SEA AND INLAND

FISHERIES

REPORT FOR

1978

AN ROINN IASCAIGH AGUS FORAOISEACHTA
(Department of Fisheries and Forestry)

DUBLIN:
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REPORT

OF THE

MINISTER FOR FISHERIES AND FORESTRY

ON THE

SEA AND INLAND FISHERIES

FOR THE YEAR

1978

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PART I.

SEA FISHERIES

In 1978, the total value of sea fish landings continued to rise, reaching another record figure of £22.7m exceeding that of 1977 by £4.0m. The biggest increase again occurred in the value of landings of pelagic fish. The value of such landings at £10.2m represented an increase of £2.3m or 28%. The value of shellfish landings again showed a significant increase of £1.6m or 32%. The weights and values of annual landings of sea fish (excluding shellfish) since 1969 are set out in the following table:—

TABLE 1

Year	Metric tons	£'000
1978	82,300	16,095
1977	70,800	13,688
1976	68,800	8,880
1975	65,800	6,763
1974	75,000	6,982
1973	75,200	5,690
1972	75,700	3,900
1971	60,500	2,930
1970	67,300	2,809
1969	54,600	2,105

Details of quantities and values of the different varieties of seafish and shellfish landed in 1977 and 1978 are given in Appendix No. 1. The average price per metric ton obtained for each variety of seafish (other than shellfish) from 1970 onwards is shown in Appendix No. 2.

The leading ten fishing ports of 1978 in order of value of fish landed were: Killybegs, Howth, Galway, Castletownbere, Burtonport, Clogherhead, Dunmore East, Skerries, Rosmore/Roscahill and Dingle. The most notable change was the rise of Rosmore/Roscahill from 19th position in 1977 to 9th position in 1978.

DEMERSAL FISHERY

At 17,940 metric tons, the total landings of demersal fish showed a decrease of 947 metric tons or 5%. Landings of cod decreased by 337 metric tons or 8% while landings of haddock again showed the largest percentage decrease of all demersal species falling by 187 metric tons or 27%. Whiting was the species caught in the greatest quantity and was followed by cod, plaice, saithe, ray/skate in that order. The total value of the demersal fish catch increased by 3% from £5.7m to £5.9m in 1978. Cod was first in terms of cash earnings, followed by whiting, plaice, saithe and ray/skate in that order. These five varieties contributed 81% of the total value of the demersal fish catch.

Increases in average price were achieved in most varieties. The overall average price of all demersal fish landed in 1978 was £327 per metric ton as compared with £302 per metric ton in 1977. This increase was due to higher prices for species such as turbot and sole.

The weights, total value and average value of landings of demersal fish since 1969 are shown in the following table:—

TABLE 2

Year	Quantity	Value	Average Value per metric ton
	metric tons	£'000	£
1978 ...	17,900	5,862	327
1977 ...	18,900	5,709	302
1976 ...	23,800	4,652	195
1975 ...	20,000	2,881	144
1974 ...	19,500	2,527	129
1973 ...	20,400	2,374	117
1972 ...	17,100	1,568	92
1971 ...	20,700	1,590	77
1970 ...	15,300	1,428	93
1969 ...	16,000	1,254	78

PELAGIC FISHERY

The total pelagic catch of 64,343 metric tons was 12,464 metric tons or 24% greater than the figure for 1977. The total value of the catch was £10.2m representing an increase of 28% on the 1977 figure of £8.0m.

Herrings

Landings of herrings amounted to 27,717 metric tons valued at £8.2m compared with 23,129 metric tons valued at £6.0m in 1977.

Reports dealing with the herring fisheries off the West and North-west coasts in recent years have tended to separate the fisheries into

two separate entities, one dealing mainly with the fishery off Donegal and Mayo and the other dealing with the fishery west of Galway. Recent development of these fisheries has shown that this distinction into two separate fisheries is not now so apparent. Fleets from Killybegs, Burtonport and Galway now tend to fish over a much larger area than, for example, ten years ago, while a large amount of the catch is taken from an area which lies on the boundary separating the I.C.E.S. Division VIA and VII bc (i.e. from Eagle Island to the Stags of Broadhaven). Furthermore it has been shown that the herring stocks in both divisions are indistinguishable and should not be separated for management purposes. It was not until the mid seventies that the fisheries in Division VII bc were exploited to any extent by international fleets and subsequently they were not considered by the regulating agencies until 1977 when the first total allowable catch was introduced.

Restrictions on catches were first proposed for Division VIa in 1974 when the recommended T.A.C. for the area was 210,000 tons. Since then the proposed T.A.C. for each year has been drastically reduced until finally in July 1978 fishing throughout the area was completely prohibited for the remainder of the year and for the whole of 1979.

Catch restrictions were first proposed for Div. VIIbc in 1977 when a T.A.C. of 10,000 tons was adopted. Subsequently a T.A.C. of 7,000 tons was proposed for 1978 and 1979.

Investigations were continued on samples of herrings from landings made at Killybegs, Burtonport and Galway. Herrings were examined for length, weight, sex, maturity and vertebral counts. The fat content and the numbers of fish per kilogram were also estimated for all samples.

The ban on herring fishing in the Celtic Sea, adopted as a conservation measure in February 1977 was continued throughout 1978.

Exports of fresh, chilled or frozen herrings in 1978 amounted to 11,418 metric tons valued at £6,141,000 as compared with 6,560 metric tons valued at £3,269,000 in 1977. The quantity exported in salted and smoked forms was 8,382 metric tons valued at £4,959,000 as compared with 7,653 metric tons valued at £4,385,000 in 1977. A further 691 metric tons of herring valued at £564,000 was exported in prepared or preserved form. The total herring export of 20,491 metric tons valued at £11,664,000 represented an increase of 31% in quantity and value.

There was keen market demand throughout the year and little difficulty was experienced in disposal of the catch. The Netherlands proved to be the biggest market for herring exports, having purchased 7,609 metric tons valued at £4,034,000. Germany was next having purchased 4,495 metric tons valued at £3,307,000 followed by France and Great Britain/Northern Ireland.

The following table shows the total quantity, value and average value per metric ton of herrings landed since 1969.

TABLE 3

Year	Quantity	Value	Average Value per metric ton
	metric tons	£'000	£
1978 ...	27,700	8,171	295
1977 ...	23,100	6,033	261
1976	22,000	3,133	142
1975	28,800	3,232	112
1974	39,600	3,950	100
1973	38,900	2,802	72
1972	47,800	2,116	44
1971	31,300	1,163	37
1970	45,500	1,275	28
1969	34,700	784	23

Sprats

Landings of sprats increased from 6,055 metric tons in 1977 to 9,119 metric tons in 1978, an increase of 51%, while the value of the catch rose from £199,000 in 1977 to £342,000 in 1978, an increase of 72%.

Mackerel

Landings of mackerel continued to increase in 1978, rising from 22,695 metric tons valued at £1,747,000 in 1977 to 27,507 metric tons valued at £1,720,000 in 1978. The average price fell to £63 per metric ton as against £77 per metric ton in 1977.

The chief landing places for mackerel were: Killybegs, Burtonport, Castletownbere, Valentia, Dingle, Galway and Howth. Statistics of mackerel landings since 1969 are given in the following table.

TABLE 4

Year	Quantity	Value	Average Value per metric ton
	metric tons	£'000	£
1978 ...	27,507	1,720	63
1977 ...	22,695	1,748	77
1976	14,394	877	61
1975	13,354	584	44
1974	8,525	365	43
1973	8,314	381	46
1972	4,592	147	32
1971	3,105	118	38
1970	1,051	40	38
1969	1,616	45	28

SHELLFISH

The value of the shellfish catch at £6.6m showed an increase of £1.6m on the value of the 1977 catch. Landings of Dublin Bay Prawns increased from 2,804 metric tons in 1977 to 3,363 metric tons

in 1978 with a consequent increase in value from £1.1m to £1.9m. Landings of oysters increased in value from £0.8m in 1977 to £1.2m in 1978.

The value of shellfish landings over the past ten years are given in the following table:—

TABLE 5.

Year		£'000
1978	...	6,526
1977	...	4,936
1976	...	3,886
1975	...	2,374
1974	...	1,754
1973	...	1,773
1972	...	1,417
1971	...	1,308
1970	...	1,102
1969	...	891

EXPORTS

At £31m exports of fish and fish products, including both sea and fresh water preparations (see Part II of this Report) established a new record. Exports of sea fish and fishery products were valued at £26.9m as against £20.6m for 1977. Details of exports are given in Appendix No. 4.

PERSONNEL AND VESSELS

The number of fishermen engaged full-time rose from 2,662 in 1977 to 2,815 in 1978, while the number of part-time fishermen rose from 5,517 in 1977 to 5,805 in 1978. There was an overall increase in the number of vessels engaged in fishing in 1978, the total being 2,922 compared with 2,725 in 1977. A further increase occurred in the number of vessels over 75 gross tons in the fleet, the total being 86 as compared with 83 in 1977. The number of motor fishing vessels over 25 gross tons which are responsible for most of the wetfish catch rose from 375 in 1977 to 378 in 1978 while the number of motor vessels under 25 gross tons rose from 983 in 1977 to 1,082 in 1978.

Further details are given in Appendix No. 7.

TRAINING OF FISHERMEN

The scheme for training boys as fishermen continued in 1978. One group of 31 boys commenced training under the scheme on 6th

February, 1978 at the National Fishery School, Greencastle, Co. Donegal.

A shore course to facilitate eligible experienced fishermen to qualify as skippers commenced on 10th April, 1978. Seven fishermen availed of this course.

On 1st September, 1978 responsibility for training including the operation of the Greencastle Fishery School was transferred from the Department to An Bord Iascaigh Mhara. As the body responsible for the development, marketing and promotion of our sea fishing industry it was considered desirable that the Board should also be responsible in the vital educational area. Apart from the basic training at Greencastle the Board also has an ongoing programme of short term courses, both on board and on shore, in order to keep pace with new skills and technology. The Board will also have a role to play in the co-ordination of existing educational facilities available from other sources.

AN BORD IASCAIGH MHARA

The Board received from the Fisheries Vote for the year ending 31 December, 1978 a grant of £5,731,000 in aid of administration and current and capital development. Repayable advances totalling £1,411,000 were also made to the Board from the Central Fund mainly for the provision of boats and gear.

The scheme of loans, grants and leasing arrangements for the acquisition of sea fishing boats and gear continued in 1978. Under the scheme the Board assisted Irish fishermen in acquiring 63 new vessels during the year of which 62 were built in Irish boatyards.

The Board's export market development policy continued to concentrate on achieving added value through the expansion of processing activities.

Port courses for the training of fishermen as skippers were held by the Board at Arklow, Achill and Valentia, while lectures for fishermen were held at various ports in chartwork, seamanship, net mending, safety at sea and fish handling. As well, on-board training, instruction in gear technology and acoustic fish detection was arranged by the Board at fishing ports.

The Board's Annual Report on its activities in 1978 is published separately.

SEA FISHERIES PROTECTION

Protection of the exclusive fishery limits involving regular patrols by vessels of the Naval Service of the Department of Defence was maintained in 1978. Prosecutions were instituted against the skippers of thirty-one foreign vessels who had been arrested for various in-

fringements of the Fisheries Acts including illegal entry and illegal fishing within the exclusive fishery limits of the State, having undersized fish on board and having illegal nets on board. Convictions were secured in twenty-five cases of which ten were under appeal at the end of the year.

In the conduct of all cases and in the enforcement of fishery protection measures generally, the co-operation of the Garda Siochana was readily available.

The Fisheries (Amendment) Act, 1978 which came into effect on 4 July, 1978 provides for substantially increased penalties (fines of up to £100,000) for sea fishing offences and particularly those relating to the exclusive fishery limits and for trial on indictment in some cases. In addition, the Act provides for confiscation of all gear and catch on conviction on indictment, confiscation of unlawful gear and catch and lawful gear unlawfully used on summary conviction, and for possible confiscation of the vessel in the case of a second indictable offence.

EUROPEAN ECONOMIC COMMUNITY

Common Fisheries Policy

Negotiations on the revision of the Common Fisheries Policy resumed at the Fisheries Council of Ministers Meeting on 16-18 January, 1978. The Council discussed in detail the Commission's proposals and agreed to continue discussions at a further meeting on 30-31 January, 1978 and to adopt at that meeting the regulations under examination permitting the implementation of an internal fisheries regime as of 1 February, 1978.

On 16 February, 1978 the European Court of Justice delivered its judgment in the case brought by the Commission against Ireland alleging that by introducing unilateral fisheries measures on 16 February, 1977 the Government of Ireland had failed to fulfil obligation imposed on it by the E.E.C. Treaty. The measures concerned were effected by Orders made under the Fisheries Acts by the then Minister for Fisheries. The Court ruled that by bringing the Orders in question into force Ireland had failed to fulfil its obligations under the Treaty establishing the European Economic Community. Ireland was also ordered by the Court to pay the costs of the action, including those of the applications for interim measures.

At the same time the Court of Justice delivered its judgment in the matters referred to it for a preliminary ruling by the Cork District Court in the case where the then Minister for Fisheries prosecuted certain Dutch skippers for alleged illegal fishing in contravention of the Orders mentioned above. The Court ruled that by virtue of the fact that the case against the Dutch skippers was pursued under national legislative measures which were held by the Court of Justice to be contrary to Community law, any conviction under these measures was also incompatible with that law.

The Council of Fisheries Ministers Meeting on 30-31 January, 1978 failed to reach agreement on a package of proposals submitted by the Commission. The package included a draft resolution on conservation measures which had been formulated at an informal preparatory meeting of Fisheries Ministers in Berlin (not attended by United Kingdom) on 27 January, 1978 on the implementation of fishing plans designed to provide a measure of preference for coastal fishermen. In order to prevent a legal vacuum occurring from 1 February, 1978 after the expiration of certain Community conservation measures, the Presidency, following consultation with individual Member States, submitted a draft decision to the Council providing for interim measures for 1978. This draft proposed that Member States should implement during 1978 as much of the package as possible but mainly those aspects which had not been contested at that date. The draft decision also included provision for financial participation by the Community in respect of inspection and surveillance operations in the Irish and Greenland fishery zones. Eight Member States including Ireland were able to agree to the draft decision.

The Minister for Fisheries and Forestry agreed to the proposal on a trial basis only but emphasised that Ireland continued to believe that only an extended coastal belt could achieve the desired development of the industry and the conservation of fish stocks. The Member States agreeable to the draft decision confirmed that any national measures necessary to fill the legal vacuum from 1 February, 1978 would be adopted in accordance with the draft decision. The United Kingdom which could not agree to the draft decision gave an assurance that its national measures would be strictly necessary, non-discriminatory and in conformity with the E.E.C. Treaty, and that the Commission's prior approval would be sought. The Commission undertook to continue its work to complete concrete fishing plans for Community waters.

On 22 February, 1978 the Minister for Fisheries and Forestry Mr. Brian Lenihan T.D., made a statement at a press conference on Ireland's position on the revision of the Common Fisheries Policy. He said that it was not a realistic proposition to press the policy of a 50 mile exclusive limit at that time. He indicated that he was satisfied that substantial advantage could be secured through the adoption of a scheme of fishing plans operating on an interim basis for the 1978 year and designed to offer a special preference for Irish fishermen with a reduction in fishing effort on the part of other Member States in Irish waters.

The Council meeting on 3 April, 1978 agreed to undertake an overall examination of the internal aspects of future fisheries policy on 24 April, 1978 and E.E.C. Commissioner Gundelach indicated that he would continue bilateral discussions with Member States.

On 24 April, 1978 the Council agreed to defer discussion on the substantive points of disagreement following a statement by E.E.C. Commissioner Gundelach that he intended continuing consultations with Member States with the objective of reaching a definitive solution on the matters still outstanding.

The fisheries Council on 20/21 June, 1978 considered three additional proposals by the Commission consisting of

—measures for the conservation and management of herring stocks for 1978, including a ban on herring fishing in the International Council for the Sea Area VIa (west of Scotland and north west of Ireland)

—plans for herring fishing off the west coast of Ireland

—aid measures for the restructuring of the inshore fishing industry for 1978 including special aid for Ireland.

No decisions were reached on these or on the other outstanding proposals associated with an internal fisheries regime. The Council agreed to discuss the proposed conservation measures for herring stocks again at its next meeting in the light of the opinion to be delivered in the interim by the European Parliament. The United Kingdom maintained its position of abstention from agreement pending recognition of its demands which consist mainly of an exclusive 12 mile belt, dominant preference in the 12 to 50 mile belt and increased quotas for 1978.

The Council on 24-25 July, 1978 agreed on the Commissions proposals for financial participation by the Community in connection with fisheries inspection and surveillance operations in the Irish and Greenland fishery zones. The total Community contribution will be 56 million E.U.A. (European Units of Account) of which 46 million E.U.A. (approximately £30 million) is allocated to Ireland for expenditure in the period 1 January, 1977 to 31 December, 1982. The Council also adopted a regulation No. 1852/78 on a common interim measure for restructuring the inshore fishing industry. The regulation which extended to 31 December, 1978 provided for investment aid amounting to 5 million E.U.A. The investment projects eligible for consideration were those intended either to develop inshore fishing in regions where fishing possibilities allow, or to develop mariculture in regions particularly suited to it. The measure would especially assist Ireland by grants of up to 50% of the cost of new fishery vessels of specific length and aid for mariculture projects.

Following a recommendation by the Commission the Minister for Fisheries and Forestry made an order on 27 July, 1978 entitled the Sea Fisheries (Conservation and Rational Exploitation) (No. 4) Order, 1978 (S.I. No. 218 of 1978) implementing as a national measure fishing plans for herring off the West coast of Ireland with specific reference to Irish and Dutch herring quotas for that area for 1978. The effect of the plans was to reserve an area more than twenty miles off shore for fishing vessels of 84 feet in length or less, so as to give preference to smaller Irish vessels.

The Council (Fisheries) meeting on 25 September, 1978 involved a further exchange of views on the Commission's proposals for settlement of an internal fisheries regime together with additional proposals on technical conservation measures and catch quotas. No agreement was reached as the United Kingdom maintained its previous reserve.

At the Fisheries Council of Ministers meeting on 23-24 November. 1978 discussion resumed on the problems involved in determining a Common Fisheries Policy. The United Kingdom took the opportunity of presenting its own proposals to resolve the questions outstanding. Their proposals would inter alia have the effect of freezing at 1977 levels other Member States fishing activities within the United Kingdom 12 mile belt up to the end of 1982 when such fishing would be terminated. The proposals would also freeze other Member States' fishing activities indefinitely at 1977 levels in large areas of United Kingdom waters between 12 and 80 miles. No agreement was reached as the United Kingdom proposals were not acceptable to other Member States.

Arrangements with Third Countries

Following the extension of our exclusive fishery limits to 200 miles from 1 January, 1977 certain countries entered into preliminary negotiations with the Community to fish in Community zones. Of these only Spain, Norway and the Faroe Islands are relevant to the extended Irish zone. Neither Norway nor the Faroes had done any significant fishing in the extended Irish 200 mile zone and the position was maintained pending Community negotiations for permanent arrangements with these countries. Spain, however, had certain contractual rights under the London Convention of 1964 to fish off the Irish coast and pending conclusion of negotiations with the Community the interim autonomous arrangements for Spain to catch certain limited quantities of hake were extended by Council Regulation No. 3021/77 to 31st January, 1978.

The interim standstill arrangements with Norway and the Faroes not applicable to the Irish fishery zone continued to operate during 1978. However, the standstill arrangements with the Faroes was interrupted briefly at the beginning of 1978 in the absence of reciprocity. Interim autonomous arrangements with Sweden also continued to operate during 1978.

The interim autonomous arrangements with Spain were later extended by Council Regulation 204/78 to 20 February, 1978 and by Council Regulation 341/78 to 31 May, 1978. The Fisheries Council on 20-21 June, 1978 agreed to a further extension to 31 July, 1978 which was effected by Council Regulation 1376/78.

The Fisheries Council on 24-25 July, 1978 noted a report by EEC Commissioner Gundelach on the progress of negotiations with Spain for the conclusion of a framework fisheries agreement and again extended the interim autonomous arrangements to 30 September, 1978 by Council Regulation No. 1744/78.

The Commission submitted a report to the Fisheries Council on 25 September, 1978 on the conclusion of negotiations for a framework agreement between the Community and Spain. The question of signature of the agreement would be considered at a later meeting. The Council, however, agreed to the substance of the results of the

Commission's consultations on the allocation of fishery rights between Spain and the Community for the remainder of 1978. A Council Regulation No. 2327/78 was formally adopted on 4 October, 1978 granting Spanish fishermen a quantitive maximum of 4,500 tonnes of hake to be fished under licences issued by the Commission for the period 1 October to 31 December, 1978. Insofar as fishing in the Irish fishery zone is concerned this Regulation is significant in that Spanish vessels were effectively prohibited from fishing during that period in a specified area of Irish waters which at no point is less than 50 miles from the Irish Coast.

Negotiations on framework agreements between the Community and Norway, Sweden and the Faroes remain to be concluded. Progress in this regard was impeded in 1978 by the United Kingdom's insistence that it could not allow their conclusion or implementation pending progress on a revised internal fisheries regime.

EEC Aid for restructuring the Inshore Fishing Industry

Under the 1978 EEC Scheme of FEOGA (European Agricultural Guidance and Guarantee Fund) grants for the fishing industry, Irish fishing investment projects comprising the construction of thirty four new fishing vessels and two aquaculture projects were approved by the Commission for grant aid amounting to £1,599,312. The grants to Ireland represent 48% of the total FEOGA grant allocated for division between the nine Member States of the European Community.

Cross-Border Herring Study

Arrangements for a Study on the possibilities of developing the herring fishing industry in the Cross-border region adjacent to the North-West Irish Sea were drawn up on 11 September, 1978 on behalf of the Department of Fisheries and Forestry, the Department of Agriculture for Northern Ireland and the EEC Commission.

The Study was initiated to provide data on the juvenile herring stocks supporting the Mourne Herring fishery from which future fisheries management and related socio-economic policies can be formulated.

The Study is being carried out by Fisheries Development Ltd., London, and will cost an estimated £130,000 financed on a joint basis by the Commission (50%), the Irish (25%) and United Kingdom (25%) Governments.

It is expected that the Study will be completed towards the end of 1979.

Study on the Development of the Irish Sea Fishing Industry and its Regional Implications

The Minister for Fisheries and Forestry in conjunction with the

Minister for Economic Planning and Development, and the EEC Commission as represented by EEC Commissioner Gundelach announced arrangements for a Study entitled as above on 12 June, 1978.

The Study which is the first of its kind in the sea fishing sector is being carried out by the Economic and Social Research Institute and will cost an estimated £80,000 to be financed jointly by the Government and the Commission. Professor J. Crutchfield of the University of Washington is directing the Study on behalf of the Institute. Professor Crutchfield is an internationally renowned resource economist and has carried out similar consultancy work on the fishing industry in a number of other countries. The purpose of the study is to examine the structure and dimensions of the Irish sea fishing industry, to determine the constraints on its expansion, to define the elements of a programme for optimal use of marine fish resources and to indentify priority projects, programmes and policy alternatives. It represents an essential step in the elaboration of an updated fisheries development programme.

Substantial progress was made on the Study in the latter part of 1978 and it is expected that the Study will be completed towards the end of 1979.

RESEARCH AND DEVELOPMENT

PELAGIC FISHERIES

Herring

Continued heavy fishing upon herring stocks in 1978, coupled with poor incoming year classes to the adult commercial catches, led to a further decline in stocks. In turn, this necessitated further restrictions on fishing. Samples of herrings from all the major herring fisheries in the Irish Sea, the Celtic Sea, the South West, West and North Irish coasts were studied to provide information on the population dynamics of these stocks. This information is transmitted to the appropriate Working Group of the International Council for the Exploration of the Sea (ICES) (which is attended by an Irish herring expert). As a result, annual total allowable catches (TACs) can be recommended.

The decline of the Celtic Sea herring stock became so serious that the closure introduced in 1976 had to be continued in 1977 and 1978. A trawl survey was carried out from Carnsore Point to Helvick Head to determine the size of the spawning stock. Additionally, larval surveys and fecundity studies of female herrings were made. Analysis of these data will provide estimates of the size of the parent stock. If and when the stock resumes its former strength, it will be possible to re-open this fishery but in a rigidly controlled manner, so that by using good management techniques, another collapse of the fishery can be avoided.

In the case of herring fisheries off the north west coast, it became evident by 1977 that the stocks had become severely depleted. In

order therefore to protect the spawning stock and prevent a complete collapse of the fishery, no fishing for herring was allowed off the north west coast during 1978.

The ban on herring fishing within 12 miles of the base lines off the coasts of counties Louth and Dublin was continued, because the stock in this area is also in a serious state. A survey of the larval and juvenile stages of the Mourne Herrings was commissioned in 1978 funded jointly by the Department of Fisheries and Forestry, the Northern Ireland Department of Agriculture, and the Commission of the EEC. This survey is expected to form the basis for the future rational management of the Mourne Herring stock.

The Manx Herring fishery, in the Irish Sea, though in need of conservation, does not at present appear to be in such a serious state. Consequently limited fishing, with appropriate Irish participation, was permitted in 1978. Careful monitoring of this stock will have to be maintained.

The herring fisheries off the south and south west coasts remained open but subject to TACs. These stocks, although small, are subjected to a much more intensive fishery than they were before the closure of the Celtic Sea fishery and the restrictions on the herring fisheries. For this reason, the stocks require close study and the development of the fishery needs to be constantly evaluated.

Sprat

The developing sprat fishery in the Celtic Sea is of recent origin. Intensive adult sampling programmes were carried out in 1977 and 1978, reinforced by egg and larval studies. Together this information suggests that there is a stock of about 20,000 tonnes of sprats in the Celtic Sea, which with proper management could yield about 10,000 tonnes per year. The annual catches are currently around 2,000 tonnes.

The Irish Sea sprat fishery is considerably older than that of the Celtic Sea, and the quality of the sprat is not quite so good. This sprat is used mainly for reduction to fish meal.

Mackerel

Because of the increasing interest shown in this species by the Irish fishing industry, the biological sampling programme was intensified in 1978. The mackerel stock in Irish waters is part of the Western Stock which is distributed throughout its migratory life from the Bay of Biscay to the northern North Sea, including all our coastlines. At present, this stock is fully exploited.

DEMERSAL FISHERIES

These fisheries have increased greatly in value in recent years, so that by 1978 they accounted for almost 33⅓% of the earnings of sea fishermen (excluding shellfish). Because of this and the inevitable

continuation of increased fishing intensity, large scale sampling programmes of the stocks of cod, whiting, haddock, plaice and black sole, commenced in 1976. This programme continued on as large a scale as possible in 1978, with a view to establishing the sizes of the respective stocks as precisely as possible, and hence the calculation of appropriate TACs and the introduction of suitable management strategies to maintain and improve annual catches.

Whiting

A cruise was undertaken in September, 1978 to compare the catch of *Nephrops* and by-catch of whiting taken in a standard trawl, compared with those taken in a specially constructed trawl of similar design but having a mesh of 70mm throughout. This study is of key importance to the management of roundfish fisheries, because small meshed prawn trawls catch excessive numbers of undersized and immature whiting, and to a lesser extent also cod.

Two commercial trawlers were hired for this cruise, and they made parallel tows over prawn ground with these two nets, exchanging them at regular intervals to reduce bias. The results indicate that the adoption of a 70 mm mesh for *Nephrops* fishing could lead to an immediate but short term fall of 30 to 35% in the value of the catch. However, this loss would probably be shortlived and change to a gain in one or two years due to the growth of those prawns which escaped through the 70mm mesh on its introduction to a size where they can no longer do so. This will increase the volume of landings, and their value to an even greater extent since large prawns command a higher price than small. A further bonus from the use of a 70mm mesh for *Nephrops* fishing is the escapement of 96% of the baby whiting otherwise caught and killed in 50mm *Nephrops* trawls. Their escape, to grow and reach commercial size two years later, could greatly increase the volume of whiting landings, currently about 4,000-5,000 tonnes per annum in the Irish Sea.

Plankton Studies

An understanding of the marine plankton and its role in maintaining the natural food supply of our commercial fishes is essential to the overall success of fish stock management. Accordingly, in 1978 extensive surveys were commenced.

Surveys for sprat eggs were carried out in March, April and May 1978 off the south coast. Samples were collected by a modified Gulf III plankton sampler towed in a double oblique fashion usually to within 5 m of the sea bed. The stations of sampling were usually 18.5 km apart in an area extending from 55 km offshore from Tuskar Rock to Galley Head. Two spawning areas were located, one east of Helvick Head and the other some 65 km south of Browntown Head. The total egg production in the area was estimated and from this it was tentatively estimated that the parent sprat stock amounts to somewhat less than 20,000 tonnes.

Herring larva surveys in the same area, and employing the same

methods at 15 km intervals, were carried out monthly from September 1978 to February 1979. When more results become available, it will be possible to measure the rate of recovery (or otherwise) of the Celtic Sea parent herring stock.

SHELLFISH

Lobsters

Lobsters are currently the second most valuable of the shellfish (behind *Nephrops*), and in conjunction with the lobster working Group of ICES have been studied intensively since 1975 with a view to establishing a regime for their proper management and improvement. Management strategies for the stabilisation of lobster fisheries in Canadian and U.S. waters have been adopted in recent years. In Europe, Ireland is the only country which to date has not experienced a drastic fall in the lobster catches, although a downward trend is now being experienced. In Norway, for example, lobster catches have fallen from 969 tonnes in 1950 to 100 tonnes in 1978, whereas in the case of Ireland the respective catches were 170 tonnes and 338 tonnes. In the case of Ireland, a minimum size limit of 83 mm (carapace length) was adopted in 1963 when the catch was 153 tonnes. From 1964 to 1974 the annual lobster catches rose steadily from 217 tonnes to 253 tonnes, mostly as a result of a large number of fishermen observing the size limit. However in 1975 the catch reached 332 tonnes and in 1976 it peaked at 370 tonnes. This was probably not just a maximum figure, but a level of fishing mortality which the stock cannot stand. In 1977 and 1978, the catches started to decline. So as not to have an experience like that in Norway, investigations of management strategies were intensified in 1978 with a view to enacting regulatory measures for the stabilisation of Irish lobster fisheries as soon as possible.

Oysters

For the first time the value of the landed catch of oysters exceeded £1 million, in 1978, and increasingly these higher values are being achieved by the function of co-operative movements and by advances in oyster farming. The Department's staff continued to provide advice on the management and development of oyster cultivation and fishery improvement.

Mussels

A survey of the health and quality of mussels in 16 bays and estuaries from Carlingford Lough to Dunmanus Bay was completed in 1978. Samples were examined for the prevalence of three well known parasites, for possible disease carrying bacteria and for the determination of the yield of meat. The red-worm (*mytilicola intestinalis*) was common in mussels for Cork Harbour and Kinsale, scarce in Courtmacsherry and Youghal, but absent in the remaining 12 areas. Red-worm does not harm mussels except in cases of extremely heavy infestation. The boring sponge (*Polydora ciliata*) was found to be

widely distributed, and had increased in incidence since the previous survey in 1975. Pea-crab (*Pinnotheres pisum*) was recorded commonly from Dungarvan and Youghal and once from Dublin. The reason for documenting the presence or absence of parasites is to determine what movements of mussels should be permitted within the country. For example, it would be unwise to transplant mussels from Cork Harour to an area free of the red worm parasite.

Aquaculture

Fish farming is gradually increasing in importance in Ireland, notably in coastal waters. As a matter of policy, the Department has been encouraging people to exert their main practical effort into the culture of salmonids (salmon and rainbow trout), oysters, mussels and to a lesser extent scallops. These species are regarded as the basis for this emerging industry, which, when it achieves general application and success, will probably branch out into other species.

Mussels

The scientific staff of the Department pioneered work on raft cultivation of mussels, in the 1960's, and showed on a pilot scale that this is a very successful method of producing high grade fast growing mussels. In the 1970's these experiments were carried into commercial practice by the use of large rafts in Killary Harbour in particular, from which mussels are being produced in large quantities. Considerable market research is currently being carried out to assess the potential value of cultured mussels.

Escallops

Applied research into the breeding of escallops has been going on since 1975, in which year a member of the scientific staff succeeded in developing a technique of spawning and fertilising escallops under controlled conditions. This was the first time that this had ever been done and it was an essential step towards the understanding of the potential of escallop culture. The aim of this applied research is to develop an inexpensive and reliable method of collecting large numbers of baby escallops (called spat). In 1975 up to 400 spat per collector bag were collected, and even the mean of 90 spat per collector was promising. In 1976 maximum spat settlement rates rose to 1,000 spat per collector, and many of these are being grown in suspended nets and selected sea bed sites. Those growing in suspended nets are not faring as well as those on the sea-bed, their growth rate being slower and the rate of settlement of fouling organisms on their shells being higher.

In contrast, spat settlement in 1977 and 1978 was very poor, and this annual variation in the success rate of settlement is of great practical significance and therefore these studies are being continued in order to explain spat settlement success and failure.

Regular observations are now made in Mulroy Bay, Lough Hyne, all six bays of West Cork and Kerry. Settlement takes place mainly

in May, June and July, and this coincides with a time of great natural activity in sea-water. Accordingly, it has been noted that there is a high level of predation on young escallops by crabs. In areas of good spat settlement, better recruitment of escallops to the commercial catches will probably be achieved by rigorous control and elimination of crabs (chiefly the non-commercial green shore crab).

Diving Unit

Amongst the many duties of the scuba Diving Team one of its most important activities is carrying out surveys of the potential of various places as sites for fish farming. In 1978, and with this purpose in mind, surveys were made of Dunmanus Bay, Dingle Harbour and Mulroy Bay. Three existing escallop beds were examined in Dunmanus Bay. The distribution and density of escallops in Dingle Harbour were examined and found to consist of fair quantities of fast growing escallops with a range of associated predators. A full scale survey of Mulroy Bay took place in August 1978, and on this occasion the Diving Unit was joined by the Department's Environmental and Aquaculture Units. A total of 60 dives were made and the distribution of commercially valuable shellfish together with their predators was determined. The distribution and growth rates of escallop populations were studied and sites for the raft culture of mussel, and net-cage culture of salmonids were located.

MARINE POLLUTION (see also under page 24).

Aquatic Environmental Unit

The growing interest in, and concern for, the quality of the environment, led to the formation of this Unit in 1975. The purpose of the Unit is to advise the Department about the effects of industrial, domestic and agricultural discharges into waters, both freshwater and marine. The Unit also provides for an Irish input into international work on marine pollution control.

Offshore areas used for the dumping of wastes are surveyed as part of Ireland's obligations under the Oslo Convention for the prevention of marine pollution by dumping from ships and aircraft. For example, a dumping area south of the Cork coast is used for the disposal of large quantities of wastes arising from a fermentation process. Post dumping, this area has been surveyed in 1976 and again extensively in 1978. Quantitative triplicate grab samples of the benthic fauna were taken at 11 stations in the dumping area. This material is currently being analysed. In a similar manner areas of sewage-sludge dumping off Howth Head were examined in 1978, and this area was extended as far as Clogherhead, because this part of the east coast acts as an important fish nursery ground. To that end, the sites sampled coincided with those where young plaice surveys are carried out. Thus not only are the sludges being studied, but particularly their effects upon commercial populations of fish.

In 1976 a survey of Killala Bay was initiated in response to the proposal to set up a large industrial concern at Ballina. A second

survey was carried out in 1977, and an interim report was produced in 1978; the final report is in the course of being written.

MARINE BLOOMS

In 1976, a bloom of the dinoflagellate *Gyrodinium aureolum* developed on the south coast, and in some cases a number of shore living animals, for example lugworms and fish, were killed by it. It is somewhat unfortunate that these blooms have been called 'Red Tides', a description often given to toxic blooms which have dangerous effects on human health. No such tide has yet appeared in Irish coastal waters, nevertheless a continuing annual monitoring of these summer blooms in our coastal waters is now top priority.

Blooms of *Noctiluca* spp. were observed in 1977 but caused no problems that year. Further blooms took place in 1978, and these may be summarised as follows:—

Locality	*Date*	*Species*
Youghal	June	*Nitzchia* spp. (mainly)
Bellacrogher, Co. Mayo	July	*Mesodinuim rubrum*
Bantry to Cork	August	*Gyrodinium aureolum* (dominant)
Bantry	August	*Gonyaulax polyedra* (dominant)
Blacksod Bay	September	*Gyrodinium aureolum*

The *Gyrodinium aureolum* blooms were associated with a kill of caged salmonids in Dunmanus Bay and with mortalities of littoral and benthic organisms.

The *Nitzchia* spp. blooms severely affected salmon catches by fouling nets.

Assays for Paralytic Shellfish Toxin were carried out with the assistance of the Veterinary Research Laboratory and all were found to be negative. A full report of these phenomena is in preparation.

Biochemical studies

A fully equipped biochemical laboratory operates as a back-up support for the Aquatic Environmental Unit. The equipment includes an atomic absorption spectrophotometer with graphite furnace accessory. a twin channel auto-analyser and a gas liquid chromatograph.

This laboratory specialises in:

(a) the analysis of biological indicator species.

(b) the analysis of waters and sediments for trace metal contamination and measurement of the nutrient concentration in fishing waters.

Work is in progress monitoring levels of heavy metals in salmon

and trout from rivers such as the Boyne, and in herring, cod, whiting and plaice as well as certain important species of shellfish.

Nutrient studies were carried out in 1978 in estuarine and coastal waters. These are related to the suitability of areas for fish farming, the causes of marine blooms and the productivity of waters such as the estuary of the River Bandon.

FISHERY RESEARCH STATIONS

Proposals for the provision of Fishery Research Stations at Kinsale, Co. Cork and Ballyglass, Co. Mayo were being examined. The need for additional accommodation at Dunmore East Fishery Research Station was also being examined.

RARE FISHES

The Department provides a service for examining and identifying specimens of unusual fish. Small cash awards are paid to senders of rare species and an annotated list is published annually in the 'Irish Naturalist's Journal'. Suitable specimens are preserved in the National Museum and many of these are on display. Seventeen species were listed in 1978, among them such warm water species as anchovy and red mullet, and cold water species such as forsk and bladefish. In addition a number of normally oceanic species, such as deal fish, pilot fish, sunfish and moonfish have now been observed in our coastal waters.

STUDENTSHIPS AND BURSARYSHIPS

The Department's scheme whereby the talents of undergraduates on a short term basis, and graduates on a 2/3 year basis, are used to study particular problems of interest to fishery science, continued to thrive in 1978. All the studentships held in 1978 were on freshwater topics. The bursaryships are shared between marine and freshwater topics and in 1978 the former included a mussel parasite survey, analysis of marine benthic invertebrates, studies of demersal fish and studies of escallop larvae, spat and plankton.

ENGINEERING

FISHERY HARBOUR WORKS

Major Fishery Harbour Centres

At Killybegs Fishery Harbour Centre expenditure on development work during the year was £37,277. Preliminary work on the installation of the syncrolift commenced late in 1978. Discussions were held with the fishermen and other local interests at Killybegs in connection with the provision of sites for a weighbridge and an additional ice plant.

At Castletownbere Fishery Harbour Centre expenditure on development works during the year was £603,988. The surfacing and kerbing of the mainland wharf was completed. At Dinish Island the syncrolift was structurally completed while the construction of the wharf was at an advanced stage by the end of the year. The principal activity was in the preparation of industrial sites and roads and in the provision of services. Work on the laying of water mains and surface water sewers was commenced. Discussions took place with the Electricity Supply Board for the provision of a 38 KV supply to the Castletownbere Area and the laying on of a 10KV supply to Dinish Island.

Other Harbours, Ports and Landing Places

At Dunmore East two new fishing industry service establishments were set up by private enterprise with State aid providing marine engineering diving, net manufacturing and repair services at the centre. Negotiations for the establishment of two new fish processing factories were well advanced.

At Howth discussions were held with all interested parties regarding proposals for the development of the harbour.

Other Fishery harbour improvement works grant aided by the Department of Fisheries and Forestry were completed during the year at Bunage and Rosbeg, Co. Donegal, Renard Point, Co. Kerry and Courtown, Co. Wexford. Improvement works which were recommended by the Department and financed by Roinn na Gaeltachta were completed at Leabgarrow (Arranmore Island), Camus More (Tory Island) and Magheraroarty, Co. Donegal, Killeany, Co. Galway, Rossport, Co. Mayo and Dingle and Reen, Ballinskelligs, Co. Kerry.

Fishery harbour works assisted by grants from the Department of Fisheries and Forestry were in progress at the end of the year at Fenit, Dromatoor and Scraggane, Co. Kerry.

Improvement works which were recommended by the Department and financed by Roinn na Gaeltachta were in progress at the end of the year at Burtonport and Stackamore (Arranmore Island) and Bunbeg, Co. Donegal and Caladh Mhagnuis, Co. Mayo.

MARINE POLLUTION (see also page 21).

During the year discussions continued with the sponsors of major industrial projects, from which large quantities of effluent will be discharged into our principal estuaries, to ensure that all practical steps will be taken to protect the fishery interests. The effects of the discharge of effluents for which Section 171 licences have been issued were monitored.

Our prime interest in monitoring has been the protection of our market for fish and shellfish which depends on their maintaining a quality consistent with human health.

MARICULTURE

This aspect of the sea fishing industry has expanded considerably over the past few years and this is reflected in the ever-increasing number of applications for oysters/mussels Orders. The present procedure is that the Minister may authorise, by order or licence, the establishment of beds for oysters, mussels, cockles and periwinkles after a set procedure has been carried out, including the holding of a sworn public enquiry into any objections that may be forthcoming. The person named in such order is then given full rights for the particular species in the area specified and can exclude all others from the area with regard to those species. The legal procedure is cumbersome and further legislation is in hands with a view to revising and simplifying procedures.

As indicated in the section of this report dealing with EEC membership, grants are now available from the Community towards the cost of mariculture projects in addition to a national grant payable by An Bord Iascaigh Mhara.

Engineering advice continued to be given to various private developers of salmonid and shellfish rearing stations. The Department's engineers co-operated in a consultancy and supervisory capacity in the development of a major private fresh water smolt rearing unit which, in time, will be a supply source for a major sea-cage-rearing unit for salmon.

TECHNOLOGY

Fish Quality Regulations

The Fish Quality Officers continued to supervise fish landings to ensure compliance with the Demersal Fish (Handling, Storage and Transport) Regulations 1967, as amended by the Demersal Fish (Handling, Storage and Transport) Regulations 1973.

Particular attention was paid to the size and freshness gradings of fish landed at Irish Ports and offered for sale at auctions to ensure compliance with EEC Council Regulation No. 103/76 of January 1976. These Officers were active in certifying that fish withdrawn from the market in respect of which the Producer's Organisation wished to claim EEC compensation monies, had been properly graded and properly disposed of.

Fishery Products—Export Control

The special arrangements introduced by the Department for the supervision of those premises and processors involved in the export of fishery products to France were continued and suitable certificates were issued in respect of products exported.

INTERNATIONAL AND OTHER CONFERENCES

During the year Sea Fisheries Division was represented at the following conferences, committees, working groups etc.

Abroad

North East Atlantic Fisheries Commission (London).
ICES Statutory Meeting (Copenhagen).
EIFAC Plenary Session (Hamburg).
Atlantic Salmon Symposium (Edinburgh).
Automatic data processing (Copenhagen).
Flatfish Working Group (Copenhagen).
Irish Sea and Bristol Channel Fisheries (Lowestoft).
Advisory Committee on Fisheries Management (Copenhagen).
EEC North/South of Ireland Co-operation Committee on Herring (London).
Pathology and Diseases of Shellfish (Nantes).
Shellfish Association of Britain (London).
Sublethal effects of pollutants in the sea (London)
Biological Basis of pelagic stock management (Aberdeen).
Roundfish Working Group (Copenhagen).
European Marine Biology Symposium (Isle of Man).
Oslo and Paris Commissions standing scientific Committees (in various centres).
Pollution baseline and monitoring studies in the North Atlantic (Copenhagen).
West European Fishery Technologists Working Group (Belgium).

Home

Marine Science Advisory Committee.
Ad hoc Committee on Fish Diseases.
Committee on Educational Requirements of the Fishing Industry.
Inter Departmental Environmental Committee.
Irish Committee for Biology.
A three day international seminar, organised by the Department, was held in Leenane, Co. Galway, to examine the potential of mussel farming. Experts attended from six European countries and they as well as the national speakers, presented interesting and valuable papers on this subject, which has led to many special working parties being set up to examine all aspects of mussel farming.

National seminars organised by the Department

The Fisheries Research Centre at Abbotstown, Castleknock, Co. Dublin, has provided the Department's staff with excellent conference facilities. Full advantage of this was taken in the first year of the Centre's operation with two full seminars being held and plans laid for further seminars in 1979.

LEGISLATION

Particulars of the Statutory Instruments relating to Sea Fisheries made during the year are included in Appendix No. 22

PART II

INLAND FISHERIES

Details of the catches of salmon, sea trout and eels in the various fishery districts during 1978 are given in Appendices Nos. 11 to 17 of this report. As usual, the catches made in the Foyle Fisheries Commission area, formerly the Moville Fishery District, are not included but they are referred to in a separate section of this report.

In 1978 the catch of salmon and grilse amounted to 360,389 fish weighing 1,180 tonnes and valued at £3,987,286 compared with 409,533 fish weighing 1,305 tonnes and valued at £4,581,884 for 1977. The overall average weight at 3.27 kgs was slightly higher than in 1977. The commercial catch at 1,148 tonnes was lower than the 1977 figure of 1,266 tonnes. The total rod catch amounted to 8,621 fish weighing 31.42 tonnes and valued at £107,352 compared with 1977 when 11,340 fish weighing 38.5 tonnes and valued at £135,153 were caught. The total number of licences of all kinds issued for angling for salmon and sea trout was 13,481 compared with 11,889 in 1977. The salmon catch figures for nets and rods for the years 1976, 1977 and 1978 are given in Appendix No. 12. In 1978 the salmon and grilse catch (by weight) was distributed as follows:—

Drift nets	...	71.50%
Draft nets	...	21.68%
Stake nets, snap nets, weirs and other commercial methods	...	4.16%
Rod and Line	...	2.66%

The average weight and value of salmon caught by commercial fishing engines during the past four years are given in Appendix No. 11. Details of the catch of sea trout in 1978 in the various fishery districts are given in Appendix No. 13. Very little commercial fishing specifically for sea trout is done in this country and over 50% of the total catch is taken as a by-catch of commercial fishing for salmon. It is difficult therefore to compile accurate statistics.

BOARDS OF CONSERVATORS

Details of receipts and expenditure of boards of conservators for the fishery year ended 30 September, 1978 are given in Appendix No. 18.

RE-ORGANISATION OF INLAND FISHERIES

During the year the Minister introduced the Fisheries Bill, 1978, in Dáil Éireann. The purpose of the Bill is to give effect to the main

recommendations of the Inland Fisheries Commission by securing the more effective conservation, protection, management and development of inland fisheries by re-organising and strengthening the existing administrative structure. The Bill provides mainly for the establishment of a Central Fisheries Board and seven regional fisheries boards, representative of all inland fishing interests, to replace the existing seventeen boards of conservators and the Inland Fisheries Trust Inc.

EMPLOYMENT IN THE INDUSTRY

Exclusive of persons employed on the marketing and transport of fish, a total of some 6,500 persons found either whole-time or part-time employment in inland fisheries during the year. This figure includes 4,550 persons estimated as engaged in netting for salmon, 330 employed by boards of conservators on protection of fisheries, 800 engaged in netting and protection work in the Foyle area, 170 engaged in development work on behalf of Inland Fisheries Trust Inc. and the remainder employed by proprietors of commercial and sport salmon fisheries or by angling associations.

INSTRUMENTS OF CAPTURE

The numbers of the various types of licences issued in each fishery district and the rates of licence duty are given in Appendices Nos. 19 and 20.

EXPORTS OF FRESHWATER FISH

Salmon

The total quantity of salmon exported in fresh, chilled, frozen and salted forms was 1,061 metric tons compared with 1,071 metric tons in 1977. Total value of these exports fell from £4,213,294 in 1977 to £4,190,423. Details for the two years are as follows:

	1977		1978	
	metric tons	£'000	metric tons	£'000
Fresh, chilled frozen salmon ...	1,012	3,763	914	3,519
Smoked salmon ...	59	450	147	672

Of the total quantity of fresh, chilled and frozen salmon exported in 1978, 654 metric tons went to Great Britain, 77 metric tons went to France, 82 metric tons to the Six Counties, 26 metric tons to Spain, 34 metric tons to the Netherlands, 24 metric tons to Belgium/Luxembourg and 12 metric tons to the Federal Republic of Germany.

The smoked salmon was exported mainly to Great Britain (80 metric tons), the Federal Republic of Germany (18 metric tons), the U.S.A. (16 metric tons) and Belgium/Luxembourg (14 metric tons).

The average export price of fresh, chilled or frozen salmon was £3,850 per metric ton as compared with £3,718 per metric ton in 1977.

Rainbow Trout

Exports of rainbow trout in 1978 amounted to 90 metric tons valued at £123,000 as compared with 128 metric tons valued at £127,000 in 1977.

Eels

Exports of eels in 1978 amounted to 99 metric tons valued at £210,000 as compared with 145 metric tons valued at £278,000 in 1977.

ARTIFICIAL PROPAGATION

The production and distribution of salmon, sea trout and brown trout ova, fry, fingerlings and smolts produced at the various hatcheries are given in Appendix No. 23.

The total output of salmon ova in the 1977/78 spawning season was 4,969,000, and the surviving progeny from these were distributed as follows :

Salmon

Hatchery owner	Ova	Fry	Fingerlings	Yearling	Smolts
Department of Fisheries and Forestry and Boards of Conservators	1,004,000	—	354,000	246,000	—
Electricity Supply Board	498,000	—	935,000	—	354,000
Salmon Research Trust of Ireland Inc.	125,000	—	65,000	—	—

The total output of brown trout ova in the 1977/'78 spawning season was 2,090,000. The distribution of this output was as follows :

Brown Trout

Hatchery Owner	Ova	Fry	Fingerlings	Yearlings
Inland Fisheries Trust Inc.	330,000	896,000	133,500	253,000

Sea Trout

The total output of sea trout ova during the 1977/78 spawning season was 90,000. This output was produced at Screebe hatchery, Co. Galway, and 45,000 of this stock was returned as fry into the Screebe system.

Details of the locations to which the aforementioned output of salmon, brown trout and sea trout were distributed are shown in Appendix No. 23.

RESEARCH AND DEVELOPMENT

Salmon Stocks

The total catch of salmon in 1978 was 1,180 tonnes, which is a reduction of 9% on the 1977 catch of 1,305 tonnes. The 1978 catch was one of the lowest on record being only 54% of the 1975 catch (2,188 tonnes). This continuing fall in catch indicates the very serious steady decline in salmon stocks in our coastal and inland waters for some years past.

As in previous years drift nets accounted for the major portion (71.50%) of the catch. A slightly higher proportion of the catch was taken in draft nets in 1978 than in 1977 (17% in 1977 compared with 22% in 1978).

The catch by rods showed the same downward trend (3% of total catch) as in previous years. There was, however, an increase in the number of early run fish taken by rod and line. Good catches of early run fish were reported for instance in the Currane system in Waterville and in the rivers Slaney and Bundrowes. This increase could be attributed to the ban on high seas fishing for salmon in Greenlandic offshore waters. The inshore catch in Greenland amounted to 1,000 tonnes in 1978 which is about 200 tonnes less than the catch quota to which the Danish authorities had agreed.

Catch per licence issued is the best indication of the abundance of salmon especially when applied to inshore nets. This is particularly true of fixed engines where the fishing effort is constant. The numbers of fish caught by the principal licensed fishing engines in coastal and inshore waters from 1974 onwards are as follows:

Year	Salmon catch per unit (No. of fish)			
	Drift Net	Draft Net	Fixed Engine	Snap Net
1974	429	170	416	70
1975	443	224	483	124
1976	314	132	385	97
1977	296	115	199	63
1978	261	109	180	43

The above data indicate further the serious decline in salmon stocks each year since 1975, and the fall in catch shown for fixed engines (i.e. weirs, bag nets etc.) from 416 fish per unit in 1974 to 180 fish per unit in 1978 is considered to be a clear sign of overfishing because the effort exerted by such fixed engines remains constant.

The major portion of the catch is composed of grilse (1+ sea water fish) which make their appearance in the fishery from May onwards. The arrival of salmon in the Dublin Wholesale Fish Market is a good indication of the time of running of the bulk of the fish. In 1978 a total of 92,625 salmon was sold in Dublin. This figure represented 25% of the total catch for the country and can be used for calculations of average weights of salmon. It also gives information on the time of running of the fish. The average weight of salmon was 3.3kg and the highest average (4.9kg) was recorded in April. Up to the end of May, the total sales amounted to 7.8% of the season's landings. The bulk of the fish was sold in June and July representing 43.5% and 39.5% of sales respectively. Thereafter sales amounted to 15% and the majority of these were from the east coast, mainly the Dundalk fishery district.

Ulcerative Dermal Necrosis

UDN was again in evidence amongst the early and late run fish. A total of 1,873 fish was affected of which the majority were reported from the Waterford fishery district and recorded in January and were therefore either fish that had not spawned or kelts. The River Lennon in Donegal was also badly affected. UDN was noted amongst the early run Spring fish; 300 diseased fish were noted in July in the Shannon but there was no evidence of infection in that river for the remainder of the year.

The number of diseased fish recorded in 1978 was higher than in 1977. The figures given are, however, considered to be minimal because reporting of diseased fish, after a period of 15 years, has declined.

Salmon Fecundity

The investigations into the fecundity of salmon are continuing. During 1978, salmon were sampled in six of the incubation stations in the country and ova counts were made on 500 salmon. As in previous years a close correlation between egg numbers and the length of the fish was noted. Egg size varied considerably, the eggs of brood stock in the north and west were considerably larger than those from the south and east.

In the 1977/78 hatchery season, heavy mortality was experienced in the ova taken from fish in the Cork Blackwater; the mortality was attributed to the retention of over-ripe females for stripping. Mortality of ova at the Glencullen incubation station on the Carrowmore system was also very high at 30%; this mortality was attributed to the removal of partly spent females from the river.

Salmon Migrations

The adult salmon tagging programme was initiated in Galway Bay in 1978. Personnel of the Department's Fisheries Research Centre tagged salmon taken by three commercial fishing boats fishing out of Galway, Spiddal and the Aran Islands. A total of 157 fish was tagged and the recapture rate was 8.9%—14 salmon in all. Of the 14 recaptures only three were taken in the tidal traps in the River Corrib and three others were recaptured a short distance from the point of tagging. The longest migration was to Capel Island on the south coast. One fish was taken in the Moy Estuary and two were recaptured in the River Feale. The majority of the fish were moving in a southerly direction when recaptured.

In 1977/78 a total of 321 kelts was tagged and 3 recoveries were obtained, all from the fish tagged at the Carrigadrohid hatchery on the River Lee.

Foreign salmon tags recovered in Irish waters

Two fish tagged as smolts on the west coast of France were recaptured in Irish waters. One fish was taken in the estuary of the Glenamoy River and the other was taken in a drift net off the North Mayo coast. A Swedish tagged smolt was recaptured as an adult off St. Brendan's Head, Co. Kerry.

One fish tagged as an adult off the north coast of Scotland was taken in Carly Hole on the River Boyne.

Salmon smolt tagging in 1978

A total of 829 hatchery reared smolts, together with 3,627 Spring migrating and 244 Autumn migrating wild smolts were tagged in the River Boyne. The returns should provide information on the survival of hatchery reared smolts in comparison with wild smolts in the river.

Survival of hatchery reared salmon smolts

In recent years indications are that hatchery reared smolts are showing a poor return to their natal river. In the Burrishoole system the Salmon Research Trust have had returns as low as 0.6% and a similar estimate was made for the Shannon in 1978 based on the percentage of hatchery reared adults recorded at Thomond Weir.

A comprehensive sampling programme took place at the premises of Galway and Aran Fishermen's Co-Operative Ltd. during the peak of the drift net season between 19 June and 20 July. A total of 7,675 fish (88% of the entire catch) was examined and 592 (7.7%) were found to be derived from reared smolts. Periodic checks were made on landings at various ports from Burtonport to Dunmore East and salmon derived from hatchery reared smolts were present in all cases. On the Donegal coast 1.8% of 940 fish and on the Mayo coast 2.2% of 317 fish examined were hatchery reared. Along the south west

coast from Castletownbere to Baltimore, 9.5% of the fish examined in June were reared fish. Experiments in tagging adults have shown that fish captured along the west Cork coast move in both north westerly and easterly directions. It can be assumed that the fish were either homing to the River Lee or the Shannon when they were captured. The percentage of reared fish observed in the catches at Dunmore East was 0.1% which was the lowest on record.

Despite the fact that there are only four rearing stations producing smolts in the country, including the River Bush in Northern Ireland, there is evidence that the fish from these stations are widely distributed. Tagging indicates that fish approach the coast in a haphazard manner sometimes quite a distance from their natal river. Smolts tagged in the River Lee on the south coast have been recaptured as adults from Donegal to Cork and adults tagged from the west Cork drift nets have been recaptured on the Mayo coast. Work is continuing to evaluate the input by hatchery reared smolts to the various adult salmon fisheries.

ENVIRONMENTAL STUDIES

Arterial drainage and water abstraction

Annual population estimates were continued in the River Boyne and its tributaries to assess the impact of arterial drainage on fish stocks and arising from these investigations suitable stretches are selected for restocking. Eleven dredged and eight undredged Boyne tributaries were selected in 1978 and some 22 stations were electrically fished. Indications are that the salmon stocked out as underyearlings do not survive in any quantity and wild juvenile smolts are also very sparse. There is a good population of brown trout in most of the Boyne tributaries and the fear is that brown trout may have taken over the salmon territory possibly because the terrain is more suitable for trout than for salmon.

Investigations are continuing on the effects of water abstraction on the salmonid stocks. In 1978 the River Crana in Donegal was investigated to determine what effects the proposed abstraction will have on the fish stocks. The local authority was advised accordingly.

Heavy Metals

Fish and fish food organisms were sampled to determine the present level of heavy metals in the various tissues of salmonids in the different age groups. This investigation was carried out on the Blackwater River, a tributary of the River Boyne.

Eutrophication

Over-enrichment of the River Suir downstream of Thurles has resulted in a low level of oxygen during the hours of darkness with supersaturation during daylight hours. An investigation was carried out using live trout in cages to determine the effect on fish stocks. In the polluted stretch of the river when the oxygen dropped to 40%

saturation, the younger age groups died and the larger fish were found to be in distress. At 20% saturation all the fish died. Low oxygen values were recorded between 0100 and 0800 hrs. Thereafter the oxygen levels increased with the advent of daylight and photosynthesis.

SEA TROUT

Scales and measurements of sea trout from the River Bride, a tributary of the Cork Blackwater, were collected for age determination. Sea Trout were also collected from the drift net fishery along the Wicklow coast.

An investigation into the rate of upstream migration of incoming sea trout based on scale examination was carried out on the River Finn in Co. Donegal. The Finn sea trout scales were compared with those of the River Moy and some of the fish in these two rivers show two phases of post-smolt growth before typical marine growth begins.

At Dungloe, Co. Donegal, an electronic fish counter has been recording the numbers of incoming sea trout since 1969. Using a small collection of scales collected by Dungloe Angling Club it is planned to demonstrate how the population structure in terms of age and size of the fish has varied from year to year.

A study of the angling statistics of sea trout in Connemara was continued with a view to establishing the present strength of the stocks compared to former years. Statistics on angling are available back over a long period for a number of fisheries in Connemara.

RAINBOW TROUT INVESTIGATIONS

The overall production from 10 commercial rainbow trout farms in 1978 was 320 tonnes representing an increase of 70 tonnes over the 1977 production. There are 12 rainbow trout farms in the country with a total production potential of 450 tonnes a year. In addition to the freshwater farming units there are six small scale salt water cage units which are still considered to be at the experimental stage.

Three distinct breeding stocks imported from abroad are being raised at the Department's hatchery at Glenties to provide an experimental disease free brood stock. The fish stock produced from the rainbow trout ova imported from the Isle of Man in 1976 was stripped in 1978 to begin a second generation. A large proportion of the females did not mature. Late maturing fish can be an advantage particularly in the marine environment. Older and therefore larger fish can be produced without any loss of condition due to sexual maturity.

The experimental cage rearing on Lough Ea, Co. Donegal which began in September 1977 was concluded in October 1978. Indications were that this method has possibilities provided the site is suitable as regards depth and shelter from prevailing winds.

Fin rot disease was much in evidence in the cage-reared fish. Kidney disease was also on the increase particularly in the case of fish transferred from freshwater to sea water. The incidence of disease is recorded in the case of all fish farms. In order to prevent the spread of disease there are strict regulations governing both the transfer of fish from one farm to another and the transfer of fish from farms to rivers and lakes for restocking purposes.

EEL RESEARCH AND DEVELOPMENT

The ascent of elvers in the Galway fishery was monitored during April and May. Twenty-three kg of elvers (approximately 150,000) were collected and sampled. The size range was from 56mm to 80mm, the mean being 65mm. In the Autumn, sampling of the silver eels was initiated. The majority of the specimens were males but a number of small females with length measurements as low as 38cm was noted.

The silver eels at Killaloe on the Shannon were also sampled. The silver eel catch early in the season was very poor due to low flows.

Experimental fyke netting took place in October and November in Lough Derg. The high temperature which prevailed during those months resulted in a substantial catch for so late in the season. Eels are generally inactive during the winter months.

Forty-three eel fishery authorisations were issued during the year bringing the number of fishing engines operating under such authorisations to fifty seven.

STUDENTSHIPS AND GRANT AIDED RESEARCH PROJECTS

Bursaries

For eight weeks during the summer months of 1978, five undergraduate students were recruited from 3rd level educational institutes to assist the biological staff in their investigations. Of these, three students were engaged in biological studies on the River Boyne; one student sampled the commercial catch of salmon in the Galway and Aran Co-operative's premises in Galway; and, one student carried out the routine work on feeding trials and water quality monitoring at the experimental rainbow trout rearing station at Glenties.

Studentships

Under the Department's scheme studentships in fishery science tenable at Irish Universities for a two or three year course of study are offered each year to graduates.

At the beginning of 1978, six studentships were in progress. During the year three of these were concluded and two were terminated

because the holders took up full time employment. The sixth studentship continued during 1978.

In October 1978, a new studentship study commenced.

ADVISORY WORK

The Department's biologists continue to advise angling clubs, boards of conservators, local authorities and other state and semi-state bodies on biological matters relating to fisheries. Representatives of the biological staff are members of advisory committees relating to water quality and water regulations.

In accordance with the Department's consultative role in the administration of the Local Government (Water Pollution) Act 1977, applications for licences to discharge pollutants were referred to the Department of Fisheries and Forestry by local authorities for advice which was given.

ENGINEERING

Arterial Drainage

Close contact continued to be maintained between the Department's engineers and their counterparts in the Office of Public Works in relation to arterial drainage and post-drainage activities on the Corrib/Mask and Moy systems.

Pre-drainage conditions in the Mask/Carra catchment continued to be monitored. Further investigations were carried out on the possible impact of the Mask/Carra drainage scheme on the water supply to the salmon hatchery, rearing station and the proposed smolt rearing extension at Cong, Co. Mayo. Agreement had already been reached with the Office of Public Works on the necessary brown trout restocking programme and rehabilitation works for this catchment.

The detailed pre-drainage survey work of the Camogue River sub-catchment in the Maigue system was completed in 1978.

The cost/benefit analyses for the Bonet Catchment Drainage Scheme in Co. Leitrim and the Boyle-Lung Catchment Drainage Scheme in Co. Roscommon were completed from the fisheries viewpoint and were presented to the Office of Public Works for inclusion in the general cost/benefit analyses for both catchment drainage schemes.

Agreement was reached between the Department and the Office of Public Works on a programme to rehabilitate spawning areas in the River Boyne catchment which had been adversely affected by arterial drainage works. Four tributaries were selected for rehabilitation during 1978 and, under the direction of the Department's engineering supervisor, more than 700 tons of selected gravel were placed in these tributaries to provide conditions suitable for spawning.

Control of Discharge of Effluents

The Department continued to exercise its licensing function under Section 171 of the Fisheries (Consolidation) Act, 1959. Licences under Section 171 were issued for discharges from a number of industries, with appropriate conditions attached. Recommendations on effluent standards were made in respect of many other discharges to rivers and estuaries. Several problems regarding existing discharges were investigated and appropriate action was taken.

Investigation of Inland Fish Movement

The smolt trap at the sluice barrage at Galway was operated from 9 March to 14 July. During this period 38,000 salmon smolts were trapped and released. The largest number of smolts trapped and released in one day was 7,000 on 10 May. In addition 92 salmon kelts, 8 brown trout, 50 eels and 15 perch were trapped and released. The majority of the salmon kelts were trapped and released during the week ended 18 March. All the kelts were clean and in good condition.

Water Abstraction

Major water abstraction schemes continued to pose problems for inland fisheries conservation and management. The Department's engineers continued to advise local authorities and private firms of provisions to be made in the design and operation of water abstraction schemes so as to prevent damage to fisheries. As in previous years it was necessary to investigate measures that could be implemented to prevent the possibility of damage to fish stocks by the discharge of waste water from water treatment works.

Galway County Council started work on the impoundment of Owenboliska Lough in connection with the Spiddal Regional Water Supply Scheme. Close liaison was maintained between the Council's consulting engineers and the Department's engineers on this project.

Two other proposed water impoundment schemes for Tulla, Co. Clare and Loughrea, Co. Galway were studied by the Department's engineers. Recommendations and fish-pass designs for both will be provided.

Site survey work was carried out and detailed designs were prepared for a major freshwater salmon smolt rearing unit at Cong, Co. Mayo, which was started in 1978.

Proposals to abstract water from the rivers Crana and Lennon, Co. Donegal, the river Fane, Co. Louth, the river Slaney, Co. Carlow and the rivers Clodiagh and Mahon, Co. Waterford, were examined and advice given where necessary.

Fish Culture Installations

Cong salmon hatchery and rearing station continued to operate

successfully under the Galway Board of Conservators and no trouble was experienced with the water supply. A new office was provided for the hatchery manager. Preparatory site work for the construction of the smolt rearing extension at Cong was commenced. This work consisted largely of removing standing timber, rock excavation and removal.

The Department's engineers assisted Bangor Board of Conservators in the operation of the salmon incubation station at Glencullen, Co. Mayo.

The Department continued to advise the Salmon Research Trust of Ireland Inc. on engineering matters relating to fisheries.

The Department's engineers co-operated in a consultancy and supervisory capacity in the development of a new private freshwater salmon smolt rearing unit intended for use as a supply source for a major sea-cage salmon rearing unit.

Rainbow Trout Farming

The growing interest in commercial rainbow trout farming continued throughout 1978. Proposals received by the Department were investigated, sites assessed, and advice given. Engineering designs, both outline and detailed, were prepared and supplied where necessary.

Two new commercial rainbow trout farms went into production in 1978 in Co. Wexford and in Co. Wicklow.

Electronic Fish Counters

Existing counters at the sites listed below were maintained. The records are summarised as follows:

River	Site	Total Count 1978	Maximum Count and Date	
			No.	Date
*Bandon	Bandon	144	15	16 November
Blackwater	Clondulane	4,418	229	30 November
**Boyne	Blackcastle	372	52	30 October
Corrib	Galway	4,585	220	5 June
***Inagh	Ennistymon	—	—	—
Liffey	Islandbridge	776	23	13 July
Lennon	Ramelton	287	12	14 March

*Undercounting.
**Trapping from 1 October to 31 December—counter by-passed.
***Installation out of commission for the year.

The Department collaborated with the Kerry County Council consulting engineers on the design of a Denil fish-pass incorporating a standard resistivity tube counter for the ponding weir at Finuge on the River Feale.

Development work continued on the prototype Delta Vee (ΔV) counter and improvements were made in the design of filters and amplifiers. Arrangements were made for river trials on a small weir and in a Denil fish-pass.

Application of Electricity to Inland Fisheries

Research and development were continued by the Department's consultant at the Department's field laboratory at Glenties, Co. Donegal. The main work was devoted to the Delta Vee (ΔV) salmon counter. A toxicity monitor was developed for use by industry in effluent quality control.

River Improvement Schemes

The improvement works on the fish-pass at Curry Dam, Co. Sligo, were completed.

Eel Fishery Development

Commercial eel trapping operations at the Department's fishery, Galway were observed and investigated by the Department's engineers. A comprehensive survey of the eel trapping installations at the fishery was carried out. The purpose of the investigations and survey is to prepare a programme to improve the eel trapping operation and the installations themselves.

Two removable elver traps were installed in the existing elver passes at the sluice barrage at Galway prior to the elver run.

A permanent elver trap was designed for the Salmon Research Trust of Ireland Inc., Co. Mayo. Two such traps were constructed by the Trust on the banks of the Mill Stream at Furnace, Co. Mayo.

An eel trap which was designed by the Department's engineers for the Drogheda Board of Conservators and built in 1977 at the Board's salmon rearing station on the Murmod River, Virginia, Co. Cavan was extended so as to operate over a greater range of river levels. The extension will enable the trap to be used for smolt counting for scientific investigation purposes.

Further experiments were made in new methods of capturing silver eels and some encouraging results were achieved. Resarch is continuing. Existing eel fishery installations continued to be kept under observation and new site applications for eel fishery authorisations were investigated.

FOYLE FISHERIES COMMISSION

The Commission is comprised of a senior and a junior member appointed by the Minister for Fisheries and Forestry and a senior and a junior member appointed by the Department of Agriculture for Northern Ireland. The post of Chairman rotates each year between the two senior members of the Commission. During the year under review it was held by the Dublin senior member.

The Annual Report of the Commission gives detailed information on the Commission's activities during the year.

The spawning count for 1978 was 3,894 which was a considerable improvement on the 1977 figure (1,800). The catch of salmon and grilse by commercial engines for 1978 was 47,911 (162,279 kg) compared with 39,258 (131,943 kg) for 1977. The rod catch of salmon and grilse in 1978 was 1,907 compared with 886 for 1977 while the rod catch of sea trout in 1978 was 10,570 (6,214 in 1977). Overall there was an improvement in 1978 in the spawning count and in the numbers of fish caught by all methods as compared with the previous year.

The commercial fishery operated by the Commission yielded a profit of £20,160 in 1978. The profit in 1977 was £22,850. Each year the profit realised in the operation of the commercial fishery is credited to the Accumulated Revenue Account of the Commission.

The Commission received during the year a total of £120,394 in equal shares from the Department of Fisheries and Forestry and the Department of Agriculture for Northern Ireland to meet its deficits at 30 September 1977 and 30 September 1978. Prior to 1978 payments were made to the Commission up to one year in arrears. It was decided in 1978 that payments should be made to the Commission in that year in respect of its 1977 and 1978 deficits and that henceforth contribution from the two Departments should be made during the year in which the deficit occurs.

The accounts of the Commission for the year ended 30 September 1978 and details of regulations made by the Commission in 1978 are included as appendices to the Commission's 1978 Annual Report.

INLAND FISHERIES TRUST INCORPORATED

The Annual Report of the Trust for 1978 gives a review of the Trust's work during the year. The grant-in-aid paid to the Trust by the Department in the calendar year 1978 amounted to £810,000.

Work continued during the year on the development, improvement and maintenance of trout fisheries on rivers and lakes. 1,674,000 brown trout consisting of fry, fingerlings, spring and autumn yearlings and two-year old fish were released into waters to supplement natural spawning. Further work was carried out on spawning and nursery grounds to improve natural spawning. In controlling predators, over

20 tons of pike and 31 tons of perch along with millions of perch fry were removed from trout waters. Surveys of new waters were carried out to assess their suitability for development as trout or coarse fish fisheries. 774 new fishing stands were provided on 17 waters at 13 centres for coarse fish anglers in order to meet increased demand.

Sea angling surveys were extended along the west and south coasts and new sea angling handout maps of these areas were made available.

The Trust continued to identify and remedy the causes of pollution in waters under its control with the co-operation of the boards of conservators, officers of the Agricultural Advisory Service and local authorities. The Trust reported continued co-operation from farmers and industrialists in pollution control.

MANAGEMENT OF STATE FISHERIES

In 1978, 132 State owned fisheries—in the main vested in the Land Commission—were managed by Fisheries Division. Rents received during the year amounted to £5,142 compared with £4,395 in 1977.

Nineteen of these fisheries which fell due for re-letting were advertised during the year.

GALWAY SALMON FISHERY

The Galway Salmon Fishery was acquired by the State on 1 February 1978. Up to the end of 1978, out of a total budget of £61,054.50, the fishery showed a trading profit of £44,763.64 with salaries and expenses at £16,290.00.

A major factor contributing to this satisfactory financial situation was the sale of eels which are netted in large quantities at the weir and which realised £37,466.

Salmon sales at £20,976.00 were also very good and premium prices were obtained.

The sale of fishing permits brought in a further £2,556 and miscellaneous items, fees and so on, brought in just over £56.00, making up the total trading profit of £44,763.64.

In the interests of salmon conservation draft netting was not carried out during the 1978 salmon fishing season. This resulted in larger numbers of salmon reaching the upper reaches of the Corrib earlier than in the previous seasons.

THE SALMON RESEARCH TRUST OF IRELAND INCORPORATED

The Annual Report of the Trust for 1978 gives a detailed account of its work during the year. The grant-in-aid paid to the Trust by the Department in the 1978 financial year amounted to £11,000.

There was no increase in the numbers of two-sea-winter fish counted through the traps at the Trust's Burrishoole fishery although most rivers in Ireland appeared to have better stocks of these fish in 1978.

The grilse run was the worst yet recorded by the Trust on the Burrishoole River being only 33% of the 1970-74 average. This was due to poor smolt production in 1977, which was caused by a relatively small spawning escapement in 1974, by the effects of the 1976 drought on yearling salmon stocks, and to a high commercial exploitation of returning grilse. The survival rate from smolt to grilse stages was slightly better in 1978 at 6.2% but still represents a high rate of commercial exploitation, with overall survivals from spawning stocks to adult returns running at about half the requisite level for a self sustaining population.

Salmon smolt production in 1978 showed an improvement over that of 1977 with survival rates from egg to smolt returning to more normal levels and survival to the kelt stage also improved.

A slight improvement occurred in the re-capture rate, as grilse, from reared smolts, at just 1% compared with 0.66% in 1977. The returns from yearling smolts were better than those from 2+ smolts, suggesting some degree of latent infection among the older smolts. Over 213,000 eggs were stripped from the returning females and brand mark quality improved with 80% legibility.

Some 11,000 two-year-old smolts were produced in 1978 when losses from furunculosis were reduced. For yearling smolts, the total of 16,000 represented only 24% of the population by the end of April but their average size (15.0 cm) was satisfactory. In all some 17,200 smolts were released to the sea in 1978, the remaining 10,000 being transferred to sea-cages for on-rearing.

A further trial with single-cell-protein diet was carried out from June onwards. The growth and conversion rates became progressively worse amongst the test fish, after the first three months of the trial. Mortalities were also higher amongst the test fish. This work is to be continued to the smolt stage in 1979.

The run of sea trout showed a further fall in numbers, the total (1,730) being the worst recorded since 1971. This fall could be attributed to poor survival from the 1977 spawning escapement to the 1978 kelt stage. Sea trout smolt production declined in 1978 due to the summer drought in 1976.

INTERNATIONAL AND OTHER CONFERENCES

During the year Inland Fisheries Division was represented at the following conferences, committees and working groups etc.:

Abroad

Atlantic Salmon Symposium (Edinburgh).

Salmon and Trout Association Annual Conference (York).

European Inland Fisheries Advisory Commission Plenary Session (Hamburg).

Symposium on Fish Nutrition (Hamburg).

Institute of Fisheries Management Training Course (Lancaster University).

Acoustic Tagging Conference (Lowestoft).

Council of Europe Meeting on Endangered Fish Species (Strasbourg).

Fish Counter Liaison Group, Reading, England.

Tenth Session E.I.F.A.C., Hamburg, Germany.

E.E.C. Directive on the Quality Requirements for Water capable of supporting Fresh Water Fish.

Home

River Suir Anti Pollution Committee.

Donegal Regional Development Committee.

Pollution Control Committee of Donegal County Council.

River Erne Joint Protection Committee.

Water Pollution Advisory Committee.

Freshwater Research Group Abbotstown, Co. Dublin.

Legislation

Particulars of the Statutory Instruments relating to Inland Fisheries made during the year are included in Appendix No. 22.

PATRICK POWER,

Minister for Fisheries and Forestry.

11 January, 1980.

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APPENDIX No. 1

Quantity and Value of Sea Fish (excluding Salmon) returned as landed, 1977 and 1978

SPECIES	Quantity		Value	
	1978	1977	1978	1977
DEMERSAL	Tonnes	Tonnes	£'000	£'000
Flat Fish				
Brill ...	113	114	83	78
Dabs ...	239	253	47	45
Lemon Sole ...	141	144	58	56
Megrims ...	179	160	37	37
Plaice ...	1,564	1,596	812	730
Sole ...	165	207	344	358
Turbot ...	130	147	161	168
Other Flat Fish ...	309	214	23	27
Round Fish				
Cod ...	3,943	4,280	1,600	1,606
Haddock ...	517	705	189	231
Hake ...	187	125	80	57
Ling ...	69	49	16	11
Saithe ...	1,426	1,109	430	283
Whiting ...	6,954	7,746	1,509	1,590
Dogfish ...	25	116	3	12
Monkfish ...	104	56	44	26
Ray/Skate ...	1,255	1,401	383	367
Other Demersal ...	620	465	43	27
TOTAL DEMERSAL ...	17,940	18,887	5,862	5,709
PELAGIC				
Herring ...	27,717	23,129	8,171	6,033
Sprats ...	9,119	6,055	342	199
Mackerel ...	27,507	22,695	1,720	1,747
TOTAL PELAGIC ...	64,343	51,879	10,233	7,979
TOTAL WETFISH ...	82,283	70,766	16,095	13,688
CRUSTACEANS				
Crabs ...	906	997	173	160
Crawfish ...	127	95	628	434
Dublin Bay Prawns ...	3,363	2,804	1,944	1,059
Lobsters ...	310	338	1,455	1,409
Palaemonid Shrimps ...	67	68	110	100
TOTAL CRUSTACEANS ...	4,773	4,302	4,310	3,162
MOLLUSCS				
Escallops ...	696	346	449	168
Queen Escallops ...	15	12	4	2
Mussels ...	3,018	3,486	114	103
Oysters ...	756	924	1,181	779
Periwinkles ...	1,938	2,190	386	437
Palourdes ...	19	42	31	67
Squid ...	67	152	37	59
Other Molluscs ...	10	98	14	158
TOTAL MOLLUSCS ...	6,519	7,250	2,216	1,773
Sea Urchins ...	114	170	48	66
TOTAL ALL FISH ...	93,689	82,488	22,669	18,689

In addition to the above landings into the Republic, 6,504 tonnes of fish and 195 tonnes of shellfish valued at £1,619,000 and £119,000 respectively were landed directly into foreign ports or transhipped at sea for export, by Irish registered vessels during 1978.

APPENDIX No. 2

Comparison of the Average Price per tonne of various kinds of Seafish, 1970-1978.

Species	1970	1971	1972	1973	1974	1975	1976	1977	1978
	£	£	£	£	£	£	£	£	£
Sole	509	529	624	931	1,006	1,200	1,485	1,732	2,093
Brill	221	240	277	354	411	477	515	680	740
Turbot	211	228	275	358	444	510	799	1,145	1,231
Plaice	184	184	192	217	247	276	364	457	519
Dabs	69	71	68	93	81	114	143	176	195
Megrims	77	66	62	95	94	114	149	230	206
Ray/Skate	111	121	138	161	191	200	228	262	306
Cod	97	98	116	139	176	173	242	375	406
Haddock	74	53	63	96	111	181	188	327	365
Hake	126	130	125	141	150	176	288	456	428
Whiting	50	40	49	68	70	90	109	205	217
Saithe	53	61	64	82	97	118	142	255	301
Herrings	28	37	44	72	100	112	142	261	295
Pilchards	—	—	11	36	23	42	—	—	—
Mackerel	38	38	32	46	43	44	61	77	63
Sprats	12	11	11	17	19	17	25	33	38

N.B—"Average price" as shown in this table represents total value divided by total weight for each kind of fish, year by year. It does not purport to take direct cognizance of any abnormal rise or fall in price attributable to a seasonal glut or shortage of a particular kind of fish.

APPENDIX No. 3

Value of Landings of Sea Fish (excluding Salmon) at ports at which the value of such landings exceeded £150,000 in 1978.

PORT	TOTAL		DEMERSAL		PELAGIC		SHELLFISH	
	£000	Tonnes	£000	Tonnes	£000	Tonnes	£000	Tonnes
1. Killybegs	4,178	26,251	957	3,516	3,193	22,717	28	18
2. Howth	2,037	6,678	1,242	4,381	517	1,944	278	353
3. Galway	1,458	4,965	323	880	1,098	4,001	37	84
4. Castletownbere	1,301	7,187	234	490	897	6,402	170	295
5. Burtonport	1,116	8,016	196	533	812	7,461	108	22
6. Clogherhead	1,002	2,143	241	815	2	18	759	1,310
7. Dunmore East	950	4,437	263	727	650	3,675	37	35
8. Skerries	912	2,302	368	1,341	13	60	531	901
9. Rosmore/ Roscahill	702	497	—	—	—	—	702	497
10. Dingle	637	2,381	175	420	415	1,905	47	56
11. Fenit	570	628	14	36	95	287	461	305
12. Kilmore Quay	547	1,142	324	755	3	15	220	372
13. Carraroe/ Rossaveal	544	2,070	1	7	531	2,056	12	7
14. Achill	444	997	112	260	207	710	125	27
15. Valentia	434	1,619	104	378	174	1,128	156	113
16. Greencastle	432	920	348	816	—	—	84	104
17. Rathmullen	278	970	—	—	266	929	12	41
18. Belmullet/ Blacksod	265	674	26	70	125	479	114	125
19. Helvick	261	704	166	471	49	167	46	66
20. Cleggan	260	699	6	9	171	637	83	53
21. Westport	204	875	—	—	203	875	1	—
22. Schull	203	582	111	289	20	201	72	92
23. Balbriggan	200	518	55	241	—	1	145	276
24. Baltimore	195	507	—	—	95	431	100	76
25. Union Hall	188	441	75	183	3	21	110	237
26. Dun Laoire	184	429	135	340	2	20	47	69

APPENDIX No. 4

Imports and Exports of Fish and Fishery Products in 1978 (as compared with 1977).

	Quantity		Value	
	1978	1977	1978	1977
	Tonnes	Tonnes	£'000	£'000
I.—IMPORTS				
Fish, fresh, chilled or frozen	3,536	3,939	4,817	3,635
Fish, salted, dried or smoked	1,558	1,522	1,475	1,334
Shellfish, fresh, salted or dried	361	254	1,020	601
Prepared or preserved fish ...	1,918	1,849	2,805	2,801
Prepared or preserved shellfish	64	47	181	125
Fishmeal and fish oils ...	14,632	15,454	3,980	4,748
TOTALS ...	22,069	23,065	14,278	13,244
II.—EXPORTS				
Fish, fresh, chilled or frozen	25,468	19,249	14,304	11,627
Fish, salted, dried or smoked	10,313	8,705	7,032	5,562
Shellfish, fresh, salted or dried	5,735	5,732	7,398	5,876
Prepared or preserved fish ...	1,144	1,468	863	1,286
Prepared or preserved shellfish	122	21	140	69
Fishmeal and fish oils ...	5,719	3,603	1,320	940
Landed directly into foreign ports or transhipped at sea for export, by Irish registered vessels				
(I) Fish ...	6,504	5,510	1,619	1,845
(II) Shellfish ...	195	339	119	243
TOTALS ...	55,200	44,627	32,795	27,448

APPENDIX No. 5

HERRING FISHING, 1978

Ports at which more than 1,000 tonnes were landed	Total Quantity	Total Value
	Tonnes	£'000
1. Killybegs ...	8,895	2,428
2. Galway ...	3,325	1,044
3. Carraroe/Rossaveal ...	1,739	515
4. Dunmore East ...	1,605	535
5. Howth ...	1,591	497
6. Castletownbere ...	1,522	519
7. Dingle ...	1,201	367

APPENDIX No. 6

MACKEREL FISHING, 1978

Ports at which more than 100 tonnes were landed	Total Quantity	Total Value
	Tonnes	£'000
1. Killybegs ...	13,357	749
2. Burtonport ...	5,495	296
3. Castletownbere ...	4,627	368
4. Valentia ...	808	73
5. Dingle ...	704	47
6. Galway ...	676	55
7. Howth ...	353	20
8. Carraroe/Rossaveal ...	316	16
9. Schull ...	188	16
10. Westport ...	174	12
11. Dunmore East ...	110	8

APPENDIX No. 7

REGIONAL DISTRIBUTION AND CLASSIFICATION OF FISHING CRAFT AND OF PERSONNEL ENGAGED IN FISHING IN 1978

I.C.E.S. Statistical Areas	How Engaged	Men	Total Vessels	MOTOR VESSELS								Boats propelled by outboard engines, sails or oars	
				Gross Tons								18' Keel and upwards	Under 18' Keel
				Over 100	75—99	51—74	26—50	16—25	11—15	10 and under			
AREA VIIA (Omeath to Helvick)	Solely	956	325	8	20	58	63	10	12	96		57	1
	Partially Laid-up	519	120			5	6	2		18		86	16
	Totals	1,475	458	8	20	63	69	12	12	114		143	17
AREA VIIG-K (Helvick to Ballyheigue)	Solely	912	405	7	8	15	24	7	40	227		77	43
	Partially Laid-up	1,104	286	1	1	3	7		1	35		207	
	Totals	2,016	703	8	9	18	31	7	41	262		284	43
AREA VII B, C (Ballyheigue to Mullaghmore)	Solely	302	138	5	2	9	29	5	5	40		41	2
	Partially Laid-up	2,603	975			2	1			338		470	167
	Totals	2,905	1,116	5	2	11	30	5	5	378		511	169
AREA VIA (Mullaghmore to Moville)	Solely	645	114	20	13	24	34	8	2	12		1	49
	Partially Laid-up	1,579	517	1		2	6	6		214		242	
	Totals	2,224	642	21	13	26	44	14	2	230		243	49
TOTALS (all areas)	Solely	2,815	982	40	43	106	150	30	59	375		176	3
	Partially Laid-up	5,805	1,898	2	1	12	6	6	1	605		1,005	275
	Totals	8,620	2,919	42	44	118	174	38	60	984		1,181	278

APPENDIX No. 8

TRAWLING AND SEINING, 1978

Port or Locality	Number of men engaged	Number of vessels engaged	Tonnage of Motor Vessels			Fishing Period
			Not exceeding 10 tons	Over 10 tons	Over 25 tons	
Clogherhead ...	95	19	—	—	19	All Year
Balbriggan ...	63	13	—	1	12	All Year
Skerries ...	110	23	—	—	23	All Year
Howth ...	176	35	—	—	35	All Year
Dublin ...	6	2	2	—	—	Occasionally
Dun Laoire ...	32	7	1	1	5	All Year
Wicklow ...	8	2	—	1	1	All Year
Arklow ...	40	9	—	—	9	All Year
Courtown ...	8	3	3	—	—	Occasionally
Rosslare ...	5	1	—	—	1	All Year
Carne/St. Helens ...	6	2	2	—	—	Occasionally
Kilmore Quay ...	95	19	—	1	18	All Year
Duncannon ...	30	7	3	—	4	All Year
Ballyhack ...	9	3	2	1	—	Occasionally
Cheekpoint ...	4	2	2	—	—	Occasionally
Passage East ...	6	3	3	—	—	Occasionally
Dunmore East ...	54	11	—	1	10	All Year
Helvick ...	12	3	—	—	3	All Year
Youghal ...	12	4	4	—	—	Spring & Autumn
Ballycotton ...	9	3	—	3	—	Spring & Autumn
Cobh ...	4	2	—	2	—	All Year
Cork/Crosshaven ...	50	1	—	—	1	All Year
Kinsale ...	11	3	—	1	2	All Year
Union Hall ...	35	9	—	3	6	All Year
Schull ...	29	5	—	—	5	All Year
Cape Clear ...	5	1	—	—	1	All Year
Castletownbere ...	82	13	—	—	13	All Year
Ballinaskelligs ...	4	1	—	—	1	All Year
Valentia Island ...	4	1	—	—	1	All Year
Portmagee ...	16	4	—	—	4	All Year
Cahirciveen ...	19	3	—	—	3	All Year
Dingle ...	65	13	—	—	13	All Year
Fenit ...	23	5	—	1	4	Winter
Aran Islands ...	99	20	4	1	15	All Year
Galway ...	39	7	—	—	7	All Year
Spiddal ...	6	2	2	—	—	Spring & Summer
Rossaveal ...	11	2	—	—	2	All Year
Carna/Kilkerrin ...	8	2	2	—	—	Occasionally
Cleggan ...	8	2	1	—	1	Occasionally
Achill/Mulrany ...	58	14	—	2	12	All Year
Belmullet/Blacksod	20	5	—	—	5	All Year
Killala ...	16	4	—	3	1	All Year
Sligo ...	4	1	—	—	1	Occasionally
Killybegs ...	304	46	—	—	46	All Year
Burtonport ...	140	23	—	—	23	All Year
Bunbeg ...	16	4	—	3	1	All Year
Magharoarty/Tory/ Innisboffin ...	4	1	—	—	1	Occasionally
Urrus/Dunaff ...	20	5	—	3	2	Occasionally
Buncrana ...	8	2	—	2	—	All Year
Dunfanaghy ...	4	1	—	—	1	All Year
Greencastle ...	90	21	—	1	20	All Year
TOTALS ...	1,982	394	31	31	332	

APPENDIX No. 9A.

STATEMENT OF ACCOUNT IN RESPECT OF REPAYABLE ADVANCES

Advances of £14,970,721 made to An Bord Iascaigh Mhara during the period of twenty-seven years to 31 December, 1978, for provision of boats and gear and other purposes:—

		£
Repayments of Principal:		
made to 31 December 1977	...	1,601,791
made during year	...	250,666
Principal written off to 31 December 1978	...	1,344,012
		3,196,469
Balance of Principal outstanding at 31 December 1978		11,774,252

APPENDIX No. 9B

EXPENDITURE ON FISHERIES FOR THE YEARS ENDED 31 DECEMBER 1977 and 31 DECEMBER 1978

(all figures rounded to nearest £1,000)

	1 Jan. 1978 to 31 Dec. 1978	1 Jan. 1977 to 31 Dec. 1977
	£	£
1. SEA FISHERIES		
By (a) Department of Fisheries and Forestry (Fisheries Division)		
(i) Development	159,000	151,000
(ii) Fishery School	26,000	4,000
(iii) Fishery Harbours and other Marine Works	719,000	549,000
(b) An Bord Iascaigh Mhara		
(i) Administration and Current Development (grant-in-aid) ...	3,103,000	2,575,000
(ii) Capital Development (grant-in-aid)	2,628,000	2,353,000
(iii) Repayable Advances* (mainly for boats and gear) ...	1,411,000	2,453,000
(iv) Repayment of Advances written off	20,000	115,000
(c) Roinn na Gaeltachta Grants for marine works	168,000	375,000
2. INLAND FISHERIES		
By (a) Department of Fisheries and Forestry (Fisheries Division) Development	1,123,000	680,000
(b) The Inland Fisheries Trust Incorporated (grant-in-aid)	810,000	606,000
(c) The Salmon Research Trust of Ireland Incorporated (grant-in-aid) ...	11,000	10,000
3. DEPARTMENT OF FISHERIES		
Salaries, Wages and other administrative Expenses for Fisheries Division ...	882,000	689,000
Totals ...	11,060,000	10,560,000

*A Statement of Account in respect of Repayable Advances is given in Appendix 9A.

APPENDIX No. 10

COASTAL EXTENT OF FISHERY DISTRICTS AND NAMES OF THE PRINCIPAL RIVERS IN EACH DISTRICT

District	Coastal Extent of District	Principal Rivers
No. 1 Dublin	Most easterly point on Red Island, Skerries, to Wicklow Head.	Liffey Vartry.
No. 2 Wexford	Wicklow Head to Kiln Bay, east of Bannow Bay, Co. Wexford.	Slaney Avoca.
No. 3 Waterford	Kiln Bay, east of Bannow Bay, to Helvick Head, Co. Waterford.	Suir Barrow Nore.
No. 4 Lismore	Helvick Head to Ballycotton Pier, Co. Cork.	Blackwater, Funcheon, Bride, Awbeg.
No. 5 Cork	Ballycotton Pier to Crow Head, Co. Cork.	Lee, Owenboy, Bandon, Argideen, Ilen, Mealagh, Owvane, Coombola, Glengarrif, Adrigole.
No. 7 Kerry	Crow Head, Co. Cork, to Kerry Head, Co. Kerry.	Roughty, Sheen, Finnihy, Blackwater, Sneem, Laune, Flesk, Maine, Caragh, Currane, Cummeragh, Inny.
No. 8 Limerick	Kerry Head, Co. Kerry, to Hag's Head, Co. Clare.	Shannon, Deel, Fergus, Mulcair, Little and Upper Brosna, Inny, Maigue, Feale.
No. 9[1] Galway	Hag's Head to the sea point of the boundary between the townlands of Keeraunagark South and Banraghbaun South, Co. Galway.	Corrib, Claregalway.
No. 9[2] Connemara	The sea point of the boundary between the townlands of Keeraunagark South and Banraghbaun South, Co. Galway, to Slyne Head, Co. Galway.	Ballinahinch, Recess, Cashla, Owengowla, Invermore, Inverbeg, Screebe, Furnace.
No. 10[1] Ballinakill	Slyne Head to Pigeon Point, Westport Bay, Co. Mayo.	Culfin, Errif, Bundorragha, Dawros, Carrowniskey, Bunowen (Louisburgh).
No. 10[2] Bangor	Pigeon Point to Benwee Head, Co. Mayo.	Newport, Burrishoole, Owenduff, Owengarve, Owenmore, Glenamoy.
No. 11 Ballina	Benwee Head to Coonamore Point, Co. Sligo.	Moy, Cloonaghmore (Palmerston), Easkey.

District	Coastal Extent of District	Principal Rivers
No. 12 Sligo	Coonamore Point to Carrickgarve, Co. Sligo.	Ballisodare, Garavogue (Sligo), Bonet, Drumcliff.
No. 13 Ballyshannon	Carrickgarve to Rossan Point, Co. Donegal.	Erne, Bundrowes, Bunduff, Eske, Eaney Water, Oily, Glen.
No. 14[1] Letterkenny	Rossan Point to Malin Head, Co. Donegal.	Owenea, Gweebarra, Gweedore (Crolly), Clady, Lackagh, Lennon, Crana.
No. 17[2] Dundalk	Carlingford Lough to Clogherhead, Co. Louth.	Fane, Dee, Glyde.
No. 17[1] Drogheda	Clogherhead to the most easterly point on Red Island, Skerries, Co. Dublin.	Boyne, Blackwater, Deel.

Note—The area comprised in the former No. 14[2] or Moville District was, by the Foyle Fisheries Act, 1952, incorporated in the Foyle Area which is administered by the Foyle Fisheries Commission.

APPENDIX No. 11

Quantity and Value of all Salmon and Sea Trout taken in 1976, 1977 and 1978 by Instruments of Capture.

SALMON

Instruments	1978 Kgs.	1977 Kgs.	1976 Kgs.	1978 £	1977 £	1976 £
Total for all engines	1,179,335	1,305,351	1,491,888	3,987,286	4,581,784	5,301,737
Total for rod and line	31,425	38,505	43,024	107,352	135,153	151,884
Total for drift nets	843,238	981,023	1,046,108	2,840,807	3,443,391	3,722,256
Total for draft nets	255,636	226,306	304,387	871,969	794,334	1,079,211
Total for stake nets, weirs etc.	49,036	59,517	98,369	167,158	208,906	348,386

SEA TROUT

Instruments	1978 Kgs.	1977 Kgs.	1976 Kgs.	1978 £	1977 £	1976 £
Total for all engines	51,620	26,092	53,352	103,240	52,184	92,938
Total for rod and line	36,558	12,382	20,596	73,116	24,764	38,600
Total for drift nets	4,806	9,774	23,024	9,612	19,548	36,099
Total for draft nets	8,913	3,746	9,608	17,826	7,492	18,007
Total for stake nets, weirs, etc	1,343	190	124	2,686	380	232

APPENDIX No. 12

Quantity and Value of Salmon taken in 1976, 1977 and 1978 by Fishery Districts.

Fishery Districts	*	Quantity			Value		
		1978 kgs.	1977 kgs.	1976 kgs.	1978 £	1977 £	1976 £
Dublin ..	R	336	672	754	1,120	2,359	2,659
	N	585	535	1,546	2,078	1,878	5,454
Wexford ...	R	1,502	2,038	1,305	5,287	7,153	4,605
	N	11,011	14,933	15,162	38,649	52,415	53,483
Waterford ...	R	4,208	5,328	6,005	14,349	18,702	21,182
	N	96,384	173,824	208,386	328,756	610,122	735,060
Lismore ...	R	2,451	2,235	2,094	8,358	7,845	7,386
	N	114,615	125,433	119,243	390,837	440,271	420,617
Cork ...	R	1,413	1,680	3,435	4,734	5,897	12,115
	N	153,930	270,755	129,046	515,665	950,350	455,197
Kerry ...	R	3,598	3,100	3,223	12,269	10,881	11,368
	N	116,829	81,562	78,192	398,417	286,283	275,816
Limerick ...	R	1,990	5,113	3,804	6,667	17,947	13,418
	N	76,064	96,948	118,638	254,815	340,288	418,481
Galway ...	R	487	1,216	1,320	1,666	4,268	4,658
	N	36,102	38,575	66,498	123,468	135,398	235,507
Connemara ...	R	1,022	1,041	1,813	3,495	3,654	6,394
	N	5,966	7,219	5,160	20,404	25,339	18,202
Ballinakill ...	R	885	1,184	1,583	3,027	4,156	5,584
	N	9,254	7,282	6,779	31,649	25,560	23,913
Bangor ...	R	2,282	2,387	2,924	7,802	8,378	10,315
	N	73,627	76,748	107,438	251,802	269,385	378,978
Ballina ...	R	2,786	4,572	5,421	9,529	16,048	19,122
	N	134,368	128,580	234,428	459,538	451,316	826,919
Sligo ...	R	2,511	2,243	2,226	8,588	7,873	7,853
	N	15,213	10,888	13,783	52,029	38,217	48,619
Ballyshannon ...	R	2,295	1,900	2,017	7,869	6,669	7,115
	N	85,902	74,094	85,091	293,783	260,070	300,150
Letterkenny ...	R	3,118	3,128	4,573	10,666	10,979	16,131
	N	201,468	146,198	234,872	658,318	513,154	861,250
Dundalk ...	R	188	320	265	683	1,123	996
	N	11,367	6,711	13,519	41,312	23,556	50,669
Drogheda ...	R	353	348	262	1,243	1,221	983
	N	5,225	6,561	11,083	18,414	23,029	41,538
TOTALS ...		1,179,335	1,305,351	1,491,888	3,987,286	4,581,784	5,301,737

* R indicates capture by means of single rod and line;
N by means of nets, weirs, etc.

APPENDIX No. 13

Quantity and Value of Sea Trout taken in 1976, 1977 and 1978 by Fishery Districts.

Fishery Districts	*	Quantity			Value		
		1978 kgs.	1977 kgs.	1976 kgs.	1978 £	1977 £	1976 £
Dublin ...	R	328	340	1,083	656	680	2,030
	N	1,506	6,379	2,107	3,012	12,758	3,949
Wexford ...	R	968	528	565	1,936	1,056	1,059
	N	1,026	891	899	2,052	1,782	1,685
Waterford ...	R	680	392	311	1,360	784	583
	N	842	414	4,461	1,684	828	8,357
Lismore ...	R	2,968	934	431	5,936	1,868	808
	N	470	143	1,299	940	286	2,435
Cork ...	R	2,365	769	1,556	4,730	1,538	2,916
	N	476	677	4,055	952	1,354	1,402
Kerry ...	R	4,982	1,890	2,324	9,964	3,780	4,355
	N	1,726	1,610	3,597	3,452	3,220	6,740
Limerick ...	R	656	936	2,206	1,312	1,872	4,134
	N	2,869	676	3,473	5,738	1,352	5,659
Galway ...	R	688	874	371	1,376	1,748	695
	N	402	244	2,154	804	488	4,036
Connemara ...	R	12,468	1,625	3,280	24,936	3,250	6,148
	N	646	160	2,449	1,292	320	4,590
Ballinakill ...	R	3,987	816	2,360	7,974	1,632	4,423
	N	575	291	4,478	1,150	582	8,392
Bangor ...	R	2,878	1,134	1,781	5,756	2,268	3,337
	N	860	520	383	1,720	1,040	718
Ballina ...	R	756	450	666	1,512	900	1,249
	N	945	378	446	1,890	756	836
Sligo ...	R	305	112	306	610	224	574
	N	654	121	794	1,308	242	1,487
Ballyshannon ...	R	212	111	356	424	222	666
	N	186	419	1,192	372	838	2,235
Letterkenny ...	R	686	861	743	1,372	1,722	1,392
	N	751	544	330	1,502	1,088	619
Dundalk ...	R	986	264	1,041	1,972	528	1,952
	N	510	192	448	1,020	384	839
Drogheda ...	R	645	346	1,216	1,290	692	2,279
	N	618	51	191	1,236	102	359
TOTALS ...		51,620	26,092	53,352	103,240	52,184	92,938

* R indicates capture by means of single rod and line;
N by means of nets, weirs, etc.

APPENDIX No. 14

Quantity and Value of Eels in 1976, 1977 and 1978 by Fishery Districts.

Fishery Districts	Quantity			Value		
	1978 kgs.	1977 kgs.	1976 kgs.	1978 £	1977 £	1976 £
Dublin ...	610	530	—	1,287	636	—
Wexford ...	292	4,021	8,000	616	4,825	13,200
Waterford ...	19,244	1,100	2,000	40,605	1,320	3,300
Lismore ...	659	530	3,800	1,390	636	6,270
Kerry ...	1,003	2,056	—	2,116	2,467	—
Limerick ...	24,000	38,100	60,000	50,640	68,580	99,000
Galway ...	15,583	24,150	27,000	32,880	43,470	44,550
Bangor ...	—	555	—	—	666	—
Ballina ...	1,000	8,000	4,200	2,110	9,600	6,930
Sligo ...	—	4,000	4,400	—	4,800	7,260
Ballyshannon ...	10,000	10,000	17,500	21,100	12,000	28,875
Dundalk ...	—	5,050	12,000	—	6,060	19,800
Drogheda ...	4,064	10,000	11,200	8,575	12,010	18,480
TOTALS ...	76,455	108,092	150,100	161,319	167,070	247,665

NOTE—The catch figures set out above are based on returns which are not complete. This explains any apparent inconsistency between the figures and the official export figures in any particular year.

APPENDIX No. 15

Total Quantity and Value of Salmon, Sea Trout and Eels taken by all Engines in 1976, 1977 and 1978.

Fishery Districts	Total Quantity for District			Total value for District		
	1978 Kgs.	1977 Kgs.	1976 Kgs.	1978 £	1977 £	1976 £
Dublin ...	3,365	8,456	5,490	8,153	18,311	14,092
Wexford ...	14,799	22,411	25,931	48,540	67,231	74,032
Waterford ...	121,358	181,058	221,163	386,754	631,756	768,482
Lismore ...	121,163	129,275	126,867	407,461	450,906	437,516
Cork ...	158,184	273,881	138,092	526,081	959,139	471,630
Kerry ...	128,138	90,218	87,336	426,218	306,631	298,279
Limerick ...	105,579	141,773	188,121	319,172	430,039	540,692
Galway ...	53,262	65,059	97,343	160,194	185,372	289,446
Connemara ...	20,102	10,045	12,702	50,127	32,563	35,334
Ballinakill ...	14,701	9,573	15,200	43,800	31,930	42,312
Bangor ...	79,647	81,344	112,526	267,080	281,737	393,348
Ballina ...	139,855	141,980	245,161	474,579	478,620	855,056
Sligo ...	18,683	17,364	21,509	62,535	51,356	65,793
Ballyshannon ...	98,595	86,524	106,156	323,548	279,799	339,041
Letterkenny ...	206,023	150,731	240,518	671,858	526,943	879,392
Dundalk ...	13,051	12,537	27,273	44,987	31,651	74,256
Drogheda ...	10,905	17,306	23,952	30,758	37,054	63,639
TOTALS ...	1,307,410	1,439,535	1,695,340	4,251,845	4,801,038	5,642,340

APPENDIX No. 16

Number, Quantity and Value of Salmon taken by Single Rod and Line in 1976, 1977 and 1978 by Fishery Districts.

Fishery Districts	No. of Fish			Quantity			Value		
	1978	1977	1976	1978 kgs.	1977 kgs.	1976 kgs.	1978 £	1977 £	1976 £
Dublin	94	168	187	336	672	754	1,120	2,359	2,659
Wexford	422	551	351	1,502	2,038	1,305	5,287	7,153	4,605
Waterford	1,023	1,440	1,595	4,208	5,328	6,005	14,349	18,702	21,182
Lismore	473	721	691	2,451	2,235	2,094	8,358	7,845	7,386
Cork	447	542	1,117	1,413	1,680	3,435	4,734	5,897	12,115
Kerry	1,074	912	887	3,598	3,100	3,223	12,269	10,881	11,368
Limerick	603	1,382	1,010	1,990	5,113	3,804	6,667	17,947	13,418
Galway	145	380	410	487	1,216	1,320	1,666	4,268	4,658
Connemara	300	336	570	1,022	1,041	1,813	3,495	3,654	6,394
Ballinakill	260	370	455	885	1,184	1,583	3,027	4,156	5,584
Bangor	681	746	908	2,282	2,387	2,924	7,802	8,378	10,315
Ballina	722	1,475	1,700	2,786	4,572	5,421	9,529	16,048	19,122
Sligo	700	641	639	2,511	2,243	2,226	8,588	7,873	7,853
Ballyshannon	665	559	576	2,295	1,900	2,017	7,869	6,669	7,115
Letterkenny	881	948	1,306	3,118	3,128	4,573	10,666	10,979	16,131
Dundalk	46	82	66	188	320	265	683	1,123	996
Drogheda	85	87	52	353	348	262	1,243	1,221	983
TOTALS	8,621	11,340	12,520	31,425	38,505	43,024	107,352	135,153	151,884

APPENDIX No. 17

Number, Quantity and Value of Sea Trout taken by Single Rod and Line in 1976, 1977 and 1978 by Fishery Districts.

Fishery Districts	No. of Fish			Quantity			Value		
	1978	1977	1976	1978 kgs.	1977 kgs.	1976 kgs.	1978 £	1977 £	1976 £
Dublin	286	850	1,560	328	340	1,083	656	680	2,030
Wexford	1,080	1,320	1,020	968	528	565	1,936	1,056	1,059
Waterford	700	980	1,479	680	392	311	1,360	784	583
Lismore	2,080	1,869	633	2,968	934	431	5,936	1,868	808
Cork	1,735	1,495	2,287	2,365	769	1,556	4,730	1,538	2,916
Kerry	3,795	2,700	3,393	4,982	1,890	2,324	9,964	3,780	4,355
Limerick	438	1,560	3,206	656	936	2,206	1,312	1,872	4,134
Galway	446	1,249	409	688	874	371	1,376	1,748	695
Connemara	9,879	3,250	9,641	12,468	1,625	3,280	24,936	3,250	6,148
Ballinakill	3,684	1,020	4,163	3,987	816	2,360	7,974	1,632	4,423
Bangor	1,948	1,260	2,617	2,878	1,134	1,781	5,756	2,268	3,337
Ballina	565	750	998	756	450	666	1,512	900	1,249
Sligo	265	160	450	305	112	306	610	224	574
Ballyshannon	283	186	603	212	111	356	424	222	666
Letterkenny	583	1,230	1,231	686	861	743	1,372	1,722	1,392
Dundalk	1,020	662	1,713	986	264	1,041	1,972	528	1,952
Drogheda	700	866	1,787	645	346	1,216	1,290	692	2,279
TOTALS	29,487	21,407	37,190	36,558	12,382	20,596	73,116	24,764	38,600

APPENDIX No. 18

PARTICULARS OF RECEIPTS AND EXPENDITURE BY BOARDS OF CONSERVATORS IN THE YEAR ENDED 30 SEPTEMBER, 1978.

Fishery District	Opening Balance	RECEIPTS					EXPENDITURE			Total Expenditure	Closing Balance
		Licence Duty	Fishery Rate	Grant from Department	Misc. Receipts	Total Receipts	Wages	Legal Costs	Travelling and Misc.		
	£	£	£	£	£	£	£	£	£	£	£
Dundalk ...	+ 17	2,549	1,110	30,509	711	34,879	23,616	1,361	7,327	32,304	+ 2,592
Drogheda ...	− 1,224	4,054	3,673	45,867	12,538	66,132	27,172	3,004	33,374	63,550	+ 1,358
Dublin ...	+ 968	5,394	488	43,100	3,424	52,406	27,182	2,175	19,166	48,523	+ 4,851
Wexford ...	− 1,890	5,533	5,183	21,172	575	32,463	22.302	450	7,471	30,223	+ 350
Waterford ...	−14,447	18,166	4,575	82,263	1,168	106,172	63,497	1,820	23,761	89,078	+ 2,647
Lismore ...	− 5,989	8,163	12,898	41,000	1,299	63,360	44,803	454	12,291	57,548	− 177
Cork ...	+ 8,985	12,241	1,673	45,192	4,544	63,650	45,650	3,240	21,400	70,290	+ 2,345
Kerry ...	−10,208	12,248	5,539	81,226	3,983	102,996	76,403	74	15,921	92,398	+ 390
Limerick ...	− 9,277	18,626	12,188	114,564	4,757	150,135	72,251	1,273	67,822	141,346	− 488
Galway ...	− 3,123	6,019	11,222	34,542	12,736	64,519	35,318	1,982	24,543	61,843	− 447
Connemara ...	− 3,501	2,789	9,057	12,336	255	24,437	20,683	128	2,850	23,661	− 2,725
Ballinakill ...	− 899	4,713	3,170	15,620	165	23,668	19,033	—	4,486	23,519	− 750
Bangor ...	+ 391	6,084	4,980	19,460	1,136	31,660	25,216	1,049	6,486	32,751	− 700
Ballina ...	+ 2,699	11,168	14,457	28,602	1,433	55,660	31,914	1,200	17,601	50,715	+ 7,644
Sligo ...	− 2,795	2,599	4,065	17,000	1,327	24,991	13,797	702	5,931	20,430	+ 1,766
Ballyshannon ...	− 3,479	8,335	1,929	33,964	618	44,846	30,582	—	10,297	40,879	+ 488
Letterkenny ...	− 6,513	15,804	5,107	45,619	2,566	69,096	45,225	200	14,144	59,569	+ 3,014
TOTALS ...	−50,285	144,485	101,314	712,036	53,235	1,011,070	624,644	19,112	294,871	938,627	+22,158

APPENDIX No. 19

PARTICULARS OF LICENCES ISSUED BY BOARDS OF CONSERVATORS FOR THE YEAR 1978

Fishery District	Annual (all districts)	Annual (district of issue only)	Late Season (all districts)	Twenty-one day (all districts)	Seven day (all districts)	Late season (district of issue)	Foyle Area (one district)	Foyle Area (all districts)	Special Local Licence (Tidal Waters)		Draft net	Drift net	Pole net	Bag net	Stake net	Head Weir	Box or Crib	Loop net	Snap net	Gap, Eye or Basket for eels	Long line for eels	Oyster Dredge	Eel Trap
									Rod	Net													
Dundalk	59	81	13	—	—	101	—	—	—	—	33	—	—	—	—	—	—	—	—	9	4	—	—
Drogheda	134	163	15	2	8	150	—	—	—	—	29	—	—	—	—	—	6	—	—	2	10	—	7
Dublin	356	99	47	3	31	16	15	—	—	—	7	10	—	—	—	—	—	—	—	—	—	—	—
Wexford	96	259	—	—	37	269	—	—	—	—	74	—	—	—	—	—	—	—	—	—	—	—	—
Waterford	141	790	1	—	44	42	—	—	—	—	10	206	—	1	2	1	1	—	126	16	—	—	—
Lismore	70	265	11	—	225	—	—	—	—	—	7	101	—	—	2	—	1	—	10	—	—	—	2
Cork	139	409	20	—	134	92	—	—	—	—	40	135	—	1	—	—	—	—	—	—	—	—	—
Kerry	115	514	16	—	733	245	—	—	—	—	78	9	—	1	—	—	3	—	—	—	—	200	—
Limerick	196	1,212	19	—	129	256	—	—	—	—	120	78	—	—	4	—	5	—	—	68	5	—	—
Galway	92	106	86	—	147	86	—	—	—	—	5	37	—	—	—	—	5	—	—	35	5	101	—
Connemara	17	42	2	10	133	197					—	30	—	—	—	—	—	—	—	—	—	—	1
Ballinakill	35	101	11	—	360	125	—	—	—	—	17	36	—	—	—	—	—	—	—	—	—	31	—
Bangor	53	101	17	10	232	96	—	—	2	25	12	25	—	1	—	—	—	—	—	—	—	175	2
Ballina	82	465	9	—	528	162	—	—	—	—	10	107	—	—	—	—	7	—	—	—	22	—	—
Sligo	64	195	9	4	34	23	—	—	—	—	4	10	—	1	—	—	—	—	—	1	6		—
Ballyshannon	80	184	17	4	171	123	—	6	—	17	102	32	—	—	—	—	1	—	—	6	25	—	—
Letterkenny	54	590	20	9	140	544	12	61	58	15	60	191	—	—	—	—	2	28	—	—	—	—	—
TOTALS	1,783	5,576	313	42	3,086	2,527	27	67	60	57	608	1007	—	5	8	1	31	28	136	137	77	507	12

APPENDIX No. 20

Licence Duties Payable on Fishing Engines.

		£
On each	Salmon Rod—Annual (valid all districts) ...	10.00
Do.	Salmon Rod—Late Season (valid all districts) ...	7.00
Do.	Salmon Rod—Twenty-one day (valid all districts)	5.00
Do.	Salmon Rod—Seven day (valid all districts) ...	3.00
Do.	Salmon Rod—Annual (valid district of issue only)	5.00
Do.	Salmon Rod—Late Season (valid district of issue only)	3.00
Do.	Salmon Rod—Foyle area extension (valid all districts)	7.00
Do.	Salmon Rod—Foyle area extension (valid district of issue only)	2.00
On each	Draft net	30.00
Do.	Drift net	50.00
Do.	Snap net	12.00
Do.	Bag net	30.00
Do.	Stake net	50.00
Do.	Head Weir	10.00
Do.	Box or Crib	20.00
Do.	Pole net	5.00
Do.	Loop net	2.00
Do.	Gap, Eye, Basket or Coghill Net for Eels ...	10.00
Do.	Long line for Eels	10.00
Do.	Oyster fishing engine	15.00

Licence Duties Payable on Fishing Engines other than those mentioned above.

Fishery District		Fyke Net (provisional rates)	Eel Trap	Special Local Licences	
				Rod**	Draft Net
		£	£	£	£
1.	Dublin	0.25	—	—	—
2.	Wexford	0.25	20.00	—	—
3.	Waterford	0.25	—	—	—
7.	Kerry	0.25	—	—	—
9[1].	Galway	2.00	20.00	—	—
10[2].	Bangor	—	—	§5.00	§40.00
13.	Ballyshannon ...	—	—	*5.00	*40.00
14[1].	Letterkenny	—	—	‡5.00	‡40.00
				—	†40.00
17[1].	Drogheda	—	20.00	—	—
17[2].	Dundalk	—	20.00	—	—

‡ River Lackagh Tidal Water. † River Owenea/Owentocker Tidal Waters.
* River Erne Tidal Waters. § Owenmore/Owenduff Tidal Waters.

Recommended price for Fyke Nets is 25p each or a net of 20 for £5.

Special Local Rod Licences ** may be reduced to £4 for holders of annual (ordinary) or annual (district) licences.

APPENDIX No. 21

PARTICULARS OF PUBLIC INQUIRIES HELD DURING 1978

Date of Inquiry	Where held	Subject matter	Decision on Report of Inquiry
5th September, 1978	Baltimore, Co. Cork	Application by Mr. Matt Murphy, Sherkin Island for two oyster fishery orders in respect of parts of Kinish Harbour.	Order granted
12th September, 1978	Rosscarbery, Co. Cork	Application by Mr. Brendan Kingston, Rosscarbery for an oyster fishery order in respect of part of Rosscarbery Bay.	Order granted
12th September, 1978	Rosscarbery, Co. Cork	Application by Mr. Brendan Kingston, Rosscarbery for an oyster fishery order in respect of part of Sheep Cove, Castle Bay.	Order granted
13th September, 1978	Courtmacsherry, Co. Cork	Application by Mr. Jean-Marie Charles and Mrs. Ruth Carty-Charles, Cork, for an oyster fishery order in respect of part of Courtmacsherry Harbour.	Application refused
19th September, 1978	Westport, Co. Mayo	Application by Clew Bay Oyster Co-operative Society Limited for an oyster fishery order in respect of part of Clew Bay.	Under consideration

APPENDIX No. 22

ABSTRACT OF STATUTORY INSTRUMENTS MADE IN 1978

SEA FISHERIES

(1) Sea Fisheries (Conservation and Rational Exploitation) Order, 1978. (S.I. No. 25 of 1978) dated 6th February, 1978, imposes a ban on herring fishing in the Mourne Sea within 12 miles of the coast of Counties Louth, Meath and the greater part of County Dublin and in that part of the Celtic Sea within the exclusive fishery limits of the State, viz. off the South and South-East coasts. The Order also prohibits the having on Board of herring within the areas to which the Ban on herring fishing applies.

(2) Kerry Escallop Close Season Bye-Law No. C.S. 122, 1978, dated 29 March, 1978, prescribes the annual close season for escallops off the coast of part of County Kerry.

(3) Kerry Escallop Bye-Law No. 602, 1978, dated 29 March, 1978, prohibits the taking of escallops during the open season for escallops off the coast of part of County Kerry except during specified times of weekdays (excluding Saturdays).

(4) Sea Fisheries (S.I. No. 163, of 1978) (Conservation and Rational Exploitation) (No. 2) Order, 1978, dated 16th June, 1978 imposes a ban on herring fishing off the South West coast in the specified area as well as a prohibition on having herring on board a fishing vessel in the area to which the ban applies.

(5) Undersized Sea-Fish Order, 1978 (S.I. No. 175 of 1978) dated 30th June, 1978, supersedes the Undersized Sea-Fish Order. 1976. It repeats the provisions of that Order but decreases the minimum length for Haddock to 27 centimetres for Witches to 28 centimetres, for Whiting to 23 centimetres and for Dabs to 15 centimetres.

(6) Sea Fisheries (Conservation and Rational Exploitation) (No. 3) Order, 1978, (S.I. No. 187 of 1978) dated 7th July, 1978 imposes a ban on direct herring fishing off the North-West Coast as defined up to and including the 30th September, 1978 as well as a ban on having herring on Board a sea-fishing boat within the defined area.

(7) Sea Fisheries (Conservation and Rational Exploitation) (No. 4) Order, 1978 (S.I. No. 218 of 1978) dated 27th July, 1978 imposes a ban on direct herring fishing in the area specified in the Order up to and including the 31st December, 1978 save as provided for in fishing plans which are set out in the Order.

(8) Sea Fisheries (Conservation and Rational Exploitation) (No. 5)

Order, 1978 (S.I. No. 243 of 1978) dated 28th August, 1978, imposes a ban on the entry of certain factory ships within the State's exclusive fishery limits except for a purpose recognised by International law, prohibits salmon fishing outside 12 nautical miles from baselines and fishing for sole or plaice inside this 12 mile limit by vessels exceeding 50 gross registered tons of 300 brake horse power. The Order also prescribes minimum lengths for mackerel and herring and prohibits the landing of undersized mackerel for purposes other than human consumption and of all undersized herring.

(9) Fishing Nets (Regulation of Mesh) Order, 1978 (S.I. No. 244 of 1978) dated 28th August, 1978, prescribes minimum sizes for meshes of trawl and seine nets used in sea-fishing.

(10) Killybegs Fishery Harbour Centre (Rates and Charges) Order. 1978, (S.I. No. 267 of 1978) dated 19th September, 1978, specifies revised rates and charges to be paid to the Minister by persons using the facilities at Killybegs Fishery Harbour Centre.

(11) Sea Fisheries (Conservation and Rational Exploitation) (No. 6) Order, 1978 (S.I. No. 280 of 1978) dated 29th September, 1978 extends the ban on direct herring fishing off the North-West coast as imposed by the Sea Fisheries (Conservation and Rational Exploitation) (No. 3) Order, 1978, (S.I. No. 187 of 1978) up to and including 31st December, 1978 including a ban on having herring on board a sea-fishing boat within the defined area.

(12) Sea Fisheries (Conservation and Rational Exploitation) (No. 7) Order, 1978 (S.I. No. 330 of 1978) dated 30th November, 1978, imposes a ban on herring fishing by Irish sea-fishing vessels or having herring on board an Irish sea-fishing vessel in the Irish sea and off the south-west coast in the specified area up to and including 31 December, 1978.

(13) Sea Fisheries (Conservation and Rational Exploitation) (No. 8) Order, 1978 (S.I. No. 372 of 1978) dated 28th December, 1978, extends the ban on direct herring fishing off the North-West coast as imposed by the Sea Fisheries (Conservation and Rational Exploitation) (No. 3) Order 1978 (S.I. No. 187 of 1978) as amended by the Sea Fisheries (Conservation and Rational Exploitation) (No. 6) Order, 1978 (S.I. No. 280 of 1978) up to and including 31st December, 1979 including a ban on having herring on Board a sea-fishing boat within the defined area.

OYSTER FISHERY ORDERS AND BYE-LAWS 1978

(1) Oyster Fishery (Clarinbridge) Order, 1978, dated 3rd February, 1978, grants to Clarinbridge Oyster Co-operative Society Limited certain exclusive rights within the limits of the Oyster Fishery described in the Schedule to the Order.

(2) Clew Bay Oysters Close Season Bye-Law No. C.S. 123, 1978 dated 27th July, 1978 prescribes the close season for oysters in Clew Bay.

(3) Oyster Fishery (Poulnasherry Bay) Order, 1978, dated 16th August, 1978, grants to Mr. Glenn Driver and Mrs. Mary Driver, Kiltale, Dunsany, Co. Meath, certain exclusive rights within the limits of the oyster fishery described in the Schedule to the Order.

(4) Oyster Fishery (Carlingford Lough) Order, 1978, dated 17th November, 1978 grants to Carlingford Lough Oyster Co-operative Society Limited, certain exclusive rights within the limits of the Oyster Fishery described in the Schedule to the Order.

(5) Clew Bay (Prohibition on Oyster Fishing) Bye-Law No. 605, 1978, dated 21st December, 1978, brings forward the closing date for oyster fishing in the Clew Bay oyster beds from 14th February, 1979 to 1st January, 1979, with the effect of prohibiting oyster fishing in Clew Bay from that date until the commencement of the next fishing season, on 16th October, 1979.

INLAND FISHERIES

(1) Letterkenny District Bye-Law No. 600, 1978, dated 19 January, 1978, revokes the Letterkenny District Bye-law No. 556, 1972, thereby restoring the weekly close time on Lough Swilly and the freshwater portion of the River Ramelton to the normal statutory period viz. 6 a.m. on Saturday to 6 a.m. on the next following Monday.

(2) Control of Fishing for Coarse Fish in Fresh Water (Amendment) Bye-law No. 601, 1978, dated 28 February, 1978, revokes Article 5(b) of the Control of Fishing for Coarse Fish in Fresh Water Bye-law No. 595, 1977, which prohibited the possession of more than two rods at any one time for the capture of coarse fish on or near any bank of a river or canal or on or near any lake.

(3) Kerry District Close Season Bye-law No. C.S. 121, 1978, dated 28 February, 1978, prescribes the annual close season for angling for trout in Lough Gill, Co. Kerry.

(4) Sligo District Bye-law No. 603, 1978, dated 30 March, 1978, prohibits:—

(a) taking or attempting to take salmon in the tidal waters of the Sligo District other than by licensed fishing engine;

(b) using any lure other than an artificial fly in angling in part of the Drumcliff River;

(c) wading in or beating the tidal waters of the Sligo District for the purpose of driving or scaring fish;

(d) fishing from 1 January to 31 May in each year in part of the Sligo or Garavogue River.

(5) Ballyshannon District Bye-law No. 604, 1978, dated 5 May, 1978, prohibits fishing for salmon and trout with any fishing engine other than rod and line in the tidal waters of the River Erne and in part of the Abbey River from 9 May, 1978, to 4 June, 1978, and extends by twenty-four hours the weekly close time in the same tidal waters in the year 1978.

(6) Fisheries (Alteration of Name of Department and Title of Minister) Order, 1978 (S.I. No. 195 of 1978) dated 14 July, 1978, alters the name of the Department of Fisheries and the title of the Minister for Fisheries to the Department of Fisheries and Forestry and the Minister for Fisheries and Forestry, respectively.

(7) Elections of Conservators (Postponement) Order, 1978 (S.I. No. 302 of 1978) dated 3 November, 1978, postpones the elections of conservators in 1979.

(8) Salmon and Trout Conservation Bye-law No. 606, 1978 dated 22 December, 1978:—

(a) brings forward the commencement dates of certain annual close seasons for commercial fishing for salmon and trout and angling for salmon;

(b) prohibits drift netting until 15 March in each year in certain localities;

(c) extends the weekly close time by twenty-four hours;

(d) limits the size of boat permitted to engage in salmon fishing to 40 feet in the case of boats registered after 1 January 1979 and to 50 feet as regards boats registered before that date;

(e) revokes Bye-law No. 599, 1977 which permitted the use of drift nets of up to 45 meshes in depth in the Lismore Fishery District. In effect this means that commercial salmon fishermen in that district are subject to the general restriction which prohibits the use in salmon fishing of drift nets exceeding 30 meshes in depth.

FOYLE AREA

(1) Foyle Area (Close Seasons for Angling) Regulations, 1978, dated 15 February, 1978, prescribe the close seasons for angling for salmon and trout on the River Foyle, Lough Foyle and the River Finn.

(2) Foyle Area (Licensing of Fishing Engines) (Amendment) Regulations, 1978, dated 6 April, 1978, increase the licence duties payable in respect of nets used in the Foyle Area.

(3) Foyle Area (Licensing of Fishing Engines) (Amendment No. 2) Regulations, 1978 dated 27 April, 1978, replace the Foyle Area (Licensing of Fishing Engines) (Amendment) Regulations 1978. There is no practical difference between these Regulations and the Regulations which they replace. The reason for making them is that the previous Regulations appeared to be invalid in Northern Ireland as they were not approved within one month of being made.

APPENDIX No. 23

OUTPUT AND DISPOSAL OF FISH HATCHERY PRODUCE 1977/78

Hatchery	Output (Ova)			Disposal	River System Stocked
	Salmon (000)	Sea Trout (000)	Brown Trout (000)	(000)	
Fanure			840,000	330,000 Ova 170,000 Fry 125,500 Fingerlings 93,500 Spring Yearlings 1,000 Autumn Yearlings 51,456 2 year + 1,657 Adults	Various Trust Waters in Cos. Cavan, Sligo, Galway, Westmeath, Roscommon and Angling Interests.
Mullingar			1,250,000	726,500 Fry 8,000 Fingerlings 142,978 Spring Yearlings 15,500 Autumn Yearlings	Various Trust Waters in Cos. Cavan, Sligo, Westmeath, Roscommon and Angling Interests.
Lough Carra Cages				10,343 2 year old +	
Parteen	1,659			40,728 Eyed Ova 686,598 Fingerlings 192,676 Smolts	Liffey Shannon system and tributaries including Suck, Brosna, Inney, Silver River. Local planting.
Carrigadrohid	1,003			457,000 Eyed Ova 248,356 Fingerlings 161,679 Smolts	Ballyshannon. Liffey and Cork Board of Conservators. River Bride and Shournagh. River Lee.
Screebe		90		45 Fry	Screebe System.
Cong	306			60 Eyed Ova 60 Yearlings 40 Yearlings 146 Yearlings	Errib Fishery Bangor Board River Moy Corrib System
Glenties	26			26 Ova	Owenea System

APPENDIX No. 23 (contd.)

Hatchery	Output (Ova)			Disposal	River System Stocked
	Salmon (000)	Sea Trout (000)	Brown Trout (000)	(000)	
Salmon Research Trust Furnace	190			125 Ova 65 Fingerlings	Burrishoole Smolt rearing at Salmon Research Trust
Virginia	540			20 Fingerlings 96 ,, 14 ,, 14 ,, 42 ,, 13 ,, 25 ,, 12 ,, 12 ,, 5 ,, 5 ,, 40 ,,	Mormod Stoneyford Trimblestown Skane Deel Lismullen Riverstown Boycetown Knightsbrook River Dee River Glyde Retained for rearing to smolt stage.
Carrowmore Lake Incubation Unit	56			56 Fingerlings	Owenmore River System
Inistioge	289			96 Ova 96 Ova 96 Ova	Barrow Suir Nore
Mallow	900			30 Ova 600 Ova	Dingle Glen, Bride, Awbeg, Clyda, and a number of the Blackwater tributaries.

APPENDIX No. 24

SCIENTIFIC AND OTHER PAPERS

DEPARTMENTAL

A. IRISH FISHERIES INVESTIGATIONS

Series A (Freshwater) No. 16 D. T. McCarthy. The effects of drainage on the Trimblestown River. 1. Benthic invertebrates and flora.

B. FISHERY LEAFLETS

No. 91. J. Browne. Results of Salmon tagging in Killala Bay area, 1976.

No. 92. J. Browne. Preliminary Results of Salmon Tagging in the Killala Bay Area 1977.

No. 93. A. E. J. Went. The Zoogeography of some fish in Irish Waters.

No. 94. J. Molloy. The herring fisheries on the South and South-West Coasts 1977-78.

No. 95. E. Fahy. Salmonid Stocks of the Cloonee Catchment in Co. Kerry.

No. 96. J. Molloy and T. D. Kennedy. Herring Investigations on the North-West and West Coasts 1977.

No. 97. A. E. J. Went. List of some historical papers etc. on Irish fish, fishing and fisheries 1940-1974.

OTHER PUBLICATIONS

Browne, J. and Parker, M. (1978). The protection of fisheries. *Implementation of Local Government (Water Pollution) Act, 1977.* Dublin An Foras Forbartha.

Crowley, M. Preliminary mussel survey of Lough Foyle. *Foyle Fisheries Comm. Ann. Rep. 1978.*

Grainger, R. J. R. A study of herring stocks west of Ireland and their relations to oceanographic conditions. *Ph. D thesis, National University of Ireland.*

Grainger, R. J. R. Irish west coast herring fluctuations and their relation to oceanographic conditions. *Symposium on the biological basis* for pelagic fish stock management 29, Aberdeen 1978.

Grainger, R. J. R. Observations on the vertical distribution of early herring larvae in Galway Bay, Ireland ICES CM 1978/L:29.

Hillis, J. P. Distribution of juvenile *Nephrops norvegicus* in the western Irish Sea fishery. ICES CM 1978/K:9.

Minchin, D. and Molloy, J. R. Observations on rare fish 1977. *Annls. Brol. Copenh.* 34.

Minchin, D. and Molloy, J. R. Notes on some fish taken in Irish waters in 1977. *Ir. Nat. J.* 19, 265-267.

Molloy, J. R. Assessment and management of the Celtic Sea herring stock. *Symposium on the biological basis of pelagic fish stock management* 7, Aberdeen 1978.

Molloy, J. R. Irish herring investigations. *Annls. Brol. Copenh.* 34.

Moriarty, C. Eels Devon (David and Charles) New York (Universe Books).

Parker, M., O'Sullivan, D., Crowley, M. and Grainger, R. (1978). The protection of living resources. *In Coastal pollution assessment* eds. W. K. Downey and G. Ni h-Uid, Dublin (NBST).

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