



AN ROINN TALMHAIOCHTA AGUS IASCAIGH
(Department of Agriculture and Fisheries)

FISHERY LEAFLET No.34.

SEASONAL AND ANNUAL CATCHES OF
LOBSTERS, CRAWFISH, AND CRABS
1961 - 1970.

By

F. A. GIBSON.

Fisheries Division

DUBLIN
1972.

Seasonal and annual catches of lobsters, crawfish and crabs

(Years 1961 to 1970).

During the ten year period from 1961 to 1970 certain changes took place in the lobster, crawfish and crab fisheries of Ireland which are worth recording and provide valuable information about the seasonal pattern of fishing for those species.

INTRODUCTION: The numbers of lobsters, crawfish and crabs landed monthly from 1962 to 1970 are given in Tables 1, 2 and 3 respectively.

Certainly from 1890 to 1927 the lobster fishery around Ireland was a separate fishery. Such crawfish or crabs as were caught by lobstermen were by way of by-catch. The type of gear used by these fishermen, whilst it varied in size and design from area to area, was clearly identifiable as being for the capture of lobsters. From 1927 onwards a progressively increasing proportion of the gear used to catch lobsters was of a type which was originally designed on the Continent to catch crawfish. At present, up to 55% of the gear used to catch lobsters is of that same design, so that the lobster and crawfish fisheries have become closely interlinked. The result of this development has been that the best use has not been made of either fishery. The annual catch from the lobster fishery has decreased so that over the last 30 years it is about three quarters of what it had been over the previous 30 years. At the same time the crawfish fishery has never really developed into a distinct fishery, because it has been, with a few exceptions, pursued as a mixed lobster/crawfish fishery. The exceptions include crawfish fishing off the Kerry coast in the late '50's up to 1961, which was carried on successfully by 50 ft trawlers, and winter/spring fishing off the coast of Wexford during the late '60's and early '70's.

Up to 1967, crab landings consisted of a by-catch from a mixed lobster/crawfish fishing. However, from 1968 to 1970 a specialised crab fishery developed. In many areas, fishermen turned to crab fishing in order to supply a number of crab processing plants which had been established. This involved a change of fishing gear to traps specifically designed for crab fishing, the use of new trap baiting

systems, and a change of fishing ground from that formerly fished for lobster/crawfish. The improvement in crab fishing produced by this specialised fishery was such that in the three years 1968, 1969 and 1970, five times the quantity (1,460 tons) was landed as had been landed for the entire period from 1961 to 1967 (285 tons).

SEASONAL FISHERY FOR LOBSTERS: The January to November monthly landings of lobsters over the period, except for 1961 for which these data are not available are given in Table 1. December landings are hardly if ever recorded. Catches in the period January to March are usually taken from sheltered coastal areas and in particular off the east coast near Dublin. Details are also given in Table 1 of the combined March/April, October/November, February/March and the annual catches.

Large-scale lobster fishing does not commence until May. However, in each of the years 1967 to 1970 the rate of fishing in April was significantly intensified as is shown by the increased average April catch in those years of 8,900 lobsters which compares with the average April catch of 3,770 lobsters in the years 1962 to 1966 (Table 1). Likewise, the May catches for the years from 1967 to 1970 averaged 43,100, compared with 12,400 from 1962 to 1966.

With a view to increasing the annual catch, the Department of Agriculture and Fisheries advocated an earlier start to the lobster fishery, preferably in March, and its continuation to end-November. The determining factor in this is the weather which may curtail lobster fishing to a greater extent in October and November, than in March and April. However, when weather conditions permit, lobster fishing in October and November can be at a high rate by comparison with the March/April catches (Table 1). In all cases the late season catches range from twice to eight times as many as the early season catches, the reason being that sea temperatures in October and November are on average some 5°C higher than in March and April. The capture of lobsters is invariably higher when sea temperatures are above rather than below 10°C.

Associated with advantages gained from lobster fishing early and late in the year, is an obvious and important disadvantage. It has been observed over many years that in the early and late part of the year lobster stocks contain large numbers of recruits. These recruits which are all below the minimum legal size limit i.e. 83 mm carapace length are the future stock upon which the fishery for adults will depend. They are very vulnerable to overfishing and if they are caught, landed and sold their loss will destroy the lobster stocks in any area, making fishing there uneconomic within a few years. Many fishermen are aware of the need to conserve lobster stocks by returning to the sea recruit sized individuals found in their traps. However, the fact remains that a large number of fishermen continue to ignore the legal size limit for lobsters and without any thought for their own or their neighbour's interest in the future of the lobster fishery, deliberately retain and sell undersized lobsters. Unless this practice is discontinued by the fishermen at all times during the fishing season, it may be found necessary to introduce seasonal limitations on lobster fishing directed specially at protecting the recruit lobsters. This would be an unfortunate development because it would curtail the catch increases made possible in recent years by the early and late fisheries.

The combined February/March landings of lobsters are also shown in Table 1. In some years, a clear relationship exists between the size of landings in those months and annual landings, in that high catches in February and March are followed by high annual yields as occurred in the years 1966, 1968 and 1969. Conversely the lowest annual catch for the period under review which occurred in 1963, followed a low February/March catch. However, the relationship does not always hold good as, for example, in 1962 when the February/March catch of 1,900 lobsters was followed by an annual catch of half as many lobsters as in 1969 when the February/March catch was also about 1,900 lobsters.

The total catch of lobsters from 1961 to 1970 was 4,152,638 or an average annual catch of 415,264 lobsters, the minimum catch being 143,500 below this average and the maximum being 112,076 above it; there is no evidence of a decline from the catch figures. However, there are only three means by which the yield can be improved:

- (a) by the use in all areas of lobster gear designed for the capture of that species;
- (b) by opening up new fishing grounds, and
- (c) by strict observation of the legal size limit.

In most years the lobster catches reach their maximum in August, though sometimes - as in 1964, 1965, 1968 and 1969 - this occurs in July (Table 1). The combined catches for June, July, and August always make up 60% of the annual catch and often as much as 70% of it. Not only are lobsters most readily caught during June, July and August because of high sea-temperatures and good feeding, but the increased daylight during those months provides more time for fishing. In any year in which the weather in June, July and August is unfavourable to lobster fishing, there is a marked drop in the total annual catch. For example in July, 1968 and July, 1969 there were protracted periods of unusually fine and calm weather especially along the south western sea coasts; that weather broke and remained poor in August, 1968, with a reflected fall in the catch, while in August 1969 it remained fair and the catch held a high level.

Over the decade 1961 to 1970 there has been no radical change in the character of the Irish lobster fishery. It is still pursued in over 50% of cases as a mixed lobster/crawfish fishery, thus not deriving the full benefits of fishing for either species. The total catch dropped to a low figure in 1962 and 1963, years notable for their prolonged periods of broken summer weather. During the latter part of the decade, from 1968, more fishermen prolonged their fishing season by starting in April and continuing to October thereby increasing annual catches.

SEASONAL FISHERY FOR CRAWFISH:

In effect there was no continuing specific crawfish fishery during the years 1961 to 1970. As already mentioned, there was a large boat fishery off the south west coast in the late '50's up to 1961. The bad weather during the summers of 1962 and 1963 probably turned these fishermen from crawfish fishing to other fisheries so that they did not return to crawfish fishing during the latter part of the decade (Table 2). A small winter/spring fishery for crawfish which commenced off the south east coast in 1968 was continued in 1969 and during the months of January, February and March, 1970.

The monthly catches of crawfish set out in Table 2 show many characteristics in common with those of the lobster fishery. Crawfish fishing which commences seriously in May is, like lobster fishing, at its best in the months of June, July, August and gradually diminishes in September. This pattern of fishing is to be expected of a mixed fishery on two species.

There is some evidence that crawfish undertake considerable migration. A limited number of crawfish which were tagged by officers of the Fisheries Division and liberated in Clonakilty Bay, Co. Cork, were subsequently recaptured in a number of places at considerable distances from the point of liberation. This is quite unlike the results obtained from lobster tagging, in which case all recaptures have been made within one mile of the point of liberation even after being at liberty for as long as three years. Lobsters become sluggish and even more confined in their movements during the colder part of the year from December to March, whereas recent research work indicates that crawfish are still active in deep water during those months. Both species are similar in that they are most active-feeding as much as possible and most likely to enter traps in search of food - from May to September when sea water temperatures are at their seasonal highest.

The pattern of the total annual catch of crawfish (Table 2) is similar to that of lobsters. Both 1962 and 1963 were poor years followed by steady improvement up to 1965 (which was the peak for crawfish during the decade) and 1966 dropping back from 1967 to 1969 and rising again at the end of the period. These total annual figures, all under 200,000, can only represent a very small fraction of the available adult stock. Skuba diving for crawfish is not legal in Ireland, but the many and widely separated observations of trained skuba divers who count the numbers of crawfish in selected areas, make it clear that large stocks of the species exist around our shores.

Crawfish are specialised feeders, capable of browsing on a number of species of animals which live on the firm substrata in depths from a few to over 25 fathoms. At such depths the food supply is abundant and therefore, difficulty is experienced in luring crawfish to move into a trap containing bait. To make matters more difficult, preserved bait is often used, and in this event and even where fresh bait is used the quantity secured to the trap is in most instances far too little to tempt many crawfish away from the plentiful food supply. On the other hand, food is less plentiful in deeper water, and here it may be a less difficult task to lure crawfish into the traps, especially if sufficient and appropriately attractive fresh bait is offered. This was the catching basis of the large boat fishery in 40 fathoms of water off the south west coast during the late '50's.

There is no legal minimum size limit for crawfish at present. Investigations carried out by officers of the Fisheries Division since 1960 have not shown any pronounced increase or decrease in the average length and weight of crawfish captured. The evidence points to a largely underexploited resource, which can only be developed and brought to its maximum yield by the pursuit of specific crawfish fishing.

SEASONAL CRAB FISHING: Like crawfish, crab fishing was very much a by-product of lobster fishing from 1961 to 1968. For a long time before 1961, the same pattern had held. In 1957, officers of the Fisheries Division undertook specific fishing trials for crab fishing,

with encouraging results which were published in Fisheries Leaflet No. 4, (1958). There followed in 1958 and 1959 a brief interest in crab fishing in a small number of areas but these fisheries did not continue, mainly because of lack of shore facilities to handle the landings. However, specialised crab fisheries emerged in 1968, 1969 and 1970, following on the establishment of processing factories which were actively encouraged by the Fisheries Division, Bord Iascaigh Mhara and financed by means of grants from the Industrial Development Authority. It is hoped that in the future there will be a continuing improvement in the yield from crab fisheries.

The crab stocks around the Irish coasts are extensive and under-exploited. However, they can be overfished and it is well to point out that a legal minimum size limit of $4\frac{1}{2}$ " across the long axis of the shell, is in operation. The taking of crabs which are below the legal size limit will undoubtedly reduce seriously the stocks of the species.

As can be seen from Table 3, the crab fishing season extends from May to the end of November. The latter month in particular can be a very good one, if weather permits as it did in 1969.

SUMMARY AND GENERAL CONCLUSIONS: The three fisheries - lobster, crawfish and crab-are slowly undergoing certain changes which are to their individual advantage.

LOBSTER - Separate lobster fisheries are carried on particularly in the Irish Sea where crawfish seem to be scarce or absent from the western side, and along the north coast of Donegal where most of the fishing gear used is specifically designed for lobster fishing and is unlikely to catch crawfish. Of the three species referred to in this leaflet the lobster stocks are the most sensitive and most vulnerable, especially to overfishing. Lobsters are not as numerous in Nature as crawfish and crabs and this factor, together with their semi-sedentary habits, makes it essential that lobster be fished in a rational manner. Lobster stocks are localised and therefore, persistent fishing in one small area will lead quite quickly to an uneconomic yield level especially

if undersized individuals are landed. Some fishermen have maintained a high rate of lobster capture simply by rotating annually the fishing areas used by them and by returning legally undersized lobsters to the sea.

It has been observed also that the bait used for lobster fishing is often of poor quality and inadequate quantity. Lobsters are active feeders on bottom living animals but they will not eat food which is stale. It is very important, therefore, for bait to be fresh when placed in traps and to be replaced as soon as possible; likewise pickled bait must be thoroughly preserved and not allowed to go sour in the bait tubs. As to the quantity of bait offered to lobsters, a simple guideline is to place in each trap the same weight of bait as the weight of lobsters which the trap is expected to catch; at present too little bait, and that often of poor quality, is being used by many fishermen.

In general, if -

- (a) specially designed lobster traps containing sufficient bait of good quality are used;
- (b) rotational fishing patterns are adopted;
- (c) new fishing grounds are explored, and
- (d) the minimum legal size limit of lobsters (viz. 83 mm carapace length) is strictly observed,

it is considered that the annual total catch of lobsters from Irish sources could be raised considerably above the present level.

RAWFISH - Crawfish and lobster fisheries are generally interlinked in Irish waters. Separate crawfish fisheries have been reported, though only rarely. The crawfish stocks can withstand greater exploitation.

CRAB - The crab fishery is beginning to stand on its own and not to be dependent upon that for either lobster or crawfish; it is also capable of greater exploitation.

Gibson, F.A. and J. O'Connor. Notes on Crab fishing. Fish Leaf. No. 4. Dept. Ag. and Fish. Dublin.

x Monthly data for 1961 not available.

L O B S T E R S

Year	Jan	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Mar/Apr	Oct/Nov	Feb/Mar	Annual ϕ Total
1961															319,856 ^x
1962	-	-	1,954	6,315	16,625	37,888	76,762	84,587	43,765	24,100	1,873	8,267	25,973	1,954	296,800
1963	-	-	450	2,582	9,349	29,926	79,638	75,686	61,459	11,442	386	3,032	11,828	450	271,761
1964	308	352	972	3,143	9,370	64,594	122,306	97,664	58,754	20,818	1,228	4,115	22,046	1,324	383,622
1965	410	450	551	3,720	14,619	51,569	109,241	73,760	73,499	31,028	2,063	4,271	33,091	1,001	362,851
1966	260	252	1,332	3,092	12,101	90,992	129,907	130,259	85,138	28,827	4,249	4,424	33,076	1,584	491,668
1967	953	624	480	9,166	21,748	110,084	112,232	139,034	58,364	14,030	11,473	9,646	25,403	1,104	495,017
1968	734	856	1,214	9,436	37,787	92,117	130,589	88,827	69,551	51,342	7,678	10,650	59,020	2,060	508,766
1969	767	1,176	818	8,000	56,977	77,972	122,516	118,459	71,004	25,465	6,447	8,813	31,912	1,984	527,340
1970	757	1,064	1,173	9,216	55,915	106,067	106,717	107,131	53,952	12,337	6,676	11,089	19,013	2,237	494,957

x Monthly data for 1961 not available.

C R A W F I S H

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Mar/Apr	Oct/Nov	Feb/Mar	Annual Total	δ
1961															135,854 ^x	
1962	-	-	17	293	4,154	13,958	19,978	20,962	10,660	9,824	15	290	9,839	17	86,975	
1963	-	-	-	65	1,670	14,059	34,845	18,632	11,480	1,455	197	65	1,682	-	82,787	
1964	38	13	-	256	928	20,106	35,031	23,268	20,713	6,322	548	256	6,870	51	109,638	
1965	-	-	-	34	5,792	35,203	52,682	16,413	43,090	6,368	998	34	7,366	-	163,899	
1966	27	-	2	204	1,148	32,244	50,711	33,747	22,775	17,498	1,654	206	19,152	29	160,693	
1967	-	-	-	1,007	5,559	41,301	37,847	26,202	12,727	1,039	2,741	1,007	3,780	-	129,653	
1968	-	622	-	817	9,025	26,532	35,762	19,941	15,473	9,137	3,188	817	12,325	622	124,648	
1969	-	82	1,208	904	9,908	17,508	32,587	25,350	13,771	4,555	4,158	2,112	8,713	1,290	113,747	
1970	40	82	1,329	775	10,090	30,311	40,973	34,581	9,732	4,605	4,337	2,104	8,942	1,451	155,344	

x Monthly catch data for 1961 not available.

C R A B S

Year	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Mar/Apr	Oct/Nov	Annual Total
1961												80,490 ^x
1962	-	2,500	3,937	8,470	9,042	12,524	8,776	11,644	3,960	2,500	6,464	60,853
1963	-	2,496	5,537	2,412	9,743	4,449	5,710	10,097	6,975	2,496	17,072	47,419
1964	960	990	5,004	24,745	22,097	5,546	28,516	5,329	15,804	1,950	21,133	114,173
1965	180	4,320	1,244	26,756	4,956	33,126	22,277	26,000	3,064	4,500	29,064	118,593
1966	747	368	3,301	12,080	6,320	6,962	8,490	7,896	3,250	1,115	11,146	49,582
1967	-	2,088	6,438	18,766	12,576	12,213	13,670	6,088	4,987	2,088	11,015	75,816
1968	-	820	10,406	11,717	79,569	70,782	83,434	18,860	58,850	820	77,710	349,418
1969	-	3,818	48,909	255,702	226,781	201,300	158,758	49,961	147,242	3,818	197,203	1,191,571
1970	283	5,425	62,619	246,606	235,523	223,223	66,225	176,060	20,106	5,713	196,166	1,264,821