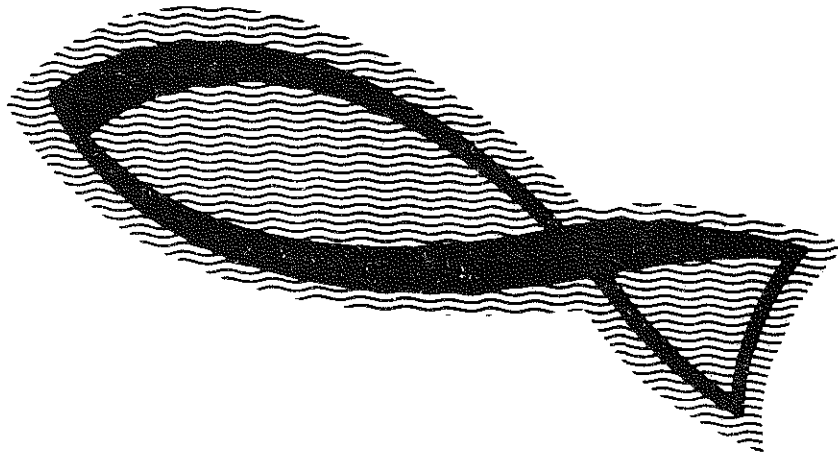


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**Mariculture in Ireland.
Policies and Problems.**



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Mariculture in Ireland. Policies and problems.

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Abstract

Mariculture in Ireland up to 1974 was restricted to the flat oyster (Ostrea edulis) and mussel (Mytilus edulis) but since that year rearing of the Atlantic salmon (Salmo salar) in the sea and of some other species has been undertaken on an experimental basis. Because the fisheries in tidal waters and in the sea are, with some exceptions, vested in the public, legal difficulties can arise in many areas. Some of these legal difficulties in the case of the flat oyster, mussel, cockle (Cardium edule) and periwinkle (Littorina littorea) can be resolved by actions under the Irish Fisheries Acts but with other species new legislation is required for certain forms of activity.

Problems can also arise in connection with the supply of stock for rearing purposes. Stringent regulations are in force regarding the importation of aquatic animals generally with a view to barring those animals which may have an adverse effect on existing stocks of fish or may lead to the introduction of diseases and parasites not already in the country.

The paper describes some of the policies and problems at present arising from mariculture in Ireland.

Various enterprises connected with mariculture provide good examples in the Irish context of small scale fisheries, each of which is a discrete entity having no connection with the fisheries for the same species, even in some cases in areas quite close by. Early attempts at mariculture in Ireland were restricted to the culture of flat oysters (Ostrea edulis) and mussels (Mytilus edulis). So long as the oyster fisheries were conducted at a low level or purely for local consumption, the natural stocks could withstand the pressure of fishing but as soon as fishing was intensified to any great extent the stocks often diminished to vanishing point. This was certainly the case with many of the prominent oyster fisheries in Ireland, historical notes on which were published in 1962¹.

Most of the earlier regulations governing fishing for oysters aimed at restricting the catch in various ways but it was not until the middle of last century that simple cultivation methods were used, such as removing small or thin oysters from grounds where they settled satisfactorily to areas where they would grow and

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fatten. Regulations were made also in some cases in relation to mussels whereby areas planted with young or seed mussels were treated as sanctuaries for a period so as to allow the mussels to grow to commercial size.

By the end of the first half of the 19th century it was a common practice to dredge oysters off the natural beds, which for example, then existed in the open sea along the east coast of Ireland, and to replant them on convenient beds elsewhere. Large quantities of Portugese (Crassostrea angulata) and American "Blue Point" (Crassostrea virginica) oysters were similarly relaid in Irish waters, particularly in Dublin Bay. However this could not be done at that time in many other suitable areas, because of a peculiarity in Irish law as regards the ownership of fisheries in tidal waters or in the sea.

Briefly the legal position in Ireland is that, unless it can be shown to the contrary, it is assumed that all fisheries in the tidal waters or in the sea are vested in the public. To show to the contrary one must be prepared to produce evidence of the legal exclusion of the public at a very early date, some authorities maintaining that the operative date is the year 1189 and others the year 1199. Consequently in many areas anyone undertaking the cultivation of oysters or mussels would find himself unable to prove title to the very animals he may have planted out. To get over this defect in the legal system, in 1845 an Act² was passed authorising the then Commissioners of Irish Fisheries to grant licences for the establishment and maintenance of oyster beds in the areas designated in such licences whereby the grantee could enforce his rights against outsiders. Similar provision were incorporated in later Acts³ which were eventually consolidated in an Act of 1959⁴.

The provisions of the earlier Acts, by an Act of 1884³, were extended so as to include mussels and by an Act passed in 1898⁵ to cockles (Cardium edule) and periwinkles (Littorina littorea).

Under the provisions of the 1959 Act the Minister for Agriculture and Fisheries,

whose powers are at present exercisable by his Parliamentary Secretary, may authorise, either by Orders or licences, the establishment and maintenance of beds for oysters, mussels, cockles and periwinkles after a set procedure has been carried out, including the holding of sworn enquiries into any objections which may be forthcoming. The person or company named in such Order or licence is then given full rights for the particular species in the area designated. This means that the person concerned can exclude all others from the area with regard to the particular species named in the authorisation.

Since 1845 a number of such Orders or licences for oysters have been granted and operations with varying degrees of success have been carried on by virtue of them. After the First World War, because of political and economic difficulties in Ireland as well as the incidence of disease in oysters which destroyed stocks in many areas in the early "twenties", the development of oyster beds in most areas was retarded until recently. However operations in the Cork Harbour area under one such recent Order are now bearing fruit. Although both cockles and periwinkles are referred to in the Fisheries Acts no Order or licence has been granted with respect to them.

Whilst this legislation enables the Minister to deal effectively with applications with respect to areas where there are no natural beds for the molluscs in question it is defective for dealing with most areas where there already are important public fisheries for oysters or mussels. The defect arises from the fact that there may be public opposition to even a broadly based organisation, such as a co-operative society with open membership, being the recipient of an Order or licence and, depending on the strength of such opposition, the Minister might feel constrained to refuse to make an Order or grant a licence.

At present there are a number of important public oyster or mussel fisheries not covered by such Orders or licences to which other provisions of the Fisheries Acts must be applied whereby the Minister is entitled to make regulations, called bye-laws, "for the more effectual government, management, protection, and improvement of the fisheries of the State"⁶. This is a cumbersome and slow method, completely unsuitable for the day to day management of an oyster or mussel

fishery and other ways of managing such fisheries are at present under consideration by the Irish Administration, some of which at least would require new legislation to permit of their implementation. However the Minister's powers in respect of authorisation are restricted to oysters, mussels, cockles and periwinkles and do not extend, for example, to such sedentary species as say the American hard-shelled clam (Mercenaria mercenaria), the Japanese oyster (Crassostrea gigas), the native clam (Tapes (Venerupis) decusata) or the scallop (Pecten maximus), which are at present being reared experimentally in Ireland.

In Ireland because of the country's many favourable features much interest has been shown in recent years in rearing of the Atlantic salmon (Salmo salar) in the sea, and the Electricity Supply Board, the Salmon Research Trust of Ireland Inc. and An Bord Iascaigh Mhara (the Irish Sea Fisheries Board) are at present conducting trials in three places on the west coast. Where salmon are reared in land based ponds supplied with sea water or in anchored cages in the sea no unsurmountable legal difficulties arise.

Sea cages have to be operated in accordance with the terms of a licence from the Minister for Transport and Power, which sets out the conditions under which they may be used. The contents of a sea cage, having been reduced to capture, are the sole property of the owner of the cage, who can take action in the Courts to establish his rights.

In cases where it is desired to cut off an arm of the sea, difficulties may arise because of the Common Law right of the public to the fisheries in the sea or in tidal waters. For legal reasons developments on the lines of some of the Norwegian enterprises whereby salmon are artificially fed in enclosed arms of the sea are at present impossible in most parts of Ireland, even in bays or arms of the sea unfrequented by salmon. Indeed whilst the extinction of a nominal right to fish for such sedentary species as oysters or mussels may be opposed by people as a matter of principle, very little harm in this case would really be done to the public fishing interest. Closing off an arm of the sea to non-sedentary

species would, however, interfere to a much greater extent with the legitimate public fishing interests.

If worthwhile developments are to take place in this field some way of reconciling desirable economic benefits (by mariculture) with the public interest in fisheries must be found. Clearly this must be done by legislation. It has been suggested that provisions, similar to those for oysters and mussels in the Irish Fisheries Acts, to cover "aquatic organisms in the marine environment" would go a long way towards solving the problem and it is this solution which is under consideration at present by the Irish Fisheries Administration.

So far the technical problems in mariculture in Ireland have not been discussed. Some of these problems are being investigated by the Fisheries Division of the Department of Agriculture and Fisheries, An Bord Iascaigh Mhara (Irish Sea Fisheries Board), the Electricity Supply Board for Ireland, the Salmon Research Trust of Ireland Inc. and University College Galway, but at this stage it is not necessary for me to discuss them in detail. The small scale rearing of certain molluscs, such as the flat oyster, presents no great problem as their rearing has been worked out in some detail already. However the real problem is rearing on a large enough scale to stock suitable beds. The provision of young stock for rearing is, therefore, a crucial point in development plans.

In the case of some species stock must be sought from abroad and in this regard the Irish Fisheries Administration has the responsibility of ensuring that any such introductions will not bring with them either diseases or parasites, particularly those not already in the country. The introduced species must also not prey upon, compete or interfere with important native species. Control in this regard is effected by regulations made by virtue of Section 17 of the Fisheries (Consolidation) Act of 1959, which authorises the Minister for Agriculture and Fisheries to prohibit, save under licence, the importation of "live fish or other aquatic animals and the eggs or young of fish or other aquatic animals". In all cases the Minister insists on a health certificate from the competent authority in the exporting country, and in the case of certain exotic species he lays down

as a condition of importation that the imports are from disease-free second generation hatchery reared stock, again duly certified by a competent authority in the exporting country.

Whilst the Minister obviously has no desire to stifle development he has had to refuse to allow imports of certain aquatic species or certain species from particular areas because of the potential danger to existing stocks of fish or shellfish. For example licences have been refused for the importation of flat oysters from areas where the slipper limpet (Crepidula fornicata) a very undesirable species on some European oyster beds, is known to be abundant. Likewise permission to import the coho salmon (Oncorhynchus kistuch) has also been refused because of potential interference with the important Irish stocks of Atlantic salmon.

Apart from the legal and technical problems mentioned earlier one encounters another problem arising perhaps from ignorance of the true position in relation to the disposal of the produce of mariculture. Many men who fish for salmon, oysters or mussels fear that large scale developments in mariculture will depress the prices of the species in which they are interested. Consequently they may obstruct those engaged in mariculture in the belief that by so doing they will maintain the price of the fish they are handling and so safeguard their livelihood. It is not easy to dispel a belief of this kind, especially in rural areas in Ireland where natural fisheries exist. Steps must, therefore, be taken on every possible occasion to try and convince those concerned that mariculture is here to stay and that it might well provide valuable employment in areas where large scale industries are absent. Co-operative efforts in mariculture by local people should be encouraged as far as possible.

It is unlikely that any entrepreneur could afford to employ adequate expert scientific personnel if artificial rearing of any species is on a small scale. However if operations are on a large enough scale there should be no difficulty in employing properly trained scientific and technical personnel to solve all the problems, including those of diseases, which so often beset artificial rearing of aquatic species. The difficulty of providing properly trained personnel for

small scale operations could obviously be eliminated by co-operation between two or more enterprises. In the case of salmon, for example, it might well be uneconomic, and in any case very costly, to provide individual scientific control for each of a number of small freshwater rearing stations, whereas one large rearing station, established and operated on a co-operative basis, could be subject to all the scientific controls necessary to ensure success. In this field, therefore, co-operation between entrepreneurs is essential in the long term economic sense.

Successful rearing of any species in the sea requires expert knowledge but despite this even today it is the experience in Ireland that many people wishing to enter the field have little more than a casual knowledge of what is required. Education, or perhaps one should say training, in this respect is highly desirable and if the Irish experience is any way typical it might be advantageous for short courses to be arranged from time to time to cater for such people, perhaps even on a co-operative basis as between two or more countries with similar interests.

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4. Fisheries (Consolidation) Act, 1959 (No. 14 of 1959); Sections 245 - 270
5. 61 and 62, Vict, cap. 28 (1898), Section 4
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