of November. Seventy three boats took part in the fishery, compared with fifty nine during the 1968/69 season. A total of 96,936 crans was landed, which was the highest on record and an increase of 26,155 crans on the figure for the previous season. Landings were made on 69 days out of a possible 81. The weather, which prior to Christmas, had been very favourable to fishing, deteriorated during January and thereafter caused many interruptions. As in the two previous seasons, marketing problems caused fishing to be suspended on a number of occasions and this restricted catches for considerable periods. All herrings taken throughout the season were auctioned at either Dunmore East or Cobh and the following are the monthly landings (in crans) at each port.

Month	Dunmore East	Cobh	Others	Total	1968/69	1967/68
October	169	-	-	169	232	1,002
November	6,345	2,633	-	8,978	1,356	7,110
December	24,406	10,420	-	34,826	16,221	20,947
January	22,054	14,770	-	36,824	41,204	28,692
February	8,833	7,306	-	16,139	11,768	6,192
Total	61,807	35,129	-	96,936	70,781	63,343
1968/69	41,071	29,199	511	70,781		
1967/68	46,201	15,323	1,819	63,343		

The total value of all fish landed amounted to £544,670 which was an increase of approximately £191,000, on the figure for the previous season. The average price during the season was 112/- per cran and was the same for herrings landed at both Cobh and Dunmore East, although considerable differences took place between the weekly prices for the two ports. The amount, the total value and the average price for the last five seasons were as follows:-

Season	Crans	Value	Average Price
1969/70	96,936	544,670	112/-
1968/69	70,781	353,905	100/-
1967/68	63,343	253,372	80/-
1966/67	47,560	235,422	99/-
1965/66	20,542	122,225	119/-

The largest amount of herrings were again exported to Holland, although considerable quantities were frozen for subsequent re-export. Approximate figures for the disposal of the catch were as follows:-

Home Market (Fresh)	210	Crans
Britain (Fresh)	8,480	"
Britain (Rough Packed)	5,400	"
Frozen	4,068	"
Continental exports (Holland, Sweden, Norway, France, Germany)	78,487	"
Fish Meal	291	"
Total	96,936	"

Landings per type of gear, catch per effort and effort

Landings were again mostly made by paired midwater trawls. The number of pairs engaged in this type of fishing was 23, while the remaining boats used bottom trawls. Some boats tried single midwater trawling but this type of fishing does not appear to be successful. Landings (crans) per type of gear were as follows:-

Gear	1969/70	1968/69	1967/68
Paired Midwater trawls	71,246	42,511	38,893
Bottom trawls	25,690	27,688	24,280
Single midwater trawls	200	432	170
Driftnets	-	150	-
Totals	96,936	70,781	63,343

As can be seen from the above figures, in spite of the increased landings, boats using bottom trawls failed to increase their catches. This can partly be explained by the fact that shoals in January remained south

of Dunmore on very poor ground. The average catch per landing per type of gear for the last four seasons was as follows:-

Season	Bottom trawl	Paired midwater trawls		
		Overall	Dunmore East	Cobh
1969/70	35.5 Crans	111.8	94.1	138.3
1968/69	54.4 "	109.6	85.4	127.6
1967/68	49.2 "	99.0	-	-
1966/67	35.0 "	92.3	-	-

These figures indicate that the amount of fish available to bottom trawlers during the whole season was considerably less than in the previous two seasons. On the other hand, the figures based on catches of midwater trawlers would appear to indicate a greater availability and a higher stock density. However the increased efficiency and capacity of the fleet in general and the very high catching rate of some pairs - especially some of those working from Cobh must be taken into account. It is probable that these figures then give an overestimate of stock size in comparison to that obtained in previous seasons. During the last four seasons the effort, to which the stocks are now subjected, has increased considerably. This effort figure, which is the number of landings by a pair of midwater trawlers, for the past four seasons is as follows:-

1966/67; 515; 1967/68, 640; 1968/69, 646; and 1969/70, 867.

It can thus be seen that the total effort has practically doubled in four seasons. In this way the increased biomass due to good recruitment, must have been offset, at least in part, by the great improvement in fleet efficiency.

Location and extent of the Fishery

The location of the fishery showed considerable differences from that of the 1968/69 season. The fleet was again divided into two sections, one working from Dunmore East and fishing mostly Baginbun Bay and south of Dunmore East, while the other section fished from Cobh and exploited the area from the Daunt Rock to Mine Head. The shoals were first located in November in Tramore Bay, Ballycotton Bay and Baginbun Bay. In early December most of the fishing was carried out in Baginbun Bay and off Mine Head. This pattern was maintained until Christmas. In early January, fishing was carried out over a large area, extending from south of Dunmore East ("Roads") to Ardmore/Capel Island. During this time some fish were

also taken around the Daunt Rock, which was the main fishing area during the two previous seasons. Due to poor weather, fishing was inconsistent during the latter part of January when shoals were located south of Dunmore East and in Ballycotton Bay. In early February, the fish to the south of Dunmore East had moved into Baginbun Bay where they remained until the end of the season. The boats fishing from Cobh, during this time, were working 2 miles south of Ballycotton.

The facts that herrings were absent from Baginbun Bay during January, and were also absent from the Daunt Rock area for most of the season, were two unusual features about this season.

Scientific Investigations

Sampling of herrings from landings made at Dunmore East and Cobh was continued throughout the season. A total of 3,317 fish were examined for length, sex, maturity, vertebral counts and age. The number of herrings per kilogramme, the fat content, and the intensity of worm infestation were also noted.

Age distribution: The percentage age distribution for Cobh and Dunmore East herrings were as follows:-

Age in Years

	2	3	4	5	6	7	8	9	10	10 +	Total
Dunmore East	8.3	55.9	15.8	10.0	3.9	3.2	1.3	0.7	0.2	0.7	100.0
Cobh	4.4	34.7	26.6	13.0	8.4	8.9	1.9	0.7	0.6	0.8	100.0

As can be seen, there is, particularly in the case of the Dunmore East samples, a scarcity of older herrings. There were, in fact, only 20.0% of herrings in the Dunmore East landings, and 34.3% of the Cobh landings over four year old. Preliminary calculations showed that the mortality rate of the herrings is very high indicating that the stock is subjected to a fishing intensity that is too great. Recruitment of young herrings, mainly three year olds, to the adult shoals during the 1967/68 and 1968/69 seasons, has been exceptionally strong. This has enabled the stock to build up considerably. Recruitment during 1969/70 was however not as good as the previous two years. It is only because of a continuation of good recruitments that the present high level of catches has been maintained. The high level of fishing at the moment means that there is a scarcity of older fish and catches are heavily dependent on three and four year old herrings consequently a failure of recruitment at the present fishing intensity could lead

to a dramatic drop in catches. Further increases in fishing effort is not expected to lead to increased catches and probably will cause a drop in the average catch per boat.

Length and numbers per kilogramme

As can be expected from the differences in age composition, fish landed at Cobh were slightly larger and the numbers per kilogramme less, than at Dunmore East. Considerable variation took place in both the average length and the number per kilogramme throughout the season, mainly because of the large numbers of small fish present early in the season, and also because of the amount of "spents" present at various times. The following was the monthly range and average number of herrings per kilogramme.

	Dunmore East		Cobh	
	Average	Range	Average	Range
October	5.9	-	-	-
November	5.6	4.5-7.5	4.6	-
December	5.7	5.2-6.2	4.7	4.2-5.1
January	5.6	5.2-6.0	5.2	5.1-5.6
February	5.8	5.4-6.1	5.1	4.8-5.5

A comparison between the average size of herrings per age class between Cobh and Dunmore East is shown in Table 1.

Maturities

The tendency towards an earlier start to spawning was again reflected when "mazy" (stage VI) fish made their appearance in Baginbun as early as the middle of November. This meant that nearly all mature herrings landed at Dunmore East throughout the season were spawning. A similar condition existed at Cobh where clean (stage V) fish were only landed at the very beginning of the season. Those herrings taken off Tramore early in the season contained large amounts of small immature (stage II) fish. These young fish, however, had a typical autumn spawning vertebral count, which means that when they spawn for the first time, in 1970, they will do so in late September or early October. Again, as in the previous season, separate groups of herrings spawned at different times throughout the season. Two of these groups had spawned in Baginbun Bay before Christmas. In January, however, shoals spawned south of Dunmore East throughout the month, thus giving rise to considerable amounts of spents in the catches

It is not possible to separate the herrings spawning off Ballycotton and the Daunt into different groups.

Parasitic infestation

Samples of herrings were examined throughout the season for parasites. It was found that considerable numbers, particularly among larger herrings, were infected with a nematode worm Anasakis sp. As herrings from other areas, e.g. Killybegs, Castletownbere, etc. have also been examined for this parasite, it has been decided to publish a separate report on this matter.

Fat content of herrings. As in previous years, samples of herrings were analysed for fat content and the results are shown below. Herrings were low in fat content throughout most of the season, because they were in a spawning or pre-spawning condition.

Date	Area	Fat Content (%)
29/10	Mine Head	16.10 (fillets)
29/10	Mine Head	14.32 (round)
21/11	Mine Head	18.3 (full)
23/11	Baginbun	5.4 (mazy)
7/1	Baginbun	8.8
8/1	Youghal Bay	13.6
8/1	Daunt	9.1
8/1	Daunt	9.3
29/1	Baginbun	5.9
18/2	Daunt	4.3

The continued co-operation of skippers, and people in the trade, especially of the secretary of the South and East Coast Fisheries Association, in supplying information is greatly appreciated.

Table 1. Average length per age class for herrings landed at Dunmore East and Cobh.

Age (Years)	Dunmore East		Cobh	
	Cm.	Nos.	Cm.	Nos.
2	24.5	189	24.6	47
3	26.5	1266	26.9	365
4	28.3	359	28.6	280
5	29.1	226	29.3	137
6	29.9	88	30.0	88
7	30.2	72	30.4	94
8	30.8	30	31.1	20
9	30.8	15	31.0	7
10	30.7	5	30.9	6
10 +	31.2	15	31.4	8
Average	27.2	2265	28.3	1052