

Nephrops Norvegicus in Irish Waters.

by

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Landings 1961

Irish landings of Nephrops for 1961 amounted to 716.4 metric tons, almost all of which were from the Irish Sea. This was a considerable improvement on the quantity for 1960 when only 378 metric tons were landed but the 1959 quantity was 763.2 metric tons. The mean percentage monthly landings for 1961 were:

Jan.	Feb..	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
0.0	1.0	7.7	17.4	16.8	21.2	13.1	10.0	8.3	2.9	1.1	0.5

The mean size of Irish Sea Nephrops has fallen during the past three years from 30.5 mm (carapace length) in 1959 to 29.0 mm in 1960 and to 28.2 mm in 1961. The fall in the mean size in 1961 may have been due to a large but late recruitment in 1960, which might also explain the low yield in that year. Investigations also show that this trend is continuing in 1962. In 1959, 25.9 % of all individuals examined were 34 mm (carapace length) or upwards in length; in 1960 the percentage dropped to 23.5 % and in 1961 to 18.0 %. Using the Irish market standard (i.e. a tail size of 2 inches (50.8 mm) or upwards) in 1958, 70.7 % were of standard size; in 1959, 65.7 %; in 1960 67.7 % and in 1961, 58.9 %. In effect in 1961, 40 % of the catch with close mesh trawls was below the standard normally required by the Irish market.

The Irish Sea fishery is carried on by some boats, which in season fish solely for Nephrops, and others which fish for demersal fish, the Nephrops catch being purely incidental. Vessels fishing solely for Nephrops operate from Skerries, whereas the other vessels operate from Clogherhead, Balbriggan and Howth. The by-catches in the Skerries fishery for 1960 and 1961 were as follows:

Period	Hake	Plaice	Cod	Whiting	<u>Nephrops</u>
28 Feb. 1960- 23 Sept. 1960		35 cwt. (0.6%)	750 cwt. (11.8%)	826 cwt. (12.9%)	4767 cwt. (74.7%)
6 Mar. 1961- 30 Sept. 1961	1.5 cwt. (0.1%)	-	304.5 cwt. (3.0%)	1055 cwt. (10.6%)	8609.5 cwt. (86.3%)

The Nephrops catch in the other fisheries amounted to 11% by weight of the total during the same period in 1961

Catch and Effort statistics.

From March to June, seven vessels of the 50-foot class from Skerries using meshes of 45 mm or smaller trawled for Nephrops. In July a further vessel commenced trawling and these 8 vessels remained fishing for Nephrops until end of September. In October a number of vessels changed over to seining for other fish. As the port of Skerries is tidal, the boats generally fish 'across' low tides and in the Summer months sometimes across two low tides if conditions are favourable. A record was kept of the number of days fishing each week, but unfortunately it was not possible to ascertain the number of hours actual fishing by each boat. Under these circumstances the catch/effort was estimated in terms of cwts of Nephrops per boat-day as follows:-

Month	Boats Fishing	Days Fishing	Boat Days	Total caught	Catch per boat/day
March	7	15	105	900 cwt.	8.6 cwt.
April	7	18	126	1,612 $\frac{1}{2}$ "	12.8 "
May	7	20	140	1,424 $\frac{1}{2}$ "	10.2 "
June	7	19	133	1,950 "	14.7 "
July	8	19	152	1,012 $\frac{1}{2}$ "	6.7 "
August	8	19	152	1,100 "	7.2 "
September	8	18	144	610 "	4.2 "
October	ca. 5	16	ca. 80	325 "	ca. 4.1 "
November	2	7	14	51 "	3.6 "

Mesh Experiments.

The mesh of the trawl used for Nephrops research purposes from the Cú Fcasa is as follows:-

Wing 105 mm, Belly 85 mm with interchangeable cod-ends.

Mesh experiments were carried out in the Irish Sea in February and March 1962. Trawling over the same ground gave the following results:

Cod End mm	Mean Carapace length mm	% of individuals of 27 mm carapace length and over	% of individuals of 34 mm carapace length and over
50	27.5	59.0	17.9
60	28.3 & 27.9	52.4 & 49.7	22.6 & 20.3
70	31.7 & 31.3	72.6 & 77.9	42.1 & 35.8

Experiments were also carried out using a close mesh cover over the cod ends. The percentage escapes of each millimetre carapace length group are set out in Table 1.

The 50% release point with the 50 mm mesh was at 18 mm carapace length. It must be borne in mind that the mean size of the individual has a decided influence on the release point. In this case the mean carapace length of the retentions was 26.9 mm and the escape, 20.9 mm. Of the retentions 15% had carapace lengths of 34 mm or over, while none of the escapes was of this size. Of the retentions 46.5 % had at least two-inch tails, while only 5.4% of the escapes were of this size.

Using a 60 mm cod end the 50% release point occurred at 19 mm carapace length. Here the mean size of the retentions was 27.1 mm, and escapes 22.4. With this mesh size 14.9% of the retentions and 0.7% of the escapes had carapace lengths of 34 mm or over. (43.3% of the retentions and 12.3% of the escapes had at least two-inch tails).

In the 50 mm mesh experiment 644 individuals with not less than two-inch tails were retained while only 16 escaped, i.e. a ratio of 40.25 : 1 or for every 100 escapes a catch of 4,025. Using the 60 mm mesh, 360 individuals of similar size were retained and 36 escaped, a ratio of 10 : 1 or for every 100 escapes a catch of 1,000.

A 50 mm mesh experiment was carried out on the Killybegs (Co. Donogal) grounds where the mean carapace length of the individual was 37.3 mm. Of a total of 2,600 Nephrops taken only 7 escaped (mean carapace length 26.3 mm).

Growth

On April 25-27, 1962 a total of 32 tin-tow/hauls were made at different stations in the Irish Sea. A total of 105 Nephrops larvae were examined and all but one were at stage I of their development. The mean total length of the larvae was 9.5 mm and the fork length 6.3 mm. Length was measured from tip of rostrum in each case. On 29th May 1962 a long haul was made which resulted in a catch of 7 stage I larvae and 2 stage II. The stage II larvae of this and the previous haul had a mean total length of 15 mm and a fork length of 12 mm. No stage III larvae were encountered.

The smallest Nephrops encountered had a carapace length of 12.2 mm or a total length of 39 mm, though they are not commonly found below 15 mm (total length, 49 mm). There is a tendency for a larger proportion of small sized Nephrops to occur in the catch at certain periods of the year, i.e. April and October-November. The mean percentages of occurrence of the 15 mm-19 mm carapace length groups over the years 1958-1961 are given below:

Table 1. Percentage escapes for each millimetre carapace length group

Percentage escapes for each mm length group																									
14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
-	100	65.2	58.0	48.8	44.1	32.9	29.2	25.3	20.8	14.2	17.3	6.0	9.0	1.3	5.3	-	-	2.9	3.7						
100	75.0	50.0	68.8	65.8	48.0	45.5	40.9	44.8	36.0	24.4	19.5	16.4	16.7	17.0	20.0	3.5	9.1	3.8	10.0	4.5	-	-	-	-	4.5