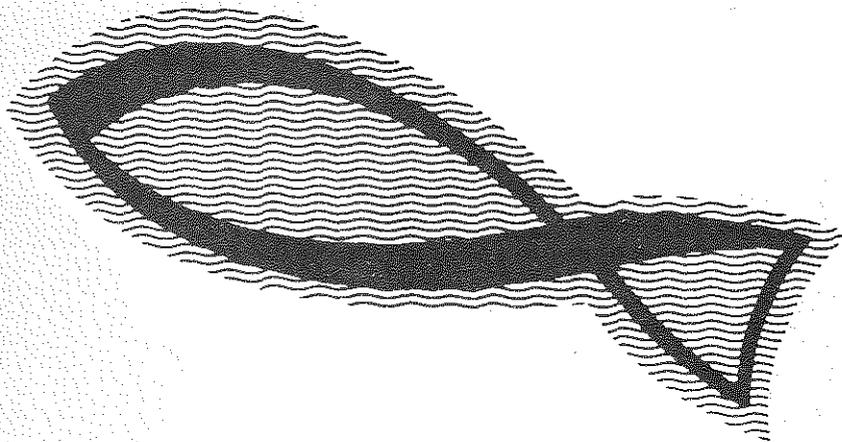


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Some notes on crab fishing



by

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SOME NOTES ON CRAB FISHING

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Specific fishing on a commercial scale for the edible crab is practised only to a limited extent in this country and, although fairly substantial quantities of edible crabs are landed annually, these are largely the by-product of creel fishing for lobsters and crawfish. These notes give a short account of certain crab fishing methods and record the results of some experimental fishing undertaken by the Fisheries Division.

The edible crab is familiar to most fishermen, who recognise it by its dark red topside coloration and yellow underside and thus distinguish it from the smaller green shore crab and the blue swimming crabs. Edible crabs abound in sandy patches and rocky weed-strewn areas in water depths varying from a few to over thirty fathoms. Whilst crabs may be captured at all times of the year, their suitability for market at any particular time will be governed by the condition of their reproductive organs. Normally, if the reproductive organs are well developed, the meats of the crab will be in good condition. Reproduction in crabs varies greatly from place to place and year to year but a generalised description of the reproductive cycle is as follows. Crabs spawn during the winter months, and in doing so migrate to deeper water, usually further offshore. Once they have spawned, their edible parts are in very poor condition and the meat content is very low. At this stage, they are commonly called "black-sick" crabs. When spawning has ceased, crabs recommence to feed actively and move slowly from the deeper offshore waters to the shallower depths inshore where suitable feeding is found normally in abundance. The jack-crabs (males) may reach the inshore waters earlier than the hen-crabs (females) and generally their rate of recovery from the effects of spawning is faster than that of hen-crabs. In certain areas, there can, therefore, be a fishery primarily for jack-crabs during the late spring and early summer months. As summer progresses, so increasing numbers of hen-crabs reappear in inshore waters and ordinarily they are for the greater part in good condition by mid-July reaching their best in the autumn months. On the whole, crab fisheries can normally be expected to reach their highest level of production in the autumn although the fishing season may extend from April to November. This being only a general synopsis of the behaviour and movements of crabs, it must be realised that considerable differences occur as between one locality and another under the influence of annually varying conditions. Crabs appear to be strongly affected by their environment and the type of feeding in it. For example, if summer climatic conditions inshore are sub-normal resulting in the return of the inwardly migrating stocks to unfavourable feeding grounds, their rate of recovery is drastically slowed and a reasonably good crab fishery may not become available until the late autumn or early winter months, in which

case the inshore fishing grounds may have to be temporarily forsaken for those further offshore and in deeper water.

According as the hen-crabs improve in condition, they develop a bright red "coral" at which stage their market value is highest. For both hens and jacks the following simple procedure will enable any fisherman to assure himself whether his crab catch is suitable either for sale in the shell or for processing. Take, at random, about 3 dozen crabs from the day's catch. Place them in water to which 10% salt has been added and boil for 25 minutes. Then open the crab "box" (i.e. break away the shell from the crab's back). If the "box" is full and its contents are of a reddish brown colour and fairly dry and solid, then the crabs are fit for sale in the shell or for processing. If the "box" is only half full, and the contents are grey-green in colour, and soft or liquid, then the crabs are not suitable for sale for processing, and are below quality for sale in the shell. With experience it is possible to tell by the look and the "feel" of crabs their suitability for marketing in the fresh state or for processing but the above simple test enables the fisherman to resolve his doubts readily.

Methods of Fishing

(1) Type of Boat.-No hard and fast rules for the type of fishing boat to be used for crab fishing need be laid down but for economic working it is considered that it should be capable of fishing from five to seven dozen crab creels at a time.

(2) Type of creels.-Various types are used including the two-eyed and parlour (both British), and the Nova Scotian and Norwegian crab creels, as well as crawfish creels of French design. With the exception of the last two mentioned, all these have a slotted wooden base to which a varying number of hoops are fixed, to form a framework upon which a sizar net covering is stretched. The openings or eyes are positioned through the netting. Normally, the creel bases measure a minimum of 30 by 20 inches and consist of approximately four $\frac{3}{8}$ to $\frac{7}{8}$ inch thick wooden laths, lashed together by four strong cross-laths. Usually four hazel or ash saplings, about 1" thick, are firmly affixed to the creel base in the form of U-shaped arches, and these are lashed together by slender cross laths. In some cases a roof is made by affixing about ten narrow laths spaced about 1" apart longitudinally along the upper parts of the arches. This roof strengthens the creel so that less damage is done to it during stacking, and less repair work is involved. Sometimes a split, which can be laced together, is selvedged in the netting on one side, and this serves as a door through which baiting and removal of the catch can be carried out. Alternatively, a separately constructed door is made in the netting, or in the timber roof, to allow free access to the creel. The position of the funnel shaped openings, or "eyes" into the creel varies considerably with each type of creel.

An eye may be placed at either end of the creel or opposite each other on the long sides or again diagonally opposed to each other on this side of the creel. There may also be an eye at one end of the creel, and a further eye within the creel leading to a separate compartment or parlour. In the Nova Scotian creels three such eyes lead into one compartment, through any of which crabs pass through an inside eye leading directly to the parlour, where the bait is located. The construction of these eyes varies also. In some cases the funnel leading to the eyes commences at the edge of the long end of the creel and the eye itself consists of a metal ring to which the funnel netting is lashed. There may be no funnel shaped lead-in and instead a larger metal ring may be fitted flush with the outside netting, to which a funnel is knitted and which leads to a smaller affixed metal ring through which crabs enter the creel. In other instances the funnels are not supported by rings, but merely consist of shaped netting held extended within the creel by anchoring twines. In the case of the Norwegian creels, the funnels are constructed of narrow laths of timber, while in the French crawfish creel a square or circular shaped opening is situated on the topside of the creel. Both the Norwegian crab creel and the French crawfish creel have no base and are constructed in the form of barrels, using cross laths and lashing hoops, the whole framework except the eyes being covered with sizal netting. The ends of the French crawfish creel are constructed of separate heavy-gauge woven wire frames, which greatly reduces the damage caused to the rest of the framework during fishing and storing.

The object of the experimental fishing carried out, was to make comparative tests between the types more commonly in use, namely the French Crawfish creel and the diagonally opposed two-eyed crab creel of British type. The consensus of opinion of fishermen is that certain creels with their own peculiar virtues, are best suited to particular areas. Therefore, whilst this work later on favours the use of the former type of creel over the other on the results of the trials carried out, all the chief types of creel have been described above in order that fishermen may be able to try them out, with or without modifications, should either of the two types considered not prove fully suitable to local conditions.

(3) Bait.--There is a commonly held belief that fishermen should use, "salt bait for lobster, and fresh bait for crabs". Various baits including conger eel, gunner, rock conner, dogfish, etc., were used in experimental fishing as well as salt baits. The latter were not found to be successful, whilst no apparently significant difference was found to exist between the different fresh baits used. Suffice to say that almost any fresh bait will prove adequate. In some cases, fishermen contend that it should not be possible for the captured crabs to eat the bait because they claim that, if all the bait is consumed, crabs may find their way out of the creels before they can be fished. If the bait is covered so that less

be taken readily, it may have the effect of retaining the catch within the creel over longer periods so that less creel-lifts have to be made each day. On the other hand, it is possible that a covered bait will either not attract as many crabs to it as an uncovered one, or actively feeding crabs finding that they are unable to obtain a full meal from it may leave the creel in search of more readily obtainable feeding. Therefore, to fish the creels most efficiently, the safest method is to fish them often and bait them as required, whether the bait be covered or not.

(4) Choice of Fishing Grounds.-Experience alone will guide the fisherman in his choice of fishing grounds, bearing always in mind that the later the season up to August the shallower the water depth to be fished, and thereafter the deeper the water to be fished, generally speaking. As a rule, it is advisable to set the creels on mixed bottoms consisting of rocky outcrops interspersed with clear patches of ground. Creels may either be set individually, or in strings the numerical composition of which is a matter of choice but is generally a dozen per string. The latter method of setting them is advised, for, whilst it entails a considerably greater amount of care, it calls for less operations than are involved in individual setting which of itself increases the efficiency of fishing. The creels are lashed to a strong back rope on runner ropes about 3 fathoms long, at intervals of about 10 fathoms. The back rope may be anchored at one or both ends, so that the position of either or both ends may be determined by a bouyline. It is advisable never to shoot the creels against the run of the tide. Although it is most convenient to shoot the creels with the tide, for the experienced fishermen perhaps the best positioned setting will be obtained by shooting the creels across the tide, care being taken to avoid fouling the back line in the screw. The hauling of creels is best done with the tide, and the use of two bouylines can thus be seen to be advantageous because it allows hauling to commence at either end. A small roller placed in the gunwale astern will greatly facilitate manual hauling of the creels. The creels are allowed to remain attached to the back rope, and are stacked in rotation aboard ready to be shot. It is advisable to take each string of creels aboard for removal of catch before baiting, where necessary, and re-shooting.

(5) Handling the Catch.-It is not always possible to catch enough crabs to make up a daily consignment for market nor are suitable local transport means available in all places to enable consignments to be handled daily. In such cases, storage boxes can be quite simply constructed for holding the crabs but the important factor to remember is to give them as little space for movement as possible. If they are allowed to move freely in a small area they will inevitably fight with each other with resulting mortality. If, therefore, the crabs available do not fill a storage box, it is advisable to pack the box with weed in order to restrict the crabs' movements. A simple storage box can be constructed from a reinforced, standard fish box, or other box of similar dimensions. Only when large quantities of crabs are being caught, need large storage boxes be constructed. Ordinarily it will be found

more convenient to have a number of small storage boxes than to have one large storage box. The sides of the storage box should be regularly perforated at 2" intervals by 1" holes. The reinforced lid should either be hinged or be capable in some other way of being very firmly kept in position. These storage boxes should be anchored, preferably afloat, but always away from any source of freshwater or harbour bilge. Crabs can be stored in this way for 48 hours without undue loss, but thereafter mortality progressively increases. Stored or freshly caught crabs can be despatched to market or for processing, firmly packed either in fish boxes or small barrels. The crabs are laid legs downwards on top of each other and when they have been allowed about half an hour in which to settle down into wedged positions, any spaces left can be filled in by additional crabs or sea-weed, but in such a way that slight pressure only will be required to fit the lid of the fish box or barrel firmly into position. The boxed or barrelled crabs should be kept in a cool place and despatch so organised that the shortest possible time will elapse between their removal from the storage boxes and their arrival at destination.

Results of Experimental Fishing.

The following results of experimental fishing for crabs carried out by this Department with the assistance of local fishermen afford some indication of the order of the catches that may be expected from crab fishing.

Initial experiments were promoted on the South coast (West Cork) in 1955. Thirty-six two-eyed creels of the British type were used and from mid-July until the first week in November they caught a total of 790 dozen crabs (weighing approximately 790 stone) of which over 60% were landed in October. The period included much broken weather with equivalent loss of fishing time; the yield averaged just over 21 stone of crabs per creel for the period and amounted to 12 stone per creel for October. The crabs were of uniformly good quality, and consisted of an almost 50/50 distribution of jack and hen-crabs. Further tests carried out on the Co. Cork coasts in April, 1956, were somewhat unproductive, due probably to the earliness of the time of fishing. In June, 1956, fishing trials were carried out off the Co. Waterford coast. Only salt baits were used, and this factor may have influenced the small yield obtained. Subsequent to the Department's experiments in this area, good catches of crabs were made by fishermen there. These catches were made up of crabs obtained in lobster and crawfish creels, whilst fishing primarily for the latter species. In July, 1956, a further series of tests was conducted off the West coast (Connemara area). In this case two-eyed crab creels of British type and French crawfish creels were fished against each other and tests for significance of the efficiency of different fresh baits were made. The creels were hauled at least twice per day and especially in the early morning and late evening. Hauls made at intervening times indicated clearly that the most profitable return was from creels lifted at three hourly intervals. A total of 12 British creels was fished against 4 French crawfish creels in two strings of 8 creels each,

upon which the two kinds of creel had been randomly distributed. A total of 20 fishings were made, involving 320 creel lifts from which 556 crabs were produced, weighing a total of 648 lbs (just over 46 stone for $64\frac{1}{2}$ dozen crabs). This is just under two crabs per creel per haul. While this is not a very high yield per creel lift, it must be pointed out that it is an average figure obtained during broken weather when a number of fishing days were lost and the daily yield per creel lift varied from nil (when conditions would not allow creels to be lifted) to 64 on the best day of fishing (a rate of 4 crabs per creel lift). A commercial fleet of crab creels (60 creels) on the basis of these average yields could be expected to yield at least 10 stone of crabs per haul. There was no significant difference between the size or weight of crabs caught by the French or the British creels. The slightly better catches made by the French crawfish creels could not be regarded as sufficient certainty against the results having been obtained by chance only. On the basis of the experiments there is not strong enough evidence to suggest that French crawfish creels are more efficient crab fishing engines than the British creels, though experience has shown clearly that they are much easier to handle. Results from the catch of crabs; using fresh conger eel, rock, conner, dogfish and crushed edible crabs as bait showed little difference in efficiency between them. When due allowance had been given to all water factors involved, viz., calm, choppy, rough, etc. it was concluded that the catch in calm weather was slightly above average. So far as this work shows, therefore, the chief way in which the French crawfish creels can be said to be more efficient, is in the ease with which they can be handled, i.e. for storing, baiting and removing the catch, and on that basis they may be more generally favoured. They have, moreover, the added advantage that properly baited they can be employed in fishing for lobsters and crawfish when not required for crabbing.