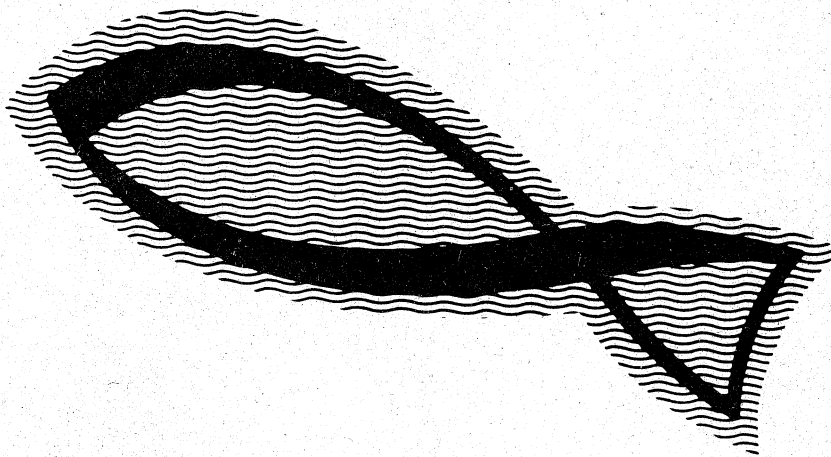




**Fishery Leaflet  
Number 62.**

**an roinn  
talmhaíochta  
agus iascaigh**

**Herring fisheries on the  
south and south west coasts  
1973-74.**



**by**

**J. Molloy.**

**DEPARTMENT OF AGRICULTURE AND FISHERIES  
FISHERIES DIVISION  
DUBLIN.1.**

Herring Fisheries on the south and south west coasts

1973 - 1974

by

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South coast (counties Wexford, Waterford, Cork).

The 1973/74 winter herring fishery off the south coast began in the week ending 10 November 1973 and ended on 26 February 1974. Some small landings were however made in the weeks before 10 November. The total landings at the ports of Dunmore East and Cobh amounted to 62192 cran. This was 47109 crans lower than the figure for the previous year and was in fact the lowest figure since the 1966/67 season. Seventy three boats, ten less than in the previous season, took part in the fishery. In the interest of conservation of the stocks it had been agreed prior to the opening of the season that no fishing should take place on Sunday nights. This practice was maintained throughout the season with the result that fishing only took place on 58 days out of a possible 90 days. Continuous broken weather throughout January and February also severely hampered fishing operations and because of this the fleet operating from Cobh was able to fish on only 16 nights from Christmas until the 28 February.

The following table shows the monthly landing in crans for each port, compared with the total landings in the previous two seasons. The total landings since 1956/57 are shown in fig.1.

Month	1973/74		Totals		
	Dunmore East	Cobh	1973/74	1972/73	1971/72
October	26	134	160	-	-
November	2718	3507	6225	23964	3516
December	17524	5766	23290	41700	23707
January	21963	3795	25758	39491	47118
February	2713	4046	6759	4146	4855
Totals (1973/74)	44944	17248	62192		
1972/73	76698	32603		109301	
1971/72	47139	32436*			79792

\* 217 cran landed elsewhere.

The landed value of all herrings auctioned at Dunmore East and Cobh amounted to £1,423,683 which was a record figure for the fishery. Because of the scarcity of herrings the demand throughout the season was exceptionally good and very high prices were paid. The average price was £22.89 which was more than double the figure of £9.68 paid during the 1972/73 season. The high prices paid more than compensated for the scarcity of herrings through the year. The average price paid per cran per month for Cobh and Dunmore East is shown below.

Month	Dunmore East		Cobh	
	Crans	£	Crans	£
October	26	18.31	134	13.28
November	2,718	18.53	3,507	20.37
December	17,524	22.33	5,766	21.84
January	21,963	23.40	3,795	25.48
February	2,713	24.58	4,046	25.76
Seasonal	44,944	22.75	17,248	23.20

As can be seen the prices tended to increase as the season progressed. The total landings, total value and the average price paid during the seasons 1968/69 to 1973/74 were as follows:-

Season	Total landing (Crans)	Value (£)	Average Price (£)
1973/74	62,192	1,423,683	22.89
1972/73	109,301	1,060,351	9.68
1971/72	79,792	718,128	9.00
1970/71	110,816	770,703	6.95
1969/70	96,936	544,670	5.60
1968/69	70,781	353,905	5.00

Total international catch. Table 1 shows the total catches from this fishery since 1951. The total catch has continued to decline from the high figure reached in 1969. The Dutch fleet no longer fish consistently in the area and the French and Irish

fleets are now the two main catching powers operating in the fishery.

Disposal of Catch. Because of the keen market demand no difficulty was experienced in the disposal of catch. Following the pattern established in recent years the proportion of herring frozen (either whole or filleted) continued to increase while the amount exported direct to the continent on luggers decreased considerably. The following table shows the disposal of the total catch and the approximate amounts exported to each country.

	Ireland	U.K.	Holland	F.R.Germany	Belgium	France	Poland	Norway	Japan	Sweden	Unknown	Total
Fresh (Whole)	300	3866	-		399	2480						7045
Rough packed (whole)		2439	32432	1087	173	910	1347			843		39231
Frozen (Whole)			3448	4338	458	1880			574		4017	14715
Others (frozen fillets spiced and cured gibbed)				430				700		70		1200
Total	300	6305	35880	5855	1030	5270	1347	700	574	913	4017	62191

Location of Fishery. The season opened when shoals were located off Capel Island by boats fishing from Cobh. In early November Dunmore boats fished small herrings from the estuary of Waterford harbour, and some shots were also taken from Baginbun Bay. For most of November and December very poor fishing was experienced in an area extending from Hook Head to Youghal Bay. Cobh boats were also at this time fishing the area around Capel Island and Youghal Bay. After Christmas fishing was conducted from  $1\frac{1}{2}$  - 6 miles south of Hook Head and Dunmore East and the shoals

remained in this area until the season closed. Most of the fish taken by Cobh boats in January and February were taken from the area between Mine Head and the Daunt Rock.

Landings per type of gear. The fishery is now conducted almost entirely by boats using paired midwater gear and landings by bottom trawlers have now almost entirely ceased. Some small boats used drift nets successfully in Waterford Harbour area early in the season. Landings per type of gear for the last five seasons were as follows:-

Type of gear	1969/70	1970/71	1971/72	1972/73	1973/74
Paired midwater trawls	71,046	95,877	77,094	107,523	61,783
Drift Nets	-	-	-	-	122
Single midwater trawls	200	-	-	-	-
Bottom trawls	25,690	14,939	2,698	1,778	287
Total	96,936	110,816	79,792	109,301	62,192

Catch per effort. The present index of stock abundance is taken as the average catch per night's fishing by a pair of midwater trawlers. Although this method is not the most reliable method of estimating stock size it does give a good indication of how the total stock varies from season to season. The following table gives the average catches per effort (crans per night's fishing) that have been recorded since 1966.

Season	Midwater Trawls		Total South Coast	Bottom Trawls
	Dunmore East	Cobh		Dunmore East
1973/74	68.4	56.9	64.5	13.7
1972/73	87.3	115.1	93.4	35.6
1971/72	59.3	83.8	67.7	30.5
1970/71	118.2	103.2	114.3	37.3
1969/70	94.1	138.2	111.8	35.5
1968/69	85.4	127.6	109.6	54.4
1967/68	86.1	122.3	99.0	49.2
1966/67	92.3	-	92.3	35.0

As can be seen the catch per effort showed a considerable reduction in 1973/74 and the estimated total stock size is the lowest recorded since 1966. It can also be clearly seen that the total stock reached its maximum during the period 1966-1971 and this period coincided with the time when the total catch was highest. After 1971, because of fluctuations in recruitment the stock has decreased considerably and this decrease is reflected in the diminished catch per effort. A more detailed examination of the monthly catches per effort indicate that herrings were present in reasonable quantities only in January off Dunmore East. Monthly catch per effort figures are shown in Table 2.

Effort. In the interest of stock conservation the fishermen decided before the season started, that no fishing would take place on a Sunday night. This was continued for the duration of the season and in effect brought about a reduction in the total effort of about 17%. The reduction in the effort was also helped considerably by the very bad weather conditions during January and also because of the fewer number of boats that took part in the fishery. Assuming that the total catch from the fishery was taken by paired midwater trawlers, we can estimate the total effort by dividing the total catch by the paired midwater catch per effort. The resultant figures for the last eight seasons are shown below.

Season	Total Catch (crans)	Catch per effort (crans)	Effort No. of fishing nights
1973/74	62,192	64.8	960
1972/73	109,301	93.3	1,159
1971/72	79,792	67.7	1,179
1970/71	110,816	114.3	970
1969/70	96,936	111.8	867
1968/1969	70,781	109.6	646
1967/68	63,643	99.0	643
1966/67	47,560	92.3	515

The effort for the season has been the lowest since 1969/70.

Scientific investigations. Samples of herrings, totalling 1,036 fish were examined throughout the main season from landings made at Dunmore East and Cobh. In addition 4,248 were measured only. Racial investigations were also carried out and fat content and numbers per kilogramme noted.

Length and age. The age distribution, which is shown below for the seasons since 1966/67, is expressed in crans per night's fishing, e.g. if the average catch per night was 64.7 crans in 1973/74, 5.9 crans would be two years old, 22.0 crans would be three year olds etc.

Age in years

Season	2	3	4	5	6	7	8	9	10	+10	Total
1973/74	5.9	22.0	24.9	2.3	3.8	2.8	1.7	0.7	0.1	0.5	64.7
1972/73	3.6	65.1	9.0	7.0	5.7	1.8	1.1	0.5	0.3	0.3	94.4
1971/72	6.4	11.8	14.3	18.0	7.6	4.2	2.4	1.8	0.3	0.7	67.5
1970/71	0.8	41.6	40.1	13.5	8.8	4.7	2.6	0.9	0.6	0.7	114.3
1969/70	5.6	52.4	22.6	13.3	7.2	6.7	2.0	0.7	0.5	0.7	111.7
1968/69	6.2	39.6	26.1	8.1	20.3	2.8	2.2	0.8	1.3	2.3	109.7
1967/68	9.0	41.7	12.2	19.8	4.6	4.2	2.1	3.2	1.1	1.2	99.1
1966/67	7.3	21.2	34.2	6.1	8.9	3.6	2.5	5.7	0.9	1.7	22.1

An examination of the age distribution for 1973/74 shows that the dominant age group was four year old fish. This age group, together with the two and three year old fish constituted over 82% of all fish landed. The dependence of the fishery on the recruitment is now very clearly seen. This recruitment was very poor during the 1971/72 and 1973/74 seasons with a consequent reduction in total catch and in catch per effort. When the total catch is expressed in numbers of fish per age class and compared with previous seasons the mortality rate can be estimated. This figure for 1973/74 was over 60% which is considered to be very high in spite of the reduced catch. It once again emphasises the fact that the total stock in the area has been considerably reduced. In the light of this estimate of mortality the total allowable catch for the area suggested by NEAFC must be considered to be too high and should be lowered to approximately 25,000 tons.

Condition of fish. Because of the scarcity of three year old herrings the average size of the herrings was slightly larger than the previous year. Herrings landed at Cobh were as usual slightly larger than those taken from south of Dunmore East. The number of herrings per kilogramme per month and the range are shown in table 3.

Samples of herrings were examined for fat content during the season. The method again used was that which assumes a direct relationship between the moisture content of fillets and the fat content, the formula being -

$$\text{Fat content (\%)} = 80 - \text{moisture content (\%)}$$

The average fat contents, shown in table 3, were lower than during previous seasons, this being particularly noticeable during January and February when the fat content dropped to as low as 3% - 4%.

Maturities. As in previous years most fish were full (stage V) early in the season, but became "mazy" (stage VI) as the time of spawning approached. Small immature fish (stage II) were taken in November and December from Waterford Harbour while "spents" (stage VII) also appeared on occasions in the catches. Because of the



prolonged bad weather it was impossible to determine the number of separate spawnings that took place during the season. One small spawning took place in Youghal Bay in mid-December while another occurred in Baginbun Bay in mid-January. After that continuous spawning seemed to take place in the area south of Hook Head.

Drift net fishery off Wicklow and Wexford

The drift net fishery of Counties Wicklow and Wexford lasted from late October to mid December. Approximately 3,600 crans were landed at numerous small ports along the coast. The value of the catch was nearly £52,000. One sample from this fishery was examined in November 1973. All fish belonged to a winter spawning component and were predominantly 3 or 4 year old fish. The number per kilogramme was 6.0 fish. The location of the spawning grounds used by these fish is not yet known. It is possible that they are migrating fish which will spawn in Baginbun Bay or possibly around Kilmore Quay where local fishermen believe there is a spawning ground.

South-west coast (August to November 1973)

The south-west coast autumn fishery, exploited mainly by boats fishing into Castletownbere and Dingle, started early in August and continued until early November. Herrings seemed to be considerably scarcer than in the previous year but high prices more than compensated for the decreased catches. Landings made at the principal ports were as follows:-

	1973		1972		1971		1970	
Port	Crans	Value	Crans	Value	Crans	Value	Crans	Value
Castletownbere	6,935	123,020	8,006	65,263	3,692		4,008	
Baltimore	213	3,132	639	6,469	80		1,641	
Dingle	4,345	63,742	2,365	21,309	844		158	
Reynard Pt.	507	7,425	169	14,900	-		-	
Total	12,000	197,319	11,179	94,891	4,516	34,490	5,807	38,000
Average price	16.44		8.49		7.47		6.54	

The value of the landings increased by over £100,000 which represented an increase of over 100%. Catches were made chiefly in the area north and south of Dursey Island and in Dingle Bay by boats using paired midwater trawls. During the period November to January 4,000 crans of herrings were landed in Bantry by boats using drift nets fishing off Gerhies. These fish were valued at approximately £40,000. Herrings landed at Castletownbere and Dingle were mostly frozen whole, while smaller quantities were exported fresh or rough cured for the continental markets.

Effort and catch per effort. Effort and catch per effort are again given in the same units as those for the south coast fishery (i.e. number of nights fished and crans per nights fishing for paired midwater trawlers). The figures obtained for the boats operating out of Castletownbere (shown below) show that a substantial decrease occurred in the catch per effort in 1973 while the effort continued to increase further. Comparative figures for the south coast winter fishery show the differences that occur between these two stocks.

It is clear that the stock inhabiting the Dursey Sound area is a comparatively small one.

<u>Year</u>	<u>Catch</u>	<u>Effort</u>	<u>Catch/effort</u>	
			<u>Castletownbere</u>	<u>South Coast</u>
1973	6935	151	45.9	64.8
1972	8006	121	66.2	94.3
1971	3492	99	41.4	67.7
1970	4179	47	48.7	114.3
1969	3010	29	103.8	111.8
1968	2141	44	88.9	109.6
1967	2238	54	35.3	99.0

Scientific investigations. Samples of the catches taken in September were examined for length, sex and maturity. The percentage age distribution which is shown below shows that the overall position of the age classes in this stock is not unlike that found in the south coast fishery.

Age in years

Year	2	3	4	5	6	7	8	9	10	+10
1973	2.7	20.5	56.9	3.7	7.4	3.4	0.7	2.0	1.0	1.7
1972	2.3	70.8	5.0	11.0	4.6	1.8	1.8	1.4	-	1.4
1971	3.0	11.1	44.5	19.2	4.0	9.1	7.1	1.0	1.0	-
1970	4.9	55.4	12.3	5.3	4.1	7.2	6.3	2.6	0.4	1.4
1969	15.8	28.7	12.7	20.3	5.6	12.4	2.8	0.8	0.3	0.6

However when the age distribution is related to the catch per effort it is seen that good year classes entered the fishery in 1971 and '72. The average mortality in this area over the last four seasons was around 45%. Thus taking into consideration the landings made at Bantry the total adult stock could only be estimated at an average of 25,000 crans in the Castletownbere area.

Acknowledgements

The continued co-operation of skippers, buyers and fishermen and particularly to the staff of both the South and East Coast Fishermen's Association and of the Castletownbere Fishermen's Association in supplying information used in this report is gratefully acknowledged.

TABLE 1. Herring catches in ICES Division VII g-k, south coast Ireland (metric tons)

Year	C O U N T R Y								Total
	Belgium	France <sup>4)</sup>	Germany <sup>1)</sup>	Ireland <sup>2)</sup>	Netherlands <sup>3)</sup>	Poland	England	USSR	
1951	534	1,001	-	600	-	-	888	-	3,023
1952	1,792	762	-	845	-	-	681	-	4,080
1953	502	1,697	-	693	-	-	883	-	3,775
1954	2,251	14	-	1,386	-	-	1,287	-	4,938
1955	4,230	21	-	1,619	-	-	1,789	-	7,659
1956	2,539	226	-	3,348	-	-	2,289	-	8,402
1957	1,256	397	949	6,116	4,047	-	881	-	13,646
1958	708	967	11,743	7,869	5,813	77	1,922	-	29,099
1959	98	1,717	9,248	10,132	3,720	124	770	-	25,809
1960	-	1,083	60	14,935	1,463	-	73	-	17,614
1961	128	3,995	785	5,876	3,449	96	2	-	14,331
1962	249	7,755	475	4,502	4,154	56	-	-	17,191
1963	7	6,081	251	4,405	10,018	-	340	-	21,102
1964	-	4,894	-	3,375	6,128	-	744	-	15,141
1965	-	1,742	353	3,980	7,198	-	1,054	-	14,327
1966	-	5,506	1,143	6,891	16,605	112	197	-	31,454
1967	-	3,825	910	11,133	13,184	300	398	-	29,750
1968	-	2,637	1,662	9,480	15,679	130	598	-	30,186
1969	-	7,038	5,906	18,712	16,256	252	-	-	48,164
1970	-	3,627	1,481	24,702	7,015	1,191	220	-	38,236
1971	-	3,393	974	12,602	9,672	881	65	-	27,587
1972	-	7,327	393	20,109	6,758	751	-	618	35,956
1973x	-	6,173	294	13,105	5,834	1,000	-	500	26,906

1) 1961-68 according to national statistics from "Bundesforschungsanstalt für Fischerei", Hamburg.

2) 1960-66 including catches incorrectly reported to "Bulletin Statistique" as taken in Division VIIa.

3) Catches in 1957-58 according to national statistics, in 1959-68 according to "Bulletin Statistique" ICES Divisions VII g-k + VIIa, f

4) Catches according to "Bulletin Statistique" from 1951 to 1960 and supplied by "Institut des Pêches Maritimes",

x) preliminary

Monthly catch per effort figures (crans per nights fishing  
by midwater trawlers).

Table 2

	1973/74		1972/73		1971/72		1970/71		
Month	D/East	Cobh	D/East	Cobh	D/East	Cobh	D/East	Cobh	
October	26.0	44.7	-	-	97.0	-	-	-	
November	35.8	33.1	78.9	82.5	22.6	20.8	94.5	66.8	
December	58.1	75.9	102.0	269.8	50.7	91.8	100.7	131.6	
January	105.3	84.1	93.0	94.7	82.4	105.6	83.4	173.3	
February	38.2	55.4	42.3	-	85.0	52.9	95.8	59.6	

Table 3 Percentage Fat content and numbers per kilogramme.

Month	Area	Condition	Fat Content	No./Kilogramme
September	Dursey Island area	nearly full	16.0	4.5
	Dursey Island area	nearly full	19.0	4.1
	Cahermore	nearly full	18.0	5.1
November	Waterford Harbour	full	12.7	6.7
	South of Hook Head	full	12.0	5.1
December	South of Hook Head	"maizy"	10.0	5.2
January	South of Hook	maizy	5.0	5.1
	South of Hook	maizy	6.0	5.0
	Capel Island	maizy	6.0	4.8
February	Ballycotton Bay	maizy	4.0	5.0