



AN ROINN TALMHAIOCHTA AGUS IASCAIGH
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**THE WINTER HERRING FISHERY OF THE NORTH-WEST
COAST OF IRELAND 1968 - 1969.**

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The Winter Herring Fishery of the North-West of Ireland (1968/69)

BY

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Introduction. The 1968/69 winter herring fishery off the Donegal, North Mayo and Sligo coasts began in mid October, 1968 and continued until the end of January, 1969. A total of 63,821 crans were landed during the season as compared with 55,193 crans landed during the 1967/68 season. The majority of the landings were made at the ports of Killybegs, Sligo and Burtonport.

Monthly landings were as follows:-

Month	PORTS				Total
	Killybegs	Sligo	Burtonport	Others	
	crans	crans	crans	crans	crans
October	3,556	-	865	-	4,421
November	10,557	5,191	4,086	355	20,189
December	11,759	9,847	2,440	543	24,589
January	7,542	5,041	1,159	-	13,742
February	89	-	791	-	880
Total	33,503	20,079	9,341	898	63,821

A feature of the season was the increased landings made at Sligo by both local and Killybegs boats.

Gear and Catch per effort. Eleven pairs of boats using Larsen midwater trawls and ten single boats using bottom trawls took part in the fishery. Isolated landings were also made by boats using single midwater trawls and ring nets. Most of the landings made in Sligo were by boats using bottom trawls while 70% of the catch landed at Killybegs was taken by midwater trawls. The catch per type of gear was:-

	<u>crans</u>
Paired midwater trawls.....	30,889
Bottom trawls.....	28,455
Ring nets and single midwater trawls....	<u>4,477</u>
Total....	63,821

The average catch per landing, (i.e. catch per effort) which is used as an index of stock abundance, was as follows:-

	<u>Crans</u>
Paired midwater trawls.....	161.0
Bottom trawls.....	50.0
Ring nets.....	102.0

Comparison of these figures over the seasons will give an estimate of the densities of the stocks.

Location and extent of fishery. Fishing took place over a wide area during the season which opened when shoals were located at Dawros Head in mid October. By the end of October fishing had moved to south of Glen Head, and during November shoals were located off Malinbeg and Fintra Bay. Towards the end of December they were located off Bruckless Bay, and in early January off Doorin Head. From the middle of December to early January shoals were also located off the Stags of Broadhaven, on the north Mayo coast, off Killala Bay and the mouth of Sligo Harbour.

Disposal of the Catch. During the season approximately 14,000 crans or 22% of the total catch were used for reduction to fishmeal and fish oil. The remainder was mostly rough packed for export to the continent while smaller quantities were utilised for the fresh market in Britain and at home. The value of the herrings landed amounted to £197,486 and the landed price per cran averaged 62 shillings.

Scientific Investigations: Scientific investigations were carried out during the season on herrings landed at Killybegs, Sligo and Burtonport. The long term aims of these investigations are -

- (1) To distinguish the various races of herrings that frequent this area;
- (2) To study the effects of fishing on these races and
- (3) To estimate subsequently an economic yield for the fishery.

Little is known about the movements or the location of the spawning grounds of these herrings. As the fishery at present is predominantly based on spent and recovering spent fish which are not always in great demand, it would be of particular benefit to locate these herrings before they spawn in September or October and also to locate the major portion of the race of full fish which at present constitute only a small part of the catches.

As in previous seasons, two main separate races were distinguished during the season - an autumn spawning component which constituted the major portion of the catch and a smaller winter/spring spawning component. During the season, 2,353 fish were examined for length, sex, maturity, vertebral counts,

age and racial characteristics.

Age and Length. The dominant age groups present in both winter/spring and autumn spawning components were five and three-year-old fish. It would also appear that the number of young or recruit fish entering the adult shoals was again rather low and that the five-year-old fish, in particular, will be the mainstay of the fishery for some time. In the single sample examined from Burtonport older fish were very well represented and the dominant age group was that of 10 year-old fish. Mean lengths per age group revealed that fish belonging to the winter/spring component were slightly faster growing than those in the Autumn spawning component.

The percentage age distributions for each component were as follows:-

Race	Age in Years									
	2	3	4	5	6	7	8	9	10	10#
Winter/Spring	0.0	19.7	6.4	46.7	2.3	7.5	0.6	0.6	14.5	1.7
Autumn	0.9	11.9	3.5	73.8	4.3	1.6	1.1	1.0	1.1	0.8

Maturity Stages. Spent (stage VII) and recovering spent (stage VIII) fish were the most prominent during the season. Full fish (stages IV-VI) constituted less than 7.5% of the total examined. Recovering spent fish gradually became more numerous as the season progressed.

Vertebral counts. Vertebral counts are used as a method to separate races. Winter/spring spawning herrings have a higher mean vertebral count than autumn spawning herrings. During the 1968/69 season, however, this difference was not as clear cut as in previous seasons. The average vertebral counts were as follows:-

Winter/spring spawning component = 56.59

Autumn spawning component = 56.50

Mean lengths and mean vertebral counts per maturity stage per age class are shown in Table 1 attached.

Fat Content Analyses. Estimates of fat (oil) content were made on fish examined during the season. The results obtained are shown in Table 2. Except where stated all samples were taken from fillets of Killybegs herrings.

Acknowledgement. The co-operation of skippers and others in supplying information is greatly appreciated.

Table 1. Mean lengths and mean vertebral counts per maturity stage per age class

Maturity	Age in years										Total
	2	3	4	5	6	7	8	9	10	10+	
II Stages No. of fish Mean Length (immature) Mean vertebral Count	12 23.4 56.75	23 23.9 56.74	2 25.1 55.50	1 27.3 56.00							38 23.89 56.66
III (filling)		1 26.1 58.00									1 26.1 58.00
IV (filling)		5 26.7 57.00		1 27.2 57.00							6 26.88 57.00
V (full)		15 28.4 56.73	2 27.2 56.00	24 28.7 56.58	1 29.2 57.00	3 31.2 56.00		1 30.8 58.00	7 32.4 56.43	1 32.5 56.00	54 28.3 56.57
VI (full)		14 26.1 56.43	9 28.0 57.11	56 28.1 56.45	3 31.0 57.00	10 30.9 57.00	1 32.1 56.00		18 32.2 56.72	2 32.1 56.50	113 28.9 56.60
VII (spent)	2 25.0 56.00	54 26.11 56.52	20 27.00 56.40	59 27.7 56.49	28 28.7 56.75	6 30.7 56.50	6 30.4 56.33	2 30.9 56.50	5 30.74 56.80	5 31.12 56.60	719 27.7 56.50
VIII (recovering spent)	4 24.2 56.50	170 25.8 56.55	50 26.5 56.46	94 27.7 56.48	61 28.7 56.58	27 29.4 56.33	17 30.2 56.41	19 30.2 56.68	17 30.6 56.82	12 30.6 56.42	1,322 27.6 56.49
TOTAL	18	282	83	1618	93	46	24	22	47	20	2,253

Table 2. Percentage Fat Content (1968/69)

Date	Fat Content Percentage	Condition
29.10.68	6.9	spent
29.10.68	9.3	full
30.10.68	7.5	spent
4.11.68	7.9	"
5.11.68	7.8	"
14.11.68	11.9	full
14.11.68	10.5	spent
18.11.68	8.2	"
19.11.68	8.9	"
19.11.68	17.3	full
25.11.68 (Sligo)	8.2	spent
27.11.68	8.9	"
27.11.68	14.3	full
28.11.68	7.0	spent
2.12.68	10.4	"
4.12.68	6.3	"
10.12.68	7.3	"
11.12.68	9.2	"
30.12.68	11.8	"
7. 1.69	4.2	"
8. 1.69	7.8	"
8. 1.69	8.6	full
23. 1.69 (Sligo)	3.3	spent
28. 1.69	3.1	"
29. 1.69	4.4	"