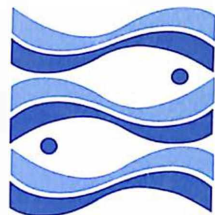
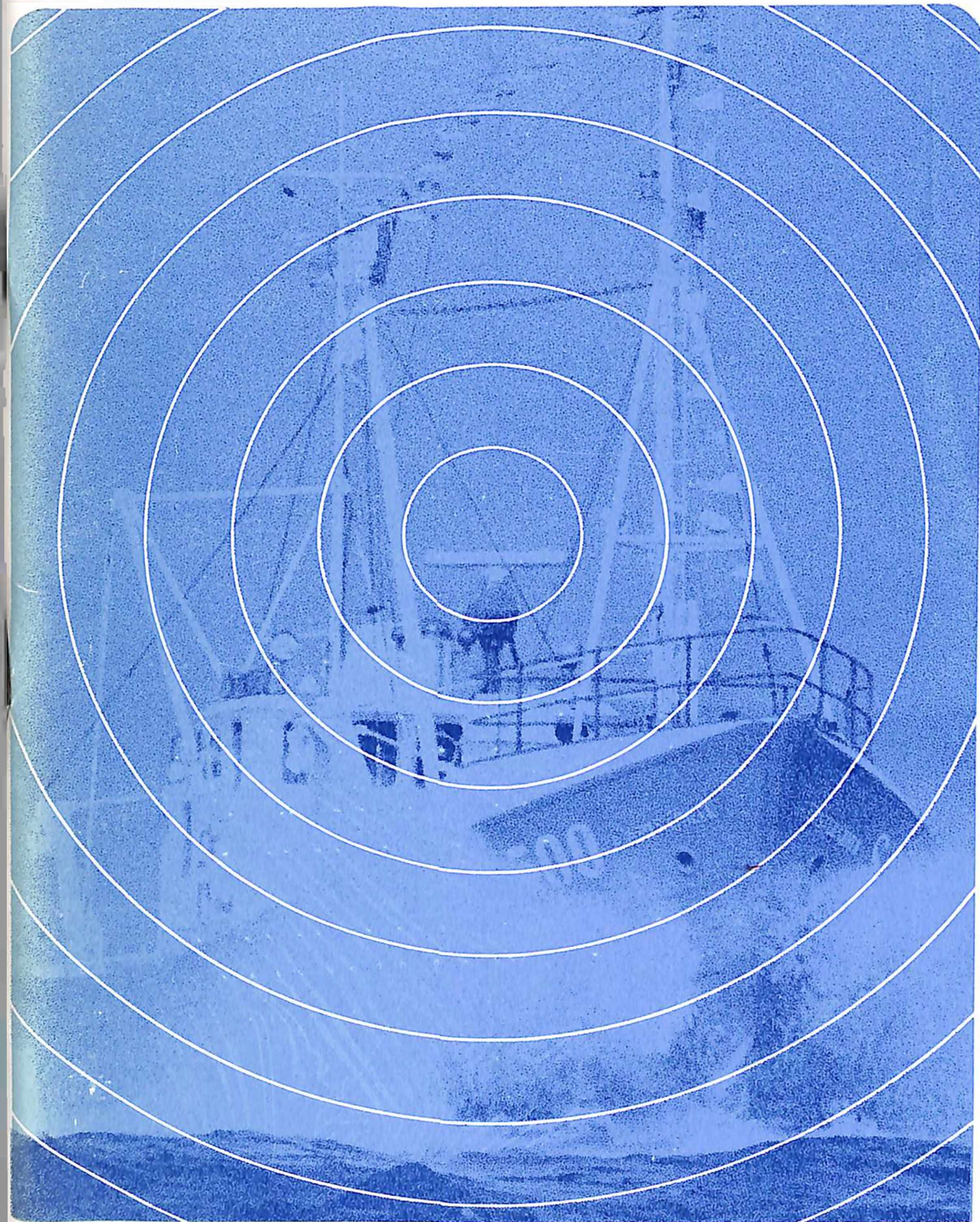


Sea and Inland Fisheries Report for 1981



Report presented to the Government by the Minister for
Fisheries and Forestry and laid before both houses of the Oireachtas.





SEA AND INLAND

FISHERIES

REPORT FOR

1981

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

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REPORT

OF THE

MINISTER FOR FISHERIES AND FORESTRY

ON THE

SEA AND INLAND FISHERIES

FOR THE YEAR

1981

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PART 1

SEA FISHERIES

In 1981 the total value of all sea-fish (excluding salmon) landings by Irish registered vessels amounted to IR£38.7m, an increase of IR£3.3m or 9% on 1980, of which amount IR£35.4m relates to landings at Irish ports.

The total volume of sea-fish (excluding salmon) landings amounted to 185,000 tonnes of which 177,000 tonnes—well over double the 1975 figure—were landed at Irish ports.

The weights and values of annual landings of sea-fish (excluding salmon) at Irish ports by Irish registered vessels since 1972 are set out in the following table:—

TABLE 1

Year	Tonnes	IR£'000
1981	176,577	35,444
1980	134,886	28,866
1979	85,697	24,905
1978	93,689	22,669
1977	82,488	18,689
1976	80,663	12,864
1975	76,262	9,135
1974	84,651	8,736
1973	85,703	7,464
1972	86,415	5,316

Details of quantities and values of the different varieties of sea fish and shellfish landed in 1981 and 1980 are given in Appendix No. 1.

The average price per tonne obtained for each variety of sea fish (other than shellfish) from 1972 onwards is shown in Appendix No. 2.

The leading ten fishing ports of 1981 in order of value of fish landed were: Killybegs, Rathmullen, Castletownbere, Howth, Skerries, Dunmore East, Clogherhead, Greencastle, Rossaveel and Burtonport.

DEMERSAL FISHERY

At 35,916 tonnes the total landings of demersal fish showed an increase of 8,685 tonnes or 32%. Landings of whiting increased by 3,467 tonnes or 28% while landings of haddock showed the largest increase in volume of all demersal species increasing by 1,298 tonnes or 132%. Whiting was the species caught in the greatest quantity and was followed by cod, haddock, plaice and saithe in that order. The total value of the demersal fish catch increased by 41% from IR£8.4m in 1980 to IR£11.9m in 1981. Cod was the first in terms of cash earnings followed by whiting, plaice, sole and ray/skate. These five varieties contributed 77% of the total value of the demersal catch.

The overall average price of all demersal fish landed in 1981 was IR£333 compared with IR£308 per tonne in 1980. The total quantity, value and average value per tonne of landings of demersal fish for each year since 1972 are shown in the following table:—

TABLE 2

Year	Quantity Tonnes	Value IR£'000	Average Value per tonne IR£
1981	35,916	11,948	333
1980	27,231	8,398	308
1979	21,100	7,721	366
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

PELAGIC FISHERY

The total pelagic catch of 128,397 tonnes was 31,456 tonnes or 32% higher than the figure for 1980. The total value of the catch was IR£15.3m representing an increase of IR£0.9m or 6%.

Herrings

Landings of herrings amounted to 29,611 tonnes valued at IR£5m compared with 36,800 tonnes valued at IR£9.4m in 1980. The average price fell to IR£170 per tonne in 1981. The highest herring landings were registered in Killybegs.

Exports of fresh chilled or frozen herrings in 1981 amounted to 12,065 tonnes valued at IR£4,571,000 as compared with 16,866 tonnes valued at IR£8,651,000 in 1980. The quantity exported in salted or smoked forms was 9,918 tonnes valued at IR£4,683,000 as compared with 10,036 tonnes valued at IR£5,702,000 in 1980. A further 745 tonnes valued at IR£833,000 was exported in prepared or preserved form. The total herring exports of 22,728 tonnes valued at IR£10,087,000 represented a decrease of 18% in quantity and 34% in value.

The Netherlands proved to be the biggest market for herring exports, having purchased 8,914 tonnes valued at IR£3,483,972. Germany was next having purchased 4,329 tonnes valued at IR£2,643,855 followed by Great Britain, Northern Ireland and France.

The following table shows the total quantity, value and average value per tonne of herrings for each year since 1972:—

TABLE 3

Year	Quantity Tonnes	Value IR£'000	Average Value per tonne IR£
1981	29,611	5,046	170
1980	36,800	9,395	255
1979	27,400	7,863	287
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

Sprats

Landings of sprats decreased from 9,350 tonnes in 1980 to 4,984 tonnes in 1981 a decrease of 47% while the value of the

catch fell from IR£705,000 to IR£313,000 in 1981 a decrease of 56%. The following table shows the total quantity, value and average value per tonne of sprats for each year since 1972:—

TABLE 4

Year	Quantity Tonnes	Value IR£'000	Average Value per tonne IR£
1981	4,984	313	63
1980	9,350	705	75
1979	1,892	128	68
1978	9,119	342	38
1977	6,055	199	33
1976	8,576	218	25
1975	3,516	59	17
1974	7,314	139	19
1973	7,642	133	17
1972	5,845	65	11

Mackerel

Landings of mackerel amounted to 93,802 tonnes valued at IR£9,893,000 as compared with 50,791 tonnes valued at IR£4,226,000 in 1980. The average price per tonne was IR£105 as compared with IR£83 in 1980.

The chief landing places for mackerel were Killybegs and Rathmullen.

The following table shows the quantity, value and average value per tonne of mackerel since 1972:—

TABLE 5

Year	Quantity Tonnes	Value IR£'000	Average Value per tonne IR£
1981	93,802	9,893	105
1980	50,791	4,226	83
1979	24,217	1,792	74
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

SHELLFISH

The value of shellfish catch at IR£8.2m showed an increase of IR£2.1m on the value of the 1980 catch. Landings of Dublin Bay Prawns increased from 2,462 tonnes in 1980 to 3,604 tonnes in 1981 with a consequent increase in value from IR£2.2m to IR£3.3m.

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

TABLE 6

Year	IR£'000
1981	8,243
1980	6,143
1979	7,334
1978	6,526
1977	4,936
1976	3,886
1975	2,374
1974	1,754
1973	1,773
1972	1,417

EXPORTS

At IR£51m 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 IR£48.2m as against IR£36.8m for 1980. Details of exports are given in Appendix No. 4.

PERSONNEL AND VESSELS

The number of fishermen engaged full time fell from 3,485 in 1980 to 3,464 in 1981 and the number of part time fishermen fell from 5,339 in 1980 to 5,276 in 1981. There was an overall increase in the number of vessels engaged in fishing in 1981 the total being 3,095 as compared with 3,067 in 1980. A slight increase occurred in the number of vessels over 75 gross tons in the fleet the total being 117 as compared with 115 in 1980. The number of motor vessels over 25 gross tons which are responsible for most of the wetfish catch decreased from 379 in 1980 to 363 in 1981 while the number of motor vessels under 25 gross tons rose from 1,237 in 1980 to 1,251 in 1981.

MARICULTURE

Interest in aquaculture in Ireland has grown rapidly in recent years, especially in the area of Marine Aquaculture, with the emphasis on oyster, mussel and scallop cultivation. Although marine species such as oysters and mussels have been raised artificially for many years, their culture is a relatively new technology with continuing developments in methods of culture and this factor, along with cultivation in new-untried areas requires a period of testing and evaluation before success can be assured.

The Fisheries Act 1980 has revised the system of licensing aquacultural installations and under the Act the definition of fish has been broadened to include the culture of any species of fish, aquatic invertebrate animals of whatever habitat or aquatic form of any food which is suitable for the nutrition of fish.

EEC grants continued to be available towards the cost of mariculture projects. The operation of Bord Iascaigh Mhara's National Mariculture Grants Scheme which covered both pilot and commercial scale projects, continued during the year.

Technical and engineering advice and assistance continued to be given to various private developers of salmonid and shellfish rearing stations. A number of exhibitions and seminars on aquaculture were staged during 1981.

There has been a significant increase in the number of applications for licences for the cultivation of oysters and mussels, and this is an indication of the increasing interest in mariculture in Ireland.

AN BORD IASCAIGH MHARA

The Board received from the Fisheries Vote for the year ending 31 December 1981 a grant of IR£10,510,200 in aid of administration and current and capital development. Repayable advances totalling IR£138,695 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 1981. During the year, ten vessels ranging in size from 51ft to 130ft with a total value of IR£8,003,068 joined the fleet. Nine of these vessels were built in Irish yards. Thirteen vessels in these larger size ranges were on order at the end of 1981, eleven of which have been placed with Irish yards. Twenty three new vessels under 50ft valued at IR£1,378,238 and all Irish built, also joined

the fleet during the year. Fifteen vessels in this class were on order with Irish builders at the end of 1981.

The Board's export market development policy continued with its aim to assist exporters of fish and fish products.

The development programme at the National Fishery Training Centre continued during 1981 to bring its equipment and facilities into line with those demanded by the level of sophistication in the current fleet. The commencement of the design and construction of a purpose-built net loft and training trawler deck represent the most notable addition to the facilities. The complement of wheelhouse equipment was further extended with the installation of discrete compact simulators using microprocessor technology, permitting practical "hands on" training in the operation of electronic navigational aids found in modern fishing vessels. The extension of the Centre's library of instructional films and other visual aids was continued. The training programme was further expanded by the Mobile Training Unit which brought the training process to fishermen in ports throughout the country. Courses provided were Fishing Boat Echounders; Fishing Boat Electrical Systems; Radio Certificate Examination. Over 300 men availed of the Mobile Unit courses.

The Board's Annual Report on its activities in 1981 is published separately.

FISHERIES AND OCEANOGRAPHIC RESEARCH VESSEL

Negotiations continued with Verolme Cork Dockyard regarding the formulation of a building contract for the Department's proposed new Fisheries and Oceanographic Research Vessel.

Details of specific adaptations required to the basic design were finalised and these were forwarded to the shipyard to be taken into account in formulating the building tender. VCD's quotation for the construction of the vessel was received by the Department in December 1981 and consideration of the detail of this was in progress at the end of the year.

SEA FISHERIES PROTECTION

Protection of the exclusive fishery limits during 1981 was maintained by way of regular patrols by Naval Service Vessels and aerial surveillance by the Air Corps. Prosecutions were instituted against the skippers of 42 foreign vessels and 23 Irish vessels who were arrested during the year for various infringements of the Fisheries Acts, including illegal fishing, illegal en-

try, having undersized fish on board and having illegal nets on board. Of these cases, seventeen skippers (all foreign) were convicted and fined a total of IR£558,799, three were unsuccessful due to lack of sufficient evidence and the remaining cases were still *sub-judice* by the end of the year.

The co-operation of the Naval Service and the Garda Síochána which was readily available in the prosecution of offences and general enforcement of fisheries protection measures is gratefully acknowledged.

EUROPEAN ECONOMIC COMMUNITY

Common Fisheries Policy

Negotiations on the revision of the Common Fisheries policy continued during the year under review with a total of seven meetings of the EEC Council of Fisheries Ministers being held in all. At the Fisheries Council meetings on 27th January, 9th-10th February, 10th-11th March and 27th March 1981 the discussions dealt in particular with the question of traditional rights of access to coastal zones with special emphasis on the historical rights in the six to twelve mile bands of member States other than coastal states and also catch quota arrangements for the 1981 fishing year. In the absence of agreement on these two crucial areas there was no possibility of agreement at these meetings on a comprehensive revised Common Fisheries Policy.

The Fisheries Council met again on 27th July, 1981 when discussions centered on amended proposals by the EEC Commission for total allowable catches and fishing quotas for 1981. In particular, the total allowable catch and quota proposals for herring were discussed but the Council found it was unable to reach agreement. The Irish Minister for Fisheries and Forestry, made a strong plea for the adoption by the Council of a regulation providing for the continuation of the FEOGA Grant Scheme for fishing boats and aquaculture investment projects in 1981.

The Council agreed to include for discussion in September, items in regard to total allowable catches and quotas, together with the question of the interim common measure for restructuring the inshore fishing industry (FEOGA Grant Scheme) and proposals for the revision of the common organisation of the market in fishery products.

On 29th-30th September 1981 the Council resumed its discussion and following intensive debate, signified its agreement to a "package" of proposals. This "package" included on the internal community side a new Regulation on the common organisation of the market for fishery products and a regula-

tion allocating 25 million ECU's for the continuation of the interim common measure for restructuring the inshore fishing industry. The agreement on the adjustments to the common market organisation was reached on the basis of a compromise solution put forward by the EEC Commission concerning the following aspects:—

- the formation and role of fish producers' organisations,
- the intervention arrangements for fishery products and in particular the indemnity to be granted to producers and the compensatory amounts to be paid to the producers' organisations for products withdrawn from the market under EEC price support arrangements, and
- the provisions governing trade arrangements with third countries including the protection of the community against abnormally low cost imports from non-member countries.

In the intervening period before the next council meeting on 27th October 1981 EEC Commissioner, Mr. Contogeorgis held a series of bilateral contacts with member States in an effort to maintain the momentum of progress on outstanding problems. He visited Dublin on 21st October 1981. On 27th October the Fisheries Council heard a statement from the Commissioner on the outcome of the various meetings held in member States' capitals. The remainder of the Council was devoted to statements by the various Ministers indicating the order of priority of different aspects of EEC Commission proposals on access arrangements, total allowable catches, quotas, structural policy and certain supervisory measures.

Ireland restated its general position and identified priorities on the major outstanding issues indicating a willingness to contribute fully to discussions to reach a just solution and stressing our requirements for a fair allocation of quotas in waters near Ireland and for meaningful access arrangements.

There were no further meetings of the Fisheries Council during 1981.

Arrangements with Third Countries

Spain is the third country of greatest relevance to the Irish 200 mile exclusive fishery limit insofar as any significant fishing activity is concerned. Interim arrangements governing Spanish fishing in Community waters applied with some interruption until 31st May 1981. A Regulation was adopted by Council on 1st June 1981, implementing the fisheries regime applicable for the whole of 1981 to Spanish vessels fishing in Community

waters. The fishery arrangements which applied to Spain in 1981 effectively prohibited Spanish vessels from fishing in a specified area of Irish waters which at no point is less than 50 miles from the Irish coast.

A Fisheries Agreement between the Community and Canada was signed on 30th December 1981. The Agreement was part of the "package" of proposals agreed by Ministers at the September Fisheries Council. The Agreement which applies for six years lays down the framework for fisheries co-operation between Canada and the Community. It makes available catch possibilities for Community vessels in Canadian waters on the one hand and opens Community tariff quotas for the importation of certain fishery products at reduced duty rates on the other.

The community was also involved in negotiations on joint fisheries arrangements with Norway, Sweden, Senegal and the Home Government of the Faroes during the period under review.

European Agricultural Guidance and Guarantee Fund (FEOGA)

Guarantee Section

Withdrawal price system

The 1980 fish marketing year was extended from 31st December 1980 to 2nd February 1981 because of difficulties in reaching agreement among member States on the intervention prices for fishery products for 1981. The eventual price package agreed to by the Council for the 1981 fish marketing year came into effect on 2nd February 1981. The following table shows approximate price increases for the bulk of the quality grades of fish (excluding whiting) landed by Irish fishermen:—

Species covered by Community Price support arrangements	Guide Price (Per cent)	Intervention Price (Per cent)
Cod	10.05	16.5
Saithe	11.36	11.36
Haddock	13.94	25 to 28
Herring	5.11	5.11
Plaice	9.95	11.6
Mackerel	0	7.1
Hake	10.00	16.3
Whiting	3.93	*12.2 to 24

*Decreases for low-grade whiting.

During 1981 a total of 8,834 tonnes of fresh fish was withdrawn from the market by two Irish fish producers' organisations, having failed to find a buyer at or above the official EEC intervention price. Financial compensation payments totalling IR£851,022 were paid to fishermen in respect of these fish withdrawals.

Export Refunds

Export refunds were available during 1981 for exports to specified third country destinations of a range of fishery products comprised of frozen whole mackerel, frozen mackerel fillets, dried and salted coalfish and mackerel dried, salted or in brine.

The primary usage of the refunds by Irish exporters related to frozen mackerel products exported principally to the Nigerian market. Rates of IR£31.32 per tonne for frozen whole mackerel and IR£20.42 for frozen mackerel fillets applied during the year. Export refund payments to Irish mackerel exporters totalled IR£994,234 in 1981.

Guidance Section

Under the 1981 EEC Scheme of FEOGA grants for the community inshore fishing industry agreed at the September Council Irish investment projects comprising the construction of 30 new fishing vessels, modernisation of 3 existing vessels and 5 aquaculture projects were approved by the EEC Commission for grant-aid amounting to IR£3,025,215.

The grant aid awarded to Irish investment projects represented approximately 18% of the total FEOGA aid allocated for division between the member States of the Community.

RESEARCH AND DEVELOPMENT

Pelagic Fisheries

Catches taken in all the major fisheries continued to be monitored by regular sampling programmes in 1981. Research cruises, using chartered commercial vessels were carried out on the herring stocks in the Irish Sea, Celtic Sea and off the Northwest coast.

Herring

Surveys of larval abundance in the Celtic Sea were carried out during 1981 by scientists of the Fisheries Research Centre, but although the results indicated that some recovery had taken

place, the herring stock remained at a low level. There was a good recruitment in 1981 of herring spawned in 1979, and if they are allowed to make a significant contribution to the spawning stock it may soon be possible to re-open this fishery which has been closed since 1977.

The fishery in ICES Div. VIIb (i.e. West coast) was again restricted to 7,000 tonnes. The fishery in ICES VIa (Donegal area) was re-opened during the year, because there had been evidence of a rebuilding of the stock in this area. Larval surveys and young herring surveys were carried out off the west and northwest coasts for the first time during 1981 by scientists from the Fisheries Research Centre and the results from these will be used, in conjunction with the sampling programmes to monitor the recovery of the stocks. At the moment it would appear that the herring stocks in Div. VIIb and those in the lower part of Div. VIa are very similar and should be treated as a single management unit.

The fishery in the Irish Sea during 1981 again exploited herring from the Manx and Mourne stocks. The Manx stocks showed a further decline and appears to be in a critical state because of a continuing high fishing rate and a decline in recruitment. The Mourne stock, on the other hand, has continued to increase since the closure of the industrial fishery, although it must be considered a very small stock even under normal circumstances. A further young herring survey was conducted in the north-western Irish Sea in February 1981. This indicated that juvenile herring were more abundant in this area than in a similar survey the previous year.

Sprat

Samples of sprats were again analysed from various landings made during the year. Good quality sprats appear to be available in a number of areas but no worthwhile fishery developed during the year apart from that at Galway which lasted throughout the winter of 1980/81.

Mackerel

Intensive sampling of the catches was carried out during 1981, mainly at Killybegs and Castletownbere. The huge increase in the catch which has taken place in recent years, both by our own and continental fleets, continues to give cause for alarm concerning the state of this stock. The age structure of the population now suggests that the stock is composed mainly of very old fish which are nearly at the end of their life span. There also appears to be a scarcity of young fish to replace these old fish, so that there appears to be a distinct danger of collapse of this fishery within the next few years. There is also evidence

to suggest that the total stock in 1981 is less than half what it was in 1975. Severe restrictions will need to be enforced immediately if a collapse of this fishery is to be averted.

Fat Content

Fat content of herring, mackerel and sprat were estimated continuously throughout the year on behalf of exporters and people in the trade.

DEMERSAL FISHERIES

Port sampling of the landings of the principal commercial species, and the scientific assessment of trends in stock biomass, recruitment and fishing mortality, continued during 1981 as described in the 1980 Annual Report (p. 18).

The cod, haddock and whiting off the north-west coast and in the Irish Sea and the plaice of the Irish Sea, are still not being exploited at the optimum level. If they were to be fished at a lower level of intensity, the catch rate would increase. Black sole in the Irish Sea and off the south coast are being exploited at levels close to the optimum.

The twice-yearly young plaice surveys in the Irish Sea continued in 1981, as did the analysis of cod stomach contents which was commenced in 1980. The purpose of the latter programme is to obtain information on the predation by cod on other species (chiefly *Nephrops*) in order to attempt a multispecies approach to stock assessment.

SHELLFISH

Nephrops

Scientists at the Fisheries Research Centre took part in an international investigation (funded by the European Commission) of the escape of *Nephrops* from the trawl. Fisheries biologists from France (Institute Scientifique et Technique des Peches Maritimes) and fishing gear technologists from Scotland (DAFS Marine Laboratory, Aberdeen) were joint participants. Another part of this EEC project included a study of the by-catch in the French *Nephrops* fishery off the south coast, in which scientists from both the Fisheries Research Centre and Institute Scientifiques et Techniques des Peches Maritimes took part.

Towards the end of 1981, the Fisheries Research Centre undertook further research into the escape of *Nephrops* through different parts of the trawl.

MARINE POLLUTION AND ENVIRONMENTAL QUALITY

Pollution Control

The Aquatic Environment Unit of the Department continued to provide advice to Local Authorities on discharge licences issued under the Local Government (Water Pollution) Act and on licences issued for dumping of wastes at sea. During 1981 the Dumping at Sea Act came into force; the Unit acts as the principle source of scientific advice on dumping to the Department of Transport. The Act has meant that in addition to the industrial dumping operation, which had been licenced under the Fisheries Acts the dumping of sewage sludge and dredge spoils are now licencable and the provisions of the Oslo and London Dumping Convention are now fully applied. In addition the Department has continued to provide advice to the Department of Transport on licences granted under the Foreshore Act for (a) installation of outfalls and (b) extraction of marine aggregates.

Monitoring of Pollution

The Department initiated surveys to assess major shellfish according to the requirements of EEC Directive 79/923 on the Quality Required of Shellfish Waters, with a view to designation of waters under the Directive. Following discussions between the Departments of Fisheries and Forestry, Environment and Industry and Energy, four areas were designated in October 1981 as being in need of protection or improvement, viz Clarinbridge, Co. Galway, Mulroy Bay, Co. Donegal, Kilkieran Bay, Co. Galway, Killary Harbour, Co. Mayo. Studies continued in other important areas.

The Department continues to supply information on levels of persistent toxic substances in fish and shellfish (mainly in the Irish Sea area) to the ICES Co-ordinated Monitoring Programme and the Oslo and Paris Commissions' Joint Monitoring Programme. While levels of some metals are elevated, the quality of fish flesh remains well within established limits.

Organs and tissue samples were taken from seals and examined for trace metals and accumulation of organochlorines.

Aquaculture Site Surveys

A site survey of bottom-living organisms in the North Water of Mulroy Bay was carried out to characterise this fauna and assess its stability. A moderately diverse community exists; the presence of molluscs known to live for several years suggests that deoxygenation of the deep water of this enclosed basin has not occurred in recent years.

Exceptional Marine Blooms

The Unit continued to collect observations on blooms. Three groups of events occurred in 1981. In June, as in previous years, diatom-dominated blooms occurred in the region between Ardmore and Cork Harbour; in addition the mucilaginous micro-flagellate *Phaeocystis* was observed. Previous records from this area indicated that this organism had also bloomed in 1972. These blooms resulted in net fouling which interfered with salmon drift-netting. Deaths of lobsters in keep tanks at Goleen, Co. Cork also occurred but the exact cause of death could not be identified.

In Cork Harbour, blooms occurred from June to September, initially dominated by *Prorocentrum minimum*. From Cork Harbour to Castlegregory, Co. Kerry blooms of *Gyrodinium aureolum* occurred as in previous years. However, the blooms reached a peak earlier than expected; fish kills occurred at mariculture operations in Durrus in Dunmanus Bay on 18th July and at Kilmacillogue in Kenmare Bay on 4th August.

MARICULTURE

The scallop research programme in Co. Donegal and Co. Cork was maintained in 1981. In Mulroy Bay, Co. Donegal the 1981 spatfall and the growth of the 1979 and 1980 settlements were monitored. Investigations were commenced on the biological control of fouling organisms in the trays used for rearing the spat, with the objective of maximising the commercial yield of scallop spat from the North Water.

In Lough Hyne, Co. Cork the relationships between the scallop and spat and their predators were investigated, mainly on the basis of the relative size of the predator and its scallop prey. The information gained will be put to use when advising on the appropriateness of various sites suggested for seeding and reseedling with scallop spat.

Such a reseedling experiment was conducted in Bantry Bay in 1980, and this was followed up in 1981 by a study of their survival. In the same area during 1981 a team of scientists from the Fisheries Research Centre and the French research organisation CNEXO investigated the behaviour of recently sown scallops using underwater television.

Members of the Department's scientific staff continued to provide advice on the cultivation of oysters and mussels, including appropriate environmental assessments.

FISH PATHOLOGY UNIT

The work of the Unit is concerned with statutory, diagnostic and research functions.

Importation of live fish and eggs

The importation of live fish and eggs into the country is prohibited except under licence from the Department. The Pathologist and Administrative staff of the Department co-operate closely on the granting of import licences for the importation of salmon and trout eggs into the country. Stringent health requirements must be met before any licences are issued. In 1981 a number of licences were issued to fish farmers to import salmon and trout eggs from Scotland, England and Norway. A number of licences were also issued for the importation of goldfish mainly for the pet trade. Samples of such fish are examined by staff of the Unit prior to sale to the public.

Diseases of farmed fish

Laboratory studies coupled with regular inspections of fish farms in the country during 1981 have yielded a fairly clear picture of the disease situation in the country. Although the health status on our fish farms has been generally good disease problems have occurred from time to time leading to losses and reduced production. Many of the diseases have been infectious, i.e. caused by bacteria, viruses and parasites but nutritional and environmentally related diseases have also been encountered.

Bacterial diseases

Furunculosis is the most important bacterial disease of farmed salmon in Ireland. The disease occurred at a number of salmon hatcheries and commercial farms mainly during the Summer. Losses at one commercial marine salmon farm were estimated at 70%. Injection of fish with antibiotics prior to transfer to the sea has been shown to reduce losses of several thousand salmon fry at a number of hatcheries in the country in 1981.

Parasitic diseases

A number of different parasitic diseases caused mortalities on fish farms during the year. Proliferative Kidney Disease (PKD) is one of the most important parasitic diseases and was diagnosed on 5 freshwater farms. The disease occurs in brown trout, rainbow trout and salmon during the late Summer and Autumn. There is no treatment for the disease but losses can be reduced by avoiding stressing of the fish due to handling movement or grading.

Viral Diseases

Infectious Pancreatic Necrosis (IPN) is the most important viral disease from an economic point of view occurring in farmed trout in Ireland. Two outbreaks of this disease were diagnosed in 1981 in rainbow trout. The disease is spread by carrier fish and eggs and there is no treatment for the condition. Control of the disease is maintained by strict regulation of egg importation and movement of fish within the country.

Non-infectious diseases

A number of such diseases were investigated in 1981. Cataracts in the eyes of young salmon occurred at two hatcheries. Investigations carried out suggested the problem was due to dietary imbalance of calcium and zinc. Mortalities associated with "Red tides" in the south west were also investigated. Macroscopic and microscopic examination of a number of affected fish showed pathological changes in the gills of such fish. The presence of the algae in the water appears to damage the delicate lining of the gills leading to anoxia and death.

Diseases of wild fish

A survey of diseases of marine flatfish from the east coast was carried out in co-operation with the Aquatic Environment Unit. A total of 8,000 flatfish were examined consisting of plaice (*Pleuronectes Platessa*), dab (*Limanda limanda*), flounder (*Platichthys flesus*) and sole (*Solea solea*). Three disease conditions were observed; lymphocystis disease (due to virus) ulcers and fin erosion. Disease prevalence in plaice was 6.5%, in flounder 9.1% and 2.4% in dab. The results of the study will be presented to the Statutory ICES meeting in 1982. A number of other disease conditions were detected in wild fish submitted to the laboratory. A histological survey to determine the health status of shellfish from a number of coastal areas was also carried out.

FOREIGN RESEARCH VESSEL CRUISES

Scientific staff of the Fisheries Research Centre joined the research vessels *G O Sars* (Norway) to carry out an acoustic survey of blue whiting on the edge of the Continental Shelf; *Scotia* (Scotland) to survey the abundance of herring larvae from Scotland to Donegal, and on a further cruise to carry out a ground-fish survey of the Rockall Bank and to the north and west of Scotland; *Cirolana* (England) and *Anton Dohrn* (Federal Republic of Germany) to investigate the abundance of mackerel eggs; *Skarood* (Norway) to tag mackerel west and south-west of Ireland, and *Price Modug* (Wales) to study the thermal front in the north-west Irish Sea.

ENGINEERING

FISHERY HARBOUR WORKS

Major Harbours

At Killybegs Fishery Harbour Centre expenditure of IR£440,958 was incurred on development works during the year. A contract was placed to have portion of the harbour dredged and work on the dredging was well under way by the end of the year. Work on the construction of an auction hall and port offices was almost completed by the end of the year. Tenders were invited and received in 1981 for the civil engineering work on the syncrolift project.

At Castletownbere Fishery Harbour Centre expenditure on development works during the year was IR£300,963. Work commenced during 1981 on the provision of an effluent disposal plant on Dinish Island. Good progress was made on the provision of a 38KV electricity supply to the area. Fenders on the mainland wharf were replaced and construction of a directional light was completed.

The Report and Recommendations of the Rossaveel Harbour Development Advisory Committee was presented to the Minister for Fisheries and Forestry. Rossaveel Harbour was declared a fishery harbour centre on 3rd June 1981. Expenditure of IR£10,968 during the remainder of the year was incurred on the reconstruction of the old pier and the improvement of the fendering system on the new pier.

At Howth Harbour IR£2,859,295 was spent during 1981 on development work. The dredging of the fishery harbour and excavation of the yacht marina were completed. The service quay at the realigned west pier and portion of the new pier were faced and the civil engineering works in connection with the syncrolift basin were completed during 1981.

Other Harbours, Ports and Landing Places

Other Fishery Harbour improvement works, grant-aided by the Department of Fisheries and Forestry were completed during the year at Oiléan na gCaorach, Trá Bhád (Caherkeen) and Travarra in Co. Cork, Ballyetherlan, Ballysaggart, Dawros Head, Killultán, Portmore and Portnablaigh in Co. Donegal, Dooagh and Dugort in Co. Mayo and Wicklow in Co. Wicklow. Fishery Harbour Works grant-aided by the Department of Fisheries and Forestry were in progress at the end of the year at Liscannor in Co. Clare, Ballycrovane in Co. Cork, Portevlin in Co. Donegal, Caherciveen and Dromatoor in Co. Kerry, Kilcummin in Co. Mayo and Aughris in Co. Sligo. A hydraulic

model investigation of Clogherhead Pier in Co. Louth, financed by the Department of Fisheries and Forestry was also in progress at the end of the year.

Improvement works which were recommended by the Department of Fisheries and Forestry and financed by Roinn na Gaeltachta were completed during the year at Bungabhla and Inis Oírr in Co. Galway, Baile an Reannaigh and Rinnín in Co. Kerry and Sáile in Co. Mayo. Improvement works which were recommended by the Department of Fisheries and Forestry and financed by Roinn na Gaeltachta were in progress at the end of the year at An Bun Beag in Co. Donegal and An Córa in Co. Galway.

Fishery Research Stations

Proposals for the provision of Fishery Research Stations at Ballyglass, Co. Mayo and Kinsale, Co. Cork were being examined. Plans for the provision of additional accommodation at Dunmore East Fishery Research Station were under consideration.

TECHNOLOGY

Fish Quality Control

During the year landings were supervised by the Fish Quality Officers to ensure compliance with the Department's Handling, Storage and Transport Regulations and with the EEC common marketing standards for fresh or chilled fish. These standards which relate to size and freshness categorisation are laid down by EEC (Council Regulation No. 103/76). All fish offered for sale for human consumption within the community must comply with the provisions of this Regulation.

INTERNATIONAL AND OTHER CONFERENCES

During 1981 the Department participated in the following conferences, committees, working groups etc.

Abroad

Statutory meeting of the International Council for the Exploration of the Sea (ICES) (Woods Hole, Massachusetts) and the following ICES working groups and committees:—

- Irish Sea and Bristol Channel Working Group (Copenhagen)
- Herring Assessment Working Group for the Area South of 62°N (Copenhagen)
- Roundfish Working Group (Copenhagen)

- Mackerel Working Group (Copenhagen)
- Working Group on North Atlantic Salmon (Copenhagen and Ottawa)
- Working Group on Larval Fish Ecology
- Working Group on Marine Pollution and Baseline Monitoring Studies in the North Atlantic (Copenhagen)
- Working Group on Marine Sediments in Relation to Pollution (Copenhagen)
- Working Group on the Pathology and Diseases of Marine Organisms (Oxford and Maryland)
- Advisory Committee on Fisheries Management (Copenhagen)
- Advisory Committee on Marine Pollution (Copenhagen)
- European Commission Scientific and Technical Committee on Fisheries (Brussels and Fano, Italy)
- Oslo and Paris Commissions Standing Scientific Committees (Various Centres)
- EIFAC Working Party on Eels (Ferrara)
- World Conference on Aquaculture (Venice)
- Shellfish Association (London)
- Fish Counters Workshop (Reading)

Study Tours

One member of the scientific staff visited the Netherlands for five days to investigate mussel farming methods. Another staff member spent ten days visiting a number of laboratories in Brittany which carry out research on shellfish pathology; this study tour was funded by a joint scheme organised by the National Board for Science and Technology, the Royal Irish Academy and the Centre National de Recherche Scientifique.

Home

- Interdepartmental Environmental Committee
- National Board for Science and Technology
 - Mariculture Committee
 - Shellfish Advisory Group

Interdepartmental Sub-groups on Inshore and Offshore Oil Pollution
 Second European Symposium on Analysis of Organic Micropollutants in Water
 Co-ordinating Committee for COST Programme on Sea-ranching of Atlantic Salmon

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 1981 are given in Appendices Nos. 11 to 17 of this Report. As usual the catches made in the Foyle Fisheries Commission area, formerly the Movice Fishery District, are not included but they are referred to in a separate section of this Report.

In 1981 the catch of salmon and grilse amounted to 186,918 fish weighing 649 tonnes and valued at IR£2.2m compared with 272,240 fish weighing 895 tonnes and valued at IR£3.2m for 1980. The overall average weight at 3.47kg was higher than in 1980. The commercial catch of 608 tonnes was lower than the 1980 figure of 855 tonnes. The total rod catch amounted to 9,541 fish weighing 40.78 tonnes and valued at IR£144,428 compared with 1980 when 11,351 fish weighing 39.84 tonnes and valued at IR£144,058 were caught. The total number of licences of all kinds issued for angling for salmon and sea trout was 16,737 compared with 13,000 in 1980. The salmon catch figures for nets and rods for the years 1979, 1980 and 1981 are given in Appendix No. 12.

In 1981 the salmon and grilse catch (by weight) was distributed as follows:—

Drift nets	75%
Draft nets	12%
Stake nets, snap nets, weirs and other commercial methods	7%
Rod and line	6%

The average weight and value of salmon caught by commercial fishing engines during the past three years are given in Appendix No. 11. Details of the catch of sea trout in 1981 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.

THE CENTRAL AND REGIONAL FISHERIES BOARDS

The Central Fisheries Board and the seven Regional Fisheries Boards were established in October, 1980 under the provisions of the Fisheries Act, 1980. During the year the boards continued to carry out their statutory functions for the more effective conservation, protection and development of the country's inland fisheries resources. The boards' functions are prescribed in the Fisheries Act, 1980.

The annual report by the Central Board gives details of the boards' activities during the year.

In compliance with the Fisheries Act, 1980 the members of the first Regional Fisheries Boards were appointed by the Minister. In December 1981, however, the first elections of members to the regional boards were held. Statutory regulations governing the elections were made by the Minister under the Fisheries Act, 1980 which prescribed criteria of eligibility for election candidates and voters and the elections procedures. Members elected represent salmon, trout, coarse fish, eel, rated occupiers of fisheries, oyster and sea angling interests. Each regional board consists of from twelve to fourteen elected members and five members appointed by the Minister. The chairman of each regional board is a member of the Central Board which has thirteen members, six of whom were appointed by the Minister and include a representative of the Department.

INTERNATIONAL SALMON CONVENTION

During the year Ireland, as a member state of the European Economic Community, participated in international negotiations about the possible introduction of an international Convention for the conservation of the salmon stocks of the North Atlantic Ocean.

SALMON LEVY

On 26th May 1980 the Minister introduced regulations which made provision for the payment of a 10% levy to be paid on every first or only sale of salmon (including sea trout). This levy is payable by the purchaser. The total amount of levy collected in 1981 was IR£114,906. The purpose of the levy is to provide a contribution towards the overall cost of conserving and developing our valuable inland fisheries.

EMPLOYMENT IN THE INDUSTRY

Exclusive of persons employed on the marketing and transport of fish, a total of some 5,800 persons found either wholetime or part-time employment in inland fisheries during the year. This figure includes 4,300 persons estimated as engaged in netting for salmon, 220 engaged in eel fishing, 280 employed full or part-time by Regional Fisheries Boards on protection of fisheries, 750 engaged in netting and protection work in the Foyle Area, about 170 engaged in development work on behalf of the Central Fisheries Board and the remainder employed by proprietors of commercial and sport fisheries or by angling associations.

INSTRUMENTS OF CAPTURE

The number 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.

EXPORT OF FRESHWATER FISH

Salmon

The total quantity of salmon exported in fresh, chilled, frozen and salted forms was 437 tonnes compared with 720 tonnes in 1980. Total value of these exports fell from IR£3,557,923 in 1980 to IR£2,306,235. Details for the two years are as follows:—

	1980		1981	
	Tonnes	IR£'000	Tonnes	IR£'000
Fresh, Chilled, Frozen Salmon	637	2,817	344	1,491
Smoked Salmon	83	741	93	815

Of the total quantity of fresh, chilled and frozen salmon exported in 1981, 113 tonnes went to Great Britain, 72 tonnes to the Six Counties, 62 tonnes went to France, 44 tonnes to the Netherlands, 30 tonnes to Spain.

The smoked salmon was exported mainly to the Federal Republic of Germany (24 tonnes), U.S.A. (14 tonnes), Belgium/Luxembourg (13 tonnes), France (13 tonnes) and the Netherlands (8 tonnes).

The average export price for fresh, chilled or frozen salmon was IR£4,337 per tonne as compared with IR£4,420 per tonne in 1980.

Rainbow Trout

Exports of rainbow trout in 1981 amounted to 184 tonnes valued at IR£298,000 as compared with 89 tonnes valued at IR£149,000 in 1980.

Eels

Exports of eels in 1981 amounted to 129 tonnes valued at IR£317,000 as compared with 86 tonnes valued at IR£237,000 in 1980.

ARTIFICIAL PROPAGATION

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

The total output of ova in the 1980/81 spawning season was as follows:—

Salmon	3,899,000
Brown Trout	1,170,000
Sea Trout	12,000

WATER POLLUTION CONTROL

The Department continued to exercise an advisory role in regard to the issue by local authorities of licences under the Local Government (Water Pollution) Act, 1977. During the year 231 applications for licences were processed by the Department's licence vetting committee.

The Department consulted in the fisheries interest with the Department of the Environment, the Department of Agriculture, the Central and Regional Fisheries Boards about water pollution matters. The Department is represented on the Water Pollution Advisory Council.

Water Quality Management Plans

The Department continued to collaborate with An Foras Forbartha in the preparation of draft water quality management plans. Maps showing the principal fresh water fishery resources of the Boyne, the Munster Blackwater and Moy were under preparation.

Lough Sheelin

The Lough Sheelin Slurry Transport Subsidy Scheme announced by the Minister in 1980 was operated throughout the year by a committee of management chaired by an officer of the Department. Some 15 million gallons of pig slurry were removed from the catchment under subsidy and a significant reduction was achieved in the input of nutrients causing eutrophication of the lake.

RESEARCH AND DEVELOPMENT

Salmon Stocks

The total reported catch of salmon in 1981 was 649 tonnes, which was the lowest recorded for the twenty year period from 1962—1981. The shortfall occurred mostly in the 1 + sea winter fish but there was also a reduction in the multi sea winter (mostly 2 sea winter) when compared with 1980. The multi sea winter catch accounted for 18.6% by number and 23.3% by weight (164 tonnes) of the total.

As in previous years, the majority of salmon (75%) were caught by coastal and inshore drift nets. A further 19% was taken by draft and other commercial engines. The rod catch accounted for 6.0% by weight. When expressed as a percentage of the total, the rod catch may appear to be high, but the actual number of salmon taken in 1981 (9,451 fish) was the lowest for a decade, with the exception of 1978.

The average weight of individual salmon, in 1981, was 3.47 kg. which is the highest figure recorded for many years. Salmon including 1 + sea winter or grilse, arrived in our coastal waters much earlier than usual, and this makes their high weight even more remarkable. Usually in mid July a late run of grilse enters our rivers, but in 1981 fishing had virtually ceased by that time.

Information provided by the Regional Fisheries Boards allowed a limited monitoring of the time of running of salmon to be undertaken. In the Shannon Region and the South Western Region (Cork District) a little over 70% and 66% respectively were taken by the end of June. This was also true of the North Western Region (Ballina District) where 78% of the total catch was taken before the end of June. It has been accepted for some time that the arrival of salmon along the south coast (apart from west Cork) is somewhat later than in other areas with the exception of the east coast. In 1981 the catch data for the south coast showed that the catches in the month of July were only marginally higher than in June but if the total catch is considered the majority of fish were taken by the end of June.

The Eastern Regional Fisheries Board supplied details of the sales of salmon through the Dublin Wholesale Fish Market. In 1981, this market handled 149 tonnes or 23% of the total recorded national salmon catch. The Dublin market is, therefore, a useful guide for measuring the type and quality of salmon caught in any year because its sales are derived from so many parts of the country. For example, the market reflected the increase in the average weight of salmon offered for sale over the past three years as follows:—

1979 mean wt. 2.9 kg.
 1980 mean wt. 3.2 kg.
 1981 mean wt. 3.3 kg.

As might be expected, the heaviest salmon were sold in March at an average weight of 4.7 kg.

Catch per unit of fishing effort is used as a measure of the number or weight of fish available for exploitation, at any given time, in a large number of fisheries. However, in the case of salmon there are many different methods of capture and this makes it difficult to evaluate catch per effort, especially as there is no obligation placed upon fishermen to record their catches in relation to the time and effort which is required. The only current available measure is catch per licence, and though imperfect, it is used to measure trends in the fishery.

The average catch per licence as given for the principal nets for the years 1974 to 1981 is as follows:—

Year	Salmon catch per unit (No. of Fish)			
	Drift Net	Draft Net	Fixed Engines	Snap Net
1974	429	170	416	70
1975	445	224	483	124
1976	314	132	385	97
1977	296	115	199	63
1978	261	109	180	43
1979	277	74	179	25
1980	205	89	338	40
1981	171	35	291	17

The above data show that the catch (based upon catch per licence) has shown a steady decline over the last eight fishing

seasons. As between 1974 and 1981 the drop in catches per licence expressed as percentage of the 1974 catch is as follows:—

Drift net	60%
Draft net	79%
Fixed engines	30%
Snap nets	76%

Clearly the greatest reduction in catching power was experienced by the draft nets and the snap nets which fish mainly within the estuaries of rivers and most of their catches are destined to return to those rivers for spawning. That drift net catches did not exceed a 100% reduction in catch can only be attributed to the fact that these nets catch salmon before they reach their natal rivers. Fixed engines suffered the lowest reduction in catch. They achieve a fairly constant fishing effort from year to year, and they are not so adversely affected by bad weather which may permit them to operate over longer fishing periods.

Both in the Ballina and Galway fishery districts over one-third of the fixed net catch was taken before the end of May and in the River Lennon, 60% of the fixed net catch was taken before the end of April. Associated with the decline in catch per licence, a reduced rate of escapement was recorded by a number of counting installations. The counters under the control of the Department are dealt with in the engineering section of this Report. As well as the counters operated by the Department there are a number of others such as those of the Electricity Supply Board in the Shannon, Lee and Erne and the Salmon Research Trust in the Burrishoole system. Total counts are available from 1970 to date and in 1981 the count recorded on the Burrishoole was the lowest on record and only one-third of the average count for the period from 1970/74. On the River Shannon the counter recorded an escapement of 4,305 which is only 44% of the average from 1972 to 1981 and was the lowest escapement on record with the exception of 1978. The River Erne alone showed a small improvement in escapement compared with the period from 1977 to 1980. However, commercial fishing was banned in the Erne estuary in the years 1979, 1980 and 1981.

The spawning escapement reported by the Regional Boards indicated that spawning was average or above average for the 1980/81 season. The use of redd counts to estimate spawning escapement over an entire river system is not regarded as the best criteria for estimating the stock position, especially under the conditions that prevail in Irish river systems. Flash floods tend to flatten out redds and make them undiscernible. In 1981

a new system was put into operation by the Department whereby sections of rivers were used for redd counts and counts were made bi-weekly. These sections will be used on an annual basis to monitor the stocks of spawning fish.

Salmon Migrations

Between June 16 and July 1, 1981 seventy four salmon were tagged and released from the Galway Bay drift net fishery. There were nine recaptures (12.2%). Two of the fish moved in a southerly direction from point of tagging, one to the River Inagh and one to the River Shannon. The remainder were recaptured in rivers flowing into Galway Bay, three being recaptured in the River Corrib, one in the Kilcolgan River and one in the Spiddal River. One was taken by drift net in the vicinity of Mutton Island and one in Inveran Bay.

There were two recaptures of adult salmon which had been tagged as smolts in the River Tummel (Scotland). One of these was recaptured off the North Mayo coast and the other by a drift netter fishing out of Dingle. There was also a report of a salmon, tagged as a smolt, being caught either off the Faroese Islands or off Greenland. The fish was traced to a salmon factor in London but information on where the salmon was captured could not be obtained.

Following on the programme initiated in 1979, 130,000 juvenile salmon were tagged in 1981 with the coded wire tag. These consisted of smolts and parr tagged at the five salmon rearing stations in the country as well as some wild smolts in the River Corrib. The first returns from these taggings are expected in 1982 and in addition there may be winter salmon returning in 1982 from the 1979 and 1980 taggings.

The results from the 1979 and 1980 juvenile tagging are given in Fishery Leaflet No. 114, published by the Department of Fisheries and Forestry. In summary, a return rate of 1% was obtained from the 77,000 smolts which migrated in the spring of 1980.

These results take account of the grilse returns only taken in the drift net fisheries and in the fixed trap fishery on the River Corrib. No returns were obtained from rod caught fish or the spawning fish taken at hatchery installations towards the end of 1981.

Associated with these investigations on tag recoveries, information on the contribution of artificially reared smolts to the national catch was monitored. The Galway drift net fishery recorded the highest proportion (6.8%) of reared fish in the catch. Next in importance was the West Cork drift net fishery

where 4.3% were recorded as being derived from reared smolts. The Donegal and North Mayo drift net fisheries recorded 1.3% and 2.5% respectively of recaptures derived from artificially reared smolts.

In comparison with previous years the returns obtained would suggest that the survival of artificially reared smolts in the sea was not as good as in 1980 when a much higher return was obtained from reared fish in the catch. It is of interest, however, to note that reared fish are making a worthwhile contribution to the national catch. When the proposed increase in smolt rearing is reached a five-fold increase of salmon derived from reared smolt is anticipated.

The Galway Fishery

An assessment was made of the smolt run in 1981 using the same method as in 1980. A proportion of the run was tagged and released on a daily basis 2 miles upstream and the proportion recaptured in the smolt trap was used to estimate the total run of smolts in the Corrib. Samples of wild smolts were taken for age and size distribution relative to the time of running and to estimate the survival of the different year classes in the adult return.

All of the major nursery streams in the River Corrib were electro fished to estimate the population of juvenile salmonids. In all 15 sites were sampled in 1981 varying in area from 1,284m² to 448m². The most productive river for juvenile salmon was the Cornamona and next in importance was the Owenriff. In the Cornamona River, however, there was evidence that the survival rate from 0+ to 1+ was poor and this would suggest that the Cornamona does not contain sufficient nursery areas and therefore that its spawning stock may be in excess of its nursery capacity. The survival rate from 0+ to 1+ is better in the Owenriff. The rivers flowing into Lough Corrib on the east are not as well stocked with salmon as those flowing into the western side of the lake.

Ulcerated Dermal Necrosis (UDN)

Small numbers of diseased salmon were reported on the east and west coast during 1981. UDN was prevalent in Kerry and in the Blackwater during the early months of 1981. The Slaney and Leanon and the Waterville region had particularly high instances of UDN in April and December respectively.

RAINBOW TROUT AND SALMONID CULTURE

The work in progress at Glenties in Co. Donegal on specific free stock was terminated at the end of 1981. The facilities at

Glenties hatchery proved to be inadequate and there was little prospect of extending them due to the limited water supply. Some 600 yearlings of Norwegian origin were transferred to the Central Fisheries Board hatchery at Roscrea and the balance of the stock was handed over to the Northern Regional Fisheries Board for restocking selected lakes in Donegal.

An examination of the survival rate of salmon ova derived from farmed brood stock was undertaken. An experimental batch of 15,000 ova produced a survival rate of 15.6% to the post alevin stage. It is believed that this poor survival was due to stress on the brood stock caused by bird predation and antibiotic treatment. The purpose of the experiment was to measure the value of the ova from farmed brood stock fish to the salmon enhancement programme and also as a source of supply for salmonid farming in view of the scarcity of salmon ova from wild stock.

Feeding trials were carried out at the experimental unit in Glenties on three different commercial diets available to fish farmers in this country. The diets were branded "A", "B" and "C".

	Wt. of fish at commencement of experiment	Conversion factor
Brand A	19.5 g	1.96 : 1
	55.0 g	1.38 : 1
Brand B	(advanced fry)	1.00 : 1
	65.0 g	1.96 : 1
	81.6 g	2.70 : 1
	160.0 g	2.60 : 1
Brand C	24.0 g	3.80 : 1

Large amounts of undigested (faecal) waste was noted as fall out in the tanks in which fish were fed on a diet of Brand C.

The diets were analysed for crude protein, oil, fibre, moisture and ash. All diets examined conformed to the stated specifications. The calcium, phosphorus, magnesium and zinc contents were also monitored. Qualitative analysis of the protein sources confirmed that fishmeal was the main constituent with traces of soya and cereal protein.

The programme of monitoring fish farm effluents in accordance with the recommendations of the European Inland Fisheries Advisory Commission (E.I.F.A.C.) was initiated in 1981. The effluent from 5 commercial freshwater trout farms was examined using chemical, physical and biotic indices. The

parameters examined were pH, temperature, dissolved oxygen, free ammonia, nitrates and nitrites. The results indicated there was a rapid recovery of the rivers to the quality of intake water within 200 metres of the discharge point after admixture with the receiving water. In-system water quality was also examined and remedial measures were recommended where quality was doubtful or poor. Where possible, results were linked to water flows and standing crop of fish.

There was an expansion of rainbow trout production in 1981 both in freshwater and in salt water. Salmon production in sea cages was limited by the availability of smolts. The incidence of algal and marine blooms (red tide) off the south west coast from June to September limited the expansion of fish farming in that area. Mortalities of rainbow trout associated with the occurrence of these blooms were reported in Dunmanus, Co. Cork and Kilmakillogue, Co. Kerry. Potential fish farmers were advised that the area can only be used with safety from October to the end of May. Increased survival using pumped water from a deeper source within Dunmanus Bay has led to the speculation that it may be possible to bring fish through these blooms but this experiment must receive further study.

EEL RESEARCH AND DEVELOPMENT

The operation of overland transport of elvers to lakes has been shown to be capable of increasing the annual catch of eels from less than 200 tonnes to over 1,500 tonnes. Work to enhance elver trapping and stocking is in progress but, due to the slow growth rate of the eel, it will take between ten and twenty years before the full production potential can be realised. In the meanwhile studies on the ecology and migration of eels are being intensified to ensure that an accurate assessment of the development programme may take place. A major investigation on the eels of Lough Derg began in June and is to be continued for many years. The study is based on the eel population of a shallow bay of 2 square kilometers area on the western side of the lake. Eels are caught, measured, tagged and released once a month. The first results show a remarkably high degree of variation in population density between regions of the bay and have yielded a very low return of recaptured specimens. The low return appears to indicate a rapid passage of eels through the bay. This information on the speed of migration will be used in determining the most effective way of distributing the artificially stocked elvers.

Silver eel catches at the two major fisheries of the Shannon and Corrib respectively totalled 41.7 tonnes and 20.9 tonnes. In each case the catch was the second highest on record. The

Shannon stocks are increasing as a result of conservation measures including overland transport of eelers. The stocks in the Corrib appear to be maintaining themselves in spite of a small increase in the intensity of yellow eel fishing.

SEA TROUT

Research into sea trout stocks was continued along the same lines as in 1980. The yield of selected sea trout fisheries was examined statistically in an attempt to relate them to topographical and geomorphological features of their catchment areas. The nature of individual stocks was examined and described using accepted stock assessment techniques. Climatic trends were used to enable predictions to be made regarding the catch. This study was carried out in association with the Agricultural Section of the Meteorological Service.

Surveys of a number of nursery streams were carried out with a view to establishing areas of high productivity. The data obtained will be used for the enhancement of the stocks. The development of sea trout stocks requires an understanding of the biology of the resident (brown) and migratory (sea) trout stocks and some progress has been made in this field.

Investigations were carried out on the feeding of sea trout relative to their weight and shape at a given length and this was related to the condition of the fish which in turn was linked with the fecundity. In association with Queen's University, Belfast, investigations were carried out on the size of fish relative to their longevity. Detailed anatomical measurements were recorded for comparison with the genetic variants found. The results to date suggest that longevity is associated with the genetic constitution of the fish.

SEALS

The Department investigated complaints from salmon fishermen about the increased predation on their catches in drift nets in the Galway Bay area.

In 1981 officers of the Department spent some time on two boats which were drift netting for salmon in Galway Bay in order to obtain first hand information concerning the problem. From June 16 to July 3, a total of 229 fish were landed of which 59 were damaged, heads only being found in some instances. This represents a predation rate of 25.7%.

Data on predation was also collected from small boats (16'—22') drift netting in Galway Bay. Information collected

on these boats either at sea or in port each evening showed that in the period June 16 to July 2, a total of 135 salmon was caught and of these 59 were damaged. This represents a predation rate of 44.5%.

The species of seal responsible was the common seal *Phoco vituline*. A number of grey seals also frequented Spiddal Harbour and were in attendance on the boats engaged in fishing each day.

ENVIRONMENTAL STUDIES

Arterial Drainage and Water Abstraction

The water abstraction schemes proposed for the River Fane catchment and for the Newport River (a tributary of the Mulcaire River) are being considered in the Department from the fisheries viewpoint.

The pre-drainage survey of the fish stocks of the River Bonet got underway in May, 1981 when six stretches were fished using electro fishers and the population of juvenile salmon and trout was estimated. In three of the stretches salmon were the dominant species. Minnow, stone loach, eels and crayfish were also recorded. Samples of substrate were also taken and dried. These will be analysed for relative coarseness using the E.P.A. guidelines. The analysis will provide useful information for habitat evaluation especially changes arising from sedimentation.

Under the EEC Environmental Impact Study (E.I.S.) a sub-catchment of the Mask/Carra catchment was selected for special study towards the end of 1981. The study which is organised and funded by the E.E.C. is intended to determine the effect of drainage on the environment. Information on the fishery aspects of the study is being supplied by the Department. Preliminary investigations were carried out on the fish stocks and their habitat in the area selected in 1981.

The arterial drainage scheme on the River Boyne which is nearing completion is still being monitored with a view to establishing the impact of drainage on the fish stocks in the river. In 1981, eight tributary streams were fished of which all but the Mattock River had been dredged. Despite the fact that the spawning reports for the Boyne catchment were good, there were no significant numbers of 0+ salmon in the tributaries sampled with the exception of the Riverstown and Deel Rivers. The trout numbers were uniformly poor in all of the tributaries sampled. The Mattock River recorded high numbers of juvenile

salmon and trout. The limiting factor in the River Boyne recovery is the absence of suitable spawning gravel and nursery area.

The Boycestown River was stocked with autumn fingerlings at a rate of 3 per m² in September 1980. The experimental stretch chosen consisted of 70% deep flow, 25% riffle and 5% pool. A biological survey showed there was an adequate food supply. When the stretch was sampled in December the number per m² was 0.35 with a range of 0.233 to 0.469. A further population estimate was made in February 1981. The overall mortality from September to February was 94%. No account was taken of any movement out of the stretch which could have occurred from September to February. As food was not the limiting factor it can be assumed that the habitat was not suitable for salmon. The Boycestown is typical of the dredged tributaries of the River Boyne.

GRANT AIDED RESEARCH PROJECTS

Studentships

There were eight post-graduate studies being carried out, under the Department's studentships scheme namely:—

- (1) Eel migration in the Galway fishery (UCG)
- (2) A study of estuarine benthic meiofauna with particular reference to pollution (UCC)
- (3) Pollution studies in the River Dodder (UCD)
- (4) Classifying Irish rivers using Chironomid Pupal Exuviae (UCD)
- (5) Environmental impact of salmonid farming in freshwater benthic conditions (UCD)
- (6) The effect of sewage fungus slimes on survival and growth of river fishes (TCD)
- (7) The ecology of streams and rivers in the Corrib catchment with reference to salmonid production (UCG)
- (8) Mass culture of invertebrates as food for cultured salmonids (TCD)

BURSARIES

Of the thirty undergraduate students employed during the summer vacation thirteen were employed on inland projects. The students were recruited by interview from the Regional Colleges and the University Colleges. Three students were engaged in juvenile salmon survey, two were engaged in sea trout

monitoring, one on feeding trials of rainbow trout and water quality analysis arising from fish farm effluents and seven were engaged in the adult salmon sampling programme around the coast extending from Burtonport to the Cork Blackwater.

ENGINEERING

Arterial Drainage

Close contact between the Department and the Office of Public Works was maintained in relation to arterial drainage and post drainage works in the Corrib/Mask, Moy, Maigue and Boyne systems.

Preliminary discussions were held with officers of O.P.W. in relation to the proposed drainage schemes for the Dunkellin and Clarinbridge Rivers, Co. Galway. The Mask/Carra brown trout restocking programme which commenced in 1979 continued in 1981.

The O.P.W. hydrological and hydrometric investigations on the possible impact of the Mask/Carra drainage scheme on the water supply to the hatchery and rearing installations at Cong were continued and completed in 1981. In this regard, it should be noted that the investigations were broadened to enable a study to be made of the sinking of the Corrib/Mask canal and its possible effect on the Summer levels of Lough Mask.

Investigations of Inland Fish Movement

The Galway Sluice Barrage smolt trapping operations started on April 3rd and ended on 30th May 1981. 11,553 salmon smolts were trapped and released during this period. The largest number of smolts trapped in one day was 1,218 on 5th May. In the same period one eel was trapped and released.

The salmon trapping unit and electronic fish-counter on the River Erriff, Co. Mayo was put into commission and will be fully operative for 1982.

Water Abstraction

The assessment of the likely impact of major water abstraction schemes on fish stocks and angling amenities in rivers and lakes was continued by the Department and local authorities were advised on suitable measures to be taken to ameliorate the effects. Among the cases handled or in progress were Lough

Muckno (Co. Monaghan), the West Clare (Doolough) Regional Water Supply Scheme, Carlow North Regional Scheme, Carlow South Regional Scheme, North East Kerry Regional Scheme and schemes of abstraction from the Rivers Clodiagh, Mahon and Mulcaire. The denil type fish-pass with smolt gate arrangement, which was incorporated by Galway Co. Council into the Lough Owenboliska impounding dam, was kept under observation by the Department with a view to drawing up a final regime of operations.

River Improvement Works

A pool-type fish pass was constructed through the Carrowheel Falls on the River Clydagh, Co. Mayo.

A rock obstruction at Hanley's Falls on the Easkey River, Co. Sligo was eased to facilitate the upstream passage of fish. Work on both the foregoing was executed by the North Western Regional Fisheries Board under the supervision of officers of the Department. Observation of spawning activity on both rivers indicated that both works had been successful and well worth implementing.

Fish Passes.

In a joint venture with Forestry Division an ornamental weir at the Doneraile Estate on the Awbeg River was reconstructed and a modern fish pass was incorporated.

Fish Culture Installations

The Department continued to advise the Salmon Research Trust of Ireland Inc. on engineering matters relating to the fisheries under the Trust's control. In this regard a smolt trapping unit was designed for the S.R.T. for construction in the Cottage Stream at Treanlaur.

Under the supervision and direction of the Department, construction on the smolt rearing extension at Cong was completed by the Western Regional Fisheries Board and the unit was officially opened in June 1981. Engineering advice for a proposed major smolt rearing unit was given to Bradan Teoranta.

Rainbow Trout Farming

Proposed fish farm sites were investigated and assessed. In some cases, where necessary, engineering designs were prepared and supplied.

Electronic Fish Counters

Fish counting installations were maintained at the sites listed below. Difficulties are being experienced at some of these sites in getting comprehensive run-data due to various technical problems.

River	Location	Total Count	Maximum Count and Date	
			Count	Date
*Blackwater	Clondulane	2,776	243	24 Nov.
Boyne	Blackcastle	1,739	98	19 Sept.
§Corrib	Galway	2,322	305	3 May
Liffey	Islandbridge	1,398	66	7 July
Inagh	Ennistymon	433	53	3 Nov.

*Out of order mid July to 4th November.

§Undercounting due to hydraulic problems.

Two new electronic fish counters were installed, one on the Maigue and one on the River Erriff, Co. Mayo. Both will be recording from 1982 onwards.

Application of Electricity to Fish Counting

Work on the development of a bio-electric salmon counter was completed with the production of a fully operational prototype. Collaboration with workers in Britain was maintained through the agency of the Fish Counters Liaison Groups.

FOYLE FISHERIES COMMISSION

The Commission is a statutory North/South body and 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 senior members of the Commission. During the year under review it was held by the northern senior member.

Detailed information on the Commission's activities during the fishery year ending 30th September 1981 are given in the Commission's Annual Report.

The spawning count of 3,791 redds shows a marked increase over the previous year's figure of 2,927. The catch of salmon and grilse by commercial engines amounted to 34,781 fish (119,578 kg.) compared with 49,223 (145,776 kg.) in 1980. The rod catch of salmon and grilse was 1,517 compared with 1,134 for 1980 while the rod catch of sea trout was 7,421 as against 3,276 for the previous year.

The operation of the Commission's commercial fishery in the year ended 30 September 1981 resulted in a deficit of £6,119 sterling compared with a deficit of £5,262 sterling in 1980. This deficit is due largely to reduced catches. Each year the profit/deficit realised on the operation of the commercial fishery is credited/debited to the Commission's Accumulated Revenue Account.

During the year under review the Department of Fisheries and Forestry and the Department of Agriculture for Northern Ireland (Fisheries Division) paid subventions totalling £151,528 sterling to the Commission to meet its deficit at 30 September 1981. This is an increase of £29,040 sterling over last year's deficit and is mainly due to very large increases in wages and salaries.

The Commission's Accounts for the year ended 30 September 1981 are included as an appendix to its 1981 Annual Report. Particulars of Regulations made by the Commission in 1981 are included in Appendix No. 22 of this Report.

EEL FISHING DEVELOPMENT

As indicated in the paragraphs dealing with scientific investigations, research work continued during the year on the investigation of eel stocks and eel fishing techniques. Advice and information on eel fishing was given to interested persons. Thirty-seven eel fishery authorisations were issued during the year bringing the number of fishing engines under such authorisations to 57.

MANAGEMENT OF STATE FISHERIES

In 1981, 132 State-run fisheries—in the main vested in the Land Commission—were managed by Fisheries Division. Rents received during the year amounted to IR£8,349 compared with IR£6,460 in 1980.

Twenty-one fisheries which fell due for re-letting were advertised during the year.

GALWAY FISHERY

The Galway Fishery was acquired in 1978 and continues to be developed as a commercial and research fishery. The commercial fishery showed a surplus of almost IR£30,000 in 1981. A major factor contributing to the highly satisfactory situation was the sale of eels which realised IR£39,896, while salmon sales realised IR£30,555. Angling facilities at the fishery are also attractive and resulted in an income of IR£6,272.

It was decided to transfer the fishery to the Central Fisheries Board with effect from 1st January 1982. The Department is however, continuing with a research and development programme for the fishery which will provide a basis for its future management.

SALMON RESEARCH TRUST OF IRELAND INC.

The Annual Report of the Salmon Research Trust gives details of its activities for 1981.

The census work on wild fish population is available for 1970 to 1981. There was an improvement recorded in the two sea winter fish for 1981 but the grilse escapement was the lowest on record and was less than one-third of the average annual count for the period 1970—74. The delayed smolt run in 1980 due to drought conditions affected the viability of the smolts and could have been responsible for the very poor grilse run. The survival from smolt to grilse was only 2.87%.

The sea trout run was affected likewise. The return from reared smolts however at 2.06% was for the first time almost equal to the return from wild smolts. These smolts released themselves from special ponds at the head of the tide and were thus unaffected by the drought during April and May 1980. There was an increase to 19,000 in the number of reared smolts released in 1981. There were in all nine experimental batches which had undergone different treatment for the purpose of disease control and imprinting experiments and each group had a distinctive mark to distinguish them on their return.

The survival rate from eyed ova to the end of the year for salmon and sea trout parr was only 55%. There were unusually high losses in August and September that can be linked with high water temperatures which prevailed in August and early September. Furunculosis and Costia were the major infections experienced in 1981 in the juvenile stocks.

A programme of biochemical genetics in different river systems in Ireland and in the North Atlantic with a view to distinguishing stocks of salmon in the high seas fisheries is underway. The work to date has shown that it is possible to distinguish Canadian, Norwegian and Irish stocks using specific biochemical tags.

The rod fishery on the Burrishoole system which was acquired by the Salmon Research Trust in 1980 recorded a very poor catch of both salmon and sea trout in 1981. Exploitation rates in the fishery were also very low.

INTERNATIONAL AND OTHER CONFERENCES

During the year, the Department was represented at the following conferences, committees and working groups etc.:—

Abroad

International Council for the Exploration of the Sea (ICES)—Copenhagen, Denmark.

European Inland Fisheries Advisory Commission (EIFAC)—Woods Hole, U.S.A.

ICES Working Group on North Atlantic Salmon.

ICES/EIFAC Working Group on European Eels—Ferrara, Italy.

Proposed International Convention for the Conservation of Salmon in the North Atlantic Ocean—Meetings in Ottawa, Geneva and Oslo.

West European Fishery Technologists Working Group—Hull.
Fish Counters Liaison Group—Reading.

Home

Water Resources Advisory Committee

River Erne Joint Protection Committee

Pollution Control Committee Donegal County Council

The Water Pollution Advisory Council.

Steering Committee on EEC Sponsored Environmental Impact Assessment of Drainage.

NBST Salmonid Advisory Committee.

Irish Search and Rescue Committee.

Lough Sheelin slurry transport subsidy scheme

LEGISLATION

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

Paddy O'Toole,

Minister for Fisheries and Forestry.

23 December 1982.

APPENDICES TO THE REPORT ON SEA AND INLAND

FISHERIES FOR THE YEAR, 1981

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APPENDIX No. 1

Quantity and Value of Sea Fish (excluding Salmon) returned as landed by Irish registered vessels in Irish Ports during 1980 and 1981.

Species	Quantity		Value	
	1981	1980	1981	1980
DEMERSAL	Tonnes	Tonnes	IR£000	IR£000
Flat Fish				
Brill	114	111	130	96
Dabs	262	192	43	35
Lemon Sole	206	175	105	81
Megrim	579	456	186	104
Plaice	2,071	1,797	1,192	924
Sole	364	299	933	655
Turbot	184	160	328	223
Other Flat Fish	88	35	14	10
Round Fish				
Cod	8,701	6,471	3,578	2,429
Haddock	2,284	985	590	287
Hake	394	276	265	138
Ling	146	96	41	24
Saithe	1,813	1,990	531	592
Whiting	15,643	12,177	2,776	2,033
Other Demersal Fish				
Dogfish	405	97	61	10
Monkfish	525	328	328	161
Ray/Skate	1,764	1,505	754	560
Other Demersal	373	90	93	36
TOTAL DEMERSAL	35,916	27,230	11,948	8,398
PELAGIC				
Herring	29,611	36,800	5,046	9,395
Sprat	4,984	9,350	313	705
Mackerel	93,802	50,791	9,893	4,225
TOTAL PELAGIC	128,397	96,941	15,252	14,325
TOTAL WETFISH	164,313	124,171	27,200	22,723
CRUSTACEANS				
Crabs	1,107	970	290	211
Crawfish	98	98	662	528
Dublin Bay Prawns	3,604	2,461	3,267	2,219
Lobsters	331	284	1,787	1,325
Palaemonid Shrimps	82	70	256	154
TOTAL CRUSTACEANS	5,222	3,883	6,262	4,437
MOLLUSCS				
Escallops	410	304	372	276
Queen Escallops	15	3	5	1
Mussels	4,658	4,557	360	291
Oysters	400	422	554	534
Periwinkles	1,198	1,329	361	405
Palourdes	3	4	8	8
Squid	236	85	203	79
Other Molluscs	19	21	36	42
TOTAL MOLLUSCS	6,939	6,725	1,899	1,636
Sea Urchins	102	108	83	70
TOTAL ALL FISH	176,576	134,887	35,444	28,866

In addition to the above landings into the Republic, 7,949 tonnes of fish and 45 tonnes of shellfish, valued at IR£3,256,572 and IR£44,363 respectively, were landed directly into foreign ports or transhipped at sea for export by Irish registered vessels during 1981.

APPENDIX No. 2

Comparison of the Average Price per tonne of various kinds of Sea Fish, 1973—1981

SPECIES	1973	1974	1975	1976	1977	1978	1979	1980	1981
	£	£	£	£	£	IR£	IR£	IR£	IR£
Sole	931	1,006	1,200	1,485	1,732	2,093	2,184	2,192	2,565
Brill	354	411	477	515	680	740	826	866	1,145
Turbot	358	444	510	799	1,145	1,231	1,444	1,389	1,781
Plaice	217	247	276	364	457	519	557	514	575
Dabs	93	81	114	143	176	195	215	193	166
Megrims	95	94	114	149	230	206	260	229	322
Ray/Skate	161	191	200	228	262	306	375	372	428
Cod	139	176	173	242	375	406	448	375	411
Haddock	96	111	181	188	327	365	373	291	258
Hake	141	150	176	288	456	428	571	499	674
Whiting	68	70	90	109	205	217	228	167	177
Saithe	82	97	118	142	255	301	312	297	293
Herring	72	100	112	142	261	295	287	255	170
Mackerel	46	43	44	61	77	63	74	83	105
Sprats	17	19	17	25	33	38	67	75	63

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 IR£200,000 in 1981.

PORT	TOTAL		DEMERSAL		PELAGIC		SHELLFISH	
	IR£000	Tonnes	IR£000	Tonnes	IR£000	Tonnes	IR£000	Tonnes
1. Killybegs	8,563	66,628	2,175	9,409	6,333	57,180	55	39
2. Rathmullen	2,922	26,685	—	—	2,915	26,659	7	26
3. Castletownbere	2,386	14,729	825	1,953	1,366	12,576	195	200
4. Howth	1,994	6,152	1,612	5,581	28	191	354	380
5. Skerries	1,823	3,406	554	1,798	17	116	1,252	1,492
6. Dunmore East	1,518	5,197	578	1,400	763	3,671	177	126
7. Clogherhead	1,454	2,893	550	1,887	1	5	903	1,001
8. Greencastle	1,210	2,677	1,094	2,412	25	180	91	85
9. Rosaveel	1,208	5,515	482	1,366	640	4,066	86	83
10. Burtonport	895	4,930	378	982	455	3,932	62	16
11. Kilmore Quay	807	1,485	492	1,114	—	6	315	365
12. Valentia	655	1,843	258	439	211	1,343	186	61
13. Dingle	567	1,958	352	1,119	105	791	110	48
14. Ballycotton	513	2,376	45	114	451	2,259	17	3
15. Helvick	462	1,174	301	869	32	185	129	120
16. Fenit	428	1,355	12	57	161	1,141	255	157
17. Schull	417	1,072	213	614	37	255	167	203
18. Cobh	413	1,964	89	201	312	1,759	12	4
19. Achill	389	882	153	304	106	526	130	52
20. Baltimore	366	855	79	203	72	558	215	94
21. Union Hall	357	885	219	644	24	130	114	111
22. Galway	300	3,912	26	87	265	3,818	9	7
23. Balbriggan	268	578	103	399	—	—	165	179
24. Kinsale	258	1,148	89	212	145	906	24	30
25. Wexford	255	3,563	41	29	—	—	214	3,534
26. Moville	251	1,843	—	—	209	1,809	42	34
27. Kincasslagh	234	1,582	—	—	226	1,580	8	2
28. Downings	223	1,333	—	1	171	1,144	52	188
29. Dunlaoire	217	471	178	424	1	9	38	38
30. Arklow	208	460	182	400	8	39	18	21
31. Roslare	207	441	175	392	3	19	29	30

*Indicates a value of less than IR£500.

APPENDIX No. 4

Imports and Exports of Fish and Fishery Products in 1981

(as compared with 1980)

	Quantity		Value	
	1981	1980	1981	1980
	Tonnes	Tonnes	IR£000	IR£000
I.—IMPORTS:				
Fish: fresh, chilled	6,051	2,820	1,627	1,298
Fish: frozen	8,581	3,849	11,053	6,999
Fish: salted, dried or smoked	1,191	1,382	1,605	1,717
Shellfish: fresh, salted or dried	383	589	1,595	1,642
Prepared or preserved fish	2,278	2,382	5,615	4,525
Prepared or preserved shellfish	103	219	355	499
Fishmeal and fish oils	11,091	11,986	3,823	3,407
TOTALS	29,678	23,227	25,673	20,087
II.—EXPORTS:				
Fish: fresh, chilled	42,976	29,450	11,845	8,817
Fish: frozen	71,447	30,140	20,002	13,311
Fish: salted, dried or smoked	12,177	12,385	7,180	8,234
Shellfish: fresh, salted or dried	6,785	6,663	10,180	8,356
Prepared or preserved fish	948	1,033	1,005	1,100
Prepared or preserved shellfish	223	120	364	127
Fishmeal and fish oils	2,935	4,184	658	861
Landed directly into foreign ports or transhipped at sea for export, by Irish registered vessels:				
I Fish	7,949	9,356	3,257	6,554
II Shellfish	45	42	44	51
TOTALS	145,485	93,373	54,535	47,411

APPENDIX No. 5
Herring Fishing, 1981

Ports at which more than 1,000 tonnes were landed	Total Quantity	Total Value
	Tonnes	IR£000
1. Killybegs	7,202	1,163
2. Dunmore East	3,458	737
3. Rossaveel	3,761	611
4. Ballycotton	2,228	445
5. Castletownbere	2,205	303
6. Cobh	1,733	307
7. Fenit	1,120	159
8. Kincasslagh	1,091	177
9. Valentia	1,002	185

APPENDIX No. 6
Mackerel Fishing, 1981

Ports at which more than 1,000 tonnes were landed	Total Quantity	Total Value
	Tonnes	IR£000
1. Killybegs	49,659	5,155
2. Rathmullen	26,630	2,911
3. Castletownbere	10,332	1,059
4. Burtonport	3,018	276
5. Merville	1,800	207

APPENDIX No. 7

Regional Distribution and Classification of Fishing Craft and of Personnel Engaged in Fishing in 1981

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	865	321	10	23	44	54	8	14	109	57	2
	Partially Laid-up	557	149	—	—	—	—	—	—	33	97	19
Totals		1,422	492	13	26	52	59	9	16	142	154	21
AREA VIIIC (Ardmore to Clonakilty)	Solely	131	100	—	—	—	3	1	8	55	33	—
	Partially Laid-up	275	59	—	—	—	—	—	—	5	49	5
Totals		406	159	—	—	—	3	1	8	60	82	5
AREA VIIJK (Union Hall to Ballyduff)	Solely	1,028	463	17	7	14	22	9	67	225	102	—
	Partially Laid-up	817	177	—	—	—	—	—	—	21	110	43
Totals		1,845	646	19	7	16	23	10	70	246	212	43
AREA VIIBC (Kilrush to Mullaghmore)	Solely	378	84	6	3	10	16	7	7	24	11	—
	Partially Laid-up	2,389	1,028	—	—	—	—	—	—	399	476	150
Totals		2,767	1,124	8	3	11	23	8	11	423	487	150
AREA VIA (Bundoran to Moville)	Solely	1,062	129	33	7	22	30	10	4	23	—	—
	Partially Laid-up	1,238	538	—	—	—	—	—	—	204	268	59
Totals		2,300	674	33	8	24	35	14	5	228	268	59
TOTALS (All Areas)	Solely	3,464	1,097	66	40	90	125	35	100	436	203	2
	Partially Laid-up	5,276	1,951	—	—	—	—	—	—	662	1,000	276
Totals		8,740	3,095	73	44	103	143	42	110	1,099	1,203	278

For comparison purposes with previous years the I.C.E.S. Area VIIIC and VIIJK together would equate with the former ICES Area VIICG.

APPENDIX No. 8
Trawling and Seining, 1981

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	92	21	2	—	19	All year
Bahriggan	50	12	1	3	8	All year
Skerries	102	21	—	—	21	All year
Howth	128	27	2	1	24	All year
Dublin	6	5	—	—	—	Occasionally
Dun Laoghaire	22	2	—	1	4	All year
Wicklow	2	1	—	—	—	All year
Arklow	50	12	—	—	12	All year
Courtown	8	3	—	—	—	Occasionally
Wexford	30	11	—	—	7	All year
Rosslare	5	1	—	—	1	All year
Carne/St. Helens	5	1	—	—	—	Occasionally
Kilmore Quay	2	—	—	—	—	Occasionally
Feuard/Slade	138	30	1	5	22	All year
Duncannon	3	1	—	—	—	Occasionally
Ballyhack	10	2	—	—	2	All year
Checkpoint	9	3	—	—	—	Occasionally
Passage East	4	2	—	—	—	Occasionally
Dunmore East	9	3	—	—	6	All year
Stradbally	36	8	—	—	—	Occasionally
Helvick	6	3	—	—	—	All year
Dungarvan	54	22	3	4	6	Occasionally
Ardmore	10	5	—	—	—	Occasionally
Younghal	8	4	—	—	—	Occasionally
Ballycotton	24	12	—	—	—	Occasionally
Cobb	9	3	—	—	—	All year
Crosshaven	13	8	—	—	—	All year
Knockdoon	23	11	—	—	—	Occasionally
Kinsale	18	7	—	—	—	All year
Old Head Kinsale	6	3	—	—	—	All year
Courtnasherry	4	2	—	—	—	All year
Clonakilty	4	3	—	—	—	All year
Union Hall	43	14	—	—	8	All year
Baltimore	25	14	—	—	2	All year
Schull	22	5	—	—	5	All year
Cape Clear	4	1	—	—	1	All year
Gooleen/Crookhaven	2	1	—	—	—	All year
Dunmanus	2	1	—	—	—	All year
Castletownbere	148	22	—	—	19	All year
Ballinskelligs	4	1	—	—	1	All year
Valentia	4	1	—	—	1	Occasionally
Portmagee	24	5	—	—	7	All year
Calricaveen	71	7	—	—	7	All year
Dingle	91	19	—	—	14	All year
Fent	4	1	—	—	1	Occasionally
Kilbaha	4	1	—	—	1	All year
Rosaveal	88	18	—	—	16	All year
Roundstone	4	1	—	—	—	All year
Cleggan	12	4	—	—	4	Occasionally
Killalea	19	5	—	—	2	All year
Killybegs	364	49	—	—	48	All year
Burtonport	122	21	—	—	18	All year
Bunbeg	11	2	—	—	2	All year
Maghararty/Tory	8	2	—	—	1	Occasionally
Urrus/Dunaff	18	4	—	—	2	All year
Dunfanaghy	7	2	—	—	1	All year
Downings	4	1	—	—	—	All year
Bunrana	8	2	—	—	1	All year
Greencastle	74	19	—	—	18	All year
Teelin	36	14	—	—	—	All year
TOTALS	2,116	489	122	57	310	

APPENDIX No. 9A

Statement of Account in Respect of Repayable Advances

Advance of IR£19,149,416 made to An Bord Iascaigh Mhara during the period of twenty-nine years to 31 December, 1981 for provision of boats and gear and other purposes:—

<i>Repayment of Principal:</i>	IR£
Made to 31 December, 1980	2,467,203
Made during year	—
Principal written off to 31 December, 1981	1,882,213
	<u>4,349,416</u>

Balance of principal outstanding at 31 December, 1981:

IR£14,800,000

APPENDIX No. 9B

Expenditure on Fisheries for the Years ended 31 December 1980 and
31 December 1981

(All figures rounded to nearest IR£1,000)

	1 Jan. 1981 to 31 Dec. 1981	1 Jan. 1980 to 31 Dec. 1980
1. SEA FISHERIES		
By (a) Department of Fisheries and Forestry (Fisheries Division)	IR£ 236,000	IR£ 208,000
(i) Development		
(ii) Fishery Harbours and other marine works	3,970,000	3,538,000
(b) An Bord Iascaigh Mhara		
(i) Administration and Current Development (grant-in-aid)	5,160,000	3,785,000
(ii) Capital Development (grant-in-aid)	5,350,000	4,900,000
(iii) Repayable Advances*	139,000	2,304,000
(iv) Repayment of Advances written off	200,000	138,000
(c) Roinn na Gaeltachta Grants for marine works	211,000	192,000
2. INLAND FISHERIES		
By (a) Department of Fisheries and Forestry (Fisheries Division) Development and The Inland Fisheries Trust Incorporated (grant- in-aid)	3,710,000	2,901,000
(b) The Salmon Research Trust of Ireland Incorporated (grant-in-aid)	45,000	40,000
DEPARTMENT OF FISHERIES AND FORESTRY Salaries, Wages and other administrative expenses for Fisheries Division	1,396,000	1,087,000
TOTALS	20,417,000	19,093,000

*A statement of account in respect of repayable advances is given in Appendix 9A.

APPENDIX No. 10

Coastal Extent of Fisheries Regions and Names of the Principal Rivers in each Region

Fisheries Region	Coastal Extent of Region	Principal Rivers
Eastern	Carlingford Lough, Co. Louth to Kiln Bay, Co. Wexford and seawards to a line twelve miles from baselines.	Fane, Dee, Clyde, Boyne Blackwater, Deel, Liffey, Vartry, Slaney, Avoca.
Southern	Kiln Bay, Co. Wexford to Ballycotton Pier, Co. Cork and seawards to a line twelve miles from baselines.	Suir, Barrow, Nore, Blackwater Funcheon, Bride, Awbeg.
South Western	Ballycotton Pier, Co. Cork, to Kerry Head, Co. Kerry and seawards to a line twelve miles from baselines.	Lee, Owenboy, Bandon, Argideen, Ilen, Mealagh, Owvane, Coomhola, Glengarriff, Adrigole, Roughty, Sheen, Finnihy, Blackwater, Sneem, Laune, Flesk, Maine, Caragh, Currane, Cumberagh, Inny.
Shannon	Kerry Head, Co. Kerry to Hag's Head, Co. Clare and seawards to a line twelve miles from baselines.	Shannon, Deel, Fergus, Mulcaire, Little and Upper Brosna, Inny, Maigue, Feale.
Western	Hag's Head, Co. Clare to Pigeon Point, Co. Mayo and seawards to a line twelve miles from baselines.	Corrib, Claregalway, Ballinahinch, Recess, Cashla, Owengowla, Invermore, Inverbeg, Screebe, Furnace, Culfin, Errif, Bundorragh, Dawross, Carrowniskey, Bunowen, (Louisburgh).
North Western	Pigeon Point, Co. Mayo to Mullaghmore Head, Co. Sligo and seawards to a line twelve miles from baselines.	Newport, Burrishoole, Owenduff, Owengarve, Owenmore, Glenamoy, Moy, Cloonaghmore, (Palmerstown), Easkey, Ballisodare, Garavogue (Sligo), Bonet, Drumcliff.
Northern	Mullaghmore Head, Co. Sligo to Rossan Point, Co. Donegal and seawards to a line twelve miles from baselines.	Erne, Bundrowes, Bunduff, Eske, Eaney, Water, Oily Glen, Owenea, Gweebarra, Gweedore, (Crolly), Clody, Lackagh, Lennon, Crana.

APPENDIX No. 11

Quantity and Value of all Salmon and Sea Trout taken in 1979, 1980 and 1981 by Instruments of Capture

SALMON

Instruments	1981	1980	1979	1981	1980	1979
	kg	kg	kg	IR£	IR£	IR£
Total for all engines	655,215	894,508	1,073,038	2,311,203	3,234,721	5,154,227
Total for rod and line	40,914	39,836	39,719	144,321	144,058	242,642
Total for drift nets	492,433	641,918	882,933	1,737,007	2,321,302	4,182,216
Total for draft nets	80,717	171,755	129,608	284,718	621,100	628,590
Total for stake nets, weirs, etc.	41,151	40,999	20,778	145,157	148,261	100,779

SEA TROUT

Instruments	1981	1980	1979	1981	1980	1979
	kg	kg	kg	IR£	IR£	IR£
Total for all engines	18,235	37,340	28,335	76,406	130,687	70,848
Total for rod and line	10,542	18,139	15,654	44,173	63,486	39,139
Total for drift nets	3,012	5,597	5,685	12,622	19,586	14,215
Total for draft nets	4,455	13,259	6,253	18,665	46,407	15,636
Total for stake nets, weirs, etc.	226	345	743	946	1,208	1,858

APPENDIX No. 12
Quantity and Value of Salmon taken in 1979, 1980 and 1981
by Fisheries Regions

REGIONS	*	Quantity			Value		
		1981 kg	1980 kg	1979 kg	1981 IRE	1980 IRE	1979 IRE
Eastern Dundalk District	R	302	116	282	1,064	418	1373
	N	3,270	4,071	6,639	11,534	14,723	32,199
Drogheda District	R	1,491	808	637	5,259	2,923	3,089
	N	9,127	10,033	5,501	32,197	36,280	26,675
Dublin District	R	664	632	475	2,411	2,287	2,304
	N	1,127	1,088	220	3,977	3,934	1,067
Wexford District	R	95	1,751	1,445	336	6,332	7,008
	N	8,033	9,580	4,334	28,336	34,642	21,020
Total	R	2,572	3,307	2,839	9,070	11,960	13,774
	N	21,557	24,772	16,694	76,044	89,579	80,961
Southern Waterford District	R	5,106	5,537	4,506	18,012	20,022	21,854
	N	79,454	59,813	42,524	280,264	216,296	106,237
Lismore District	R	879	1,808	3,130	3,101	6,539	15,181
	N	60,178	80,168	61,230	212,272	289,902	296,971
Total	R	5,985	7,345	7,636	21,113	26,561	37,035
	N	139,632	139,981	103,754	492,536	506,198	403,208
South Western Cork District	R	2,913	3,001	3,281	10,275	10,852	15,816
	N	57,950	93,783	176,888	204,415	339,137	857,907
Kerry District	R	2,755	4,207	3,664	9,720	15,213	17,770
	N	62,772	75,042	127,721	221,422	271,366	619,447
Total	R	5,668	7,208	6,925	19,995	26,065	33,586
	N	120,722	166,825	304,609	425,837	610,503	1,477,354
Shannon Limerick District	R	3,571	6,310	3,647	12,595	22,817	17,668
	N	29,360	43,332	48,752	103,564	156,699	236,447
Total	R	3,571	6,310	3,647	12,595	22,817	17,668
	N	29,360	43,332	48,752	103,564	156,699	236,447
Western Galway District	R	3,256	1,826	653	11,486	6,605	3,167
	N	34,225	41,286	58,518	120,724	149,297	283,813
Connemara District	R	466	693	545	1,714	2,509	2,643
	N	8,284	6,988	7,185	29,220	25,271	34,847
Ballinakill District	R	449	2,832	1,492	1,582	10,240	7,236
	N	8,492	8,404	11,722	33,464	30,393	56,847
Total	R	4,191	5,351	2,690	14,782	19,351	13,046
	N	52,001	56,678	77,425	183,428	204,961	375,507
North Western Bangor District	R	3,385	1,841	1,887	11,942	6,658	9,152
	N	9,441	70,587	102,446	33,301	255,256	496,859
Ballina District	R	5,850	2,020	7,954	20,637	7,306	88,577
	N	77,778	138,085	118,747	274,351	499,343	575,923
Sligo District	R	6,235	1,766	1,743	21,995	6,386	8,454
	N	10,106	14,799	17,630	35,646	53,515	85,505
Total	R	15,470	5,627	11,584	54,574	20,350	106,183
	N	97,325	223,471	238,823	343,298	808,114	1,158,287
Northern Ballyshannon District	R	320	406	1,193	1,128	1,468	5,786
	N	30,504	40,358	34,490	107,600	145,943	167,277
Letterkenny District	R	3,137	4,282	3,205	11,064	15,486	15,544
	N	123,200	157,255	208,772	434,575	566,666	1,012,544
Total	R	3,457	4,688	4,398	12,192	16,954	21,330
	N	153,704	197,613	243,262	542,175	714,609	1,179,821
GRAND TOTAL		855,215	894,508	1,073,038	2,311,203	3,234,721	5,154,227

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

APPENDIX No. 13
Quantity and Value of Sea Trout taken in 1979, 1980 and 1981
by Fisheries Regions

REGIONS	*	Quantity			Value		
		1981 kg	1980 kg	1979 kg	1981 IRE	1980 IRE	1979 IRE
Eastern Dundalk District	R	136	912	540	570	3,192	1,350
	N	—	224	88	—	784	220
Drogheda District	R	136	1,796	714	570	6,286	1,785
	N	63	4,329	1,021	266	15,152	2,553
Dublin District	R	37	830	531	157	2,905	1,328
	N	2,188	3,268	3,303	9,165	11,434	8,258
Wexford District	R	269	865	381	1,129	3,027	953
	N	383	1,106	176	1,802	3,871	440
Total	R	578	4,403	2,166	2,426	15,410	5,416
	N	2,634	8,927	4,588	11,033	31,241	11,471
Southern Waterford District	R	17	305	68	72	1,068	170
	N	91	352	434	380	1,232	1,066
Lismore District	R	27	265	143	112	928	358
	N	580	564	50	2,432	1,974	125
Total	R	44	570	211	184	1,996	528
	N	671	916	484	2,812	3,206	1,211
South Western Cork District	R	2,722	1,187	544	11,403	4,154	1,360
	N	649	910	384	2,720	3,185	961
Kerry District	R	454	916	3,643	1,801	3,208	9,108
	N	816	314	2,448	3,421	1,099	6,120
Total	R	3,176	2,103	4,187	13,304	7,360	10,468
	N	1,465	1,224	2,832	6,141	4,284	7,081
Shannon Limerick District	R	272	719	374	1,140	2,517	935
	N	227	837	1,255	950	2,930	3,138
Total	R	272	719	374	1,140	2,517	935
	N	227	837	1,255	950	2,930	3,138
Western Galway District	R	—	381	91	—	1,334	228
	N	73	162	427	304	567	1,068
Connemara District	R	3,542	3,501	3,974	14,839	12,253	9,935
	N	54	72	550	229	252	1,375
Ballinakill District	R	612	684	513	2,566	2,394	1,283
	N	109	1,586	306	456	5,551	765
Total	R	4,154	4,566	4,578	17,405	15,981	11,446
	N	230	1,820	1,283	889	6,370	3,208
North Western Bangor District	R	959	1,848	1,724	4,020	6,468	4,310
	N	227	612	575	950	2,142	1,438
Ballina District	R	160	619	739	671	2,166	1,848
	N	227	1,668	619	950	5,838	1,548
Sligo District	R	42	187	596	177	655	1,490
	N	36	160	382	152	560	853
Total	R	1,161	2,654	3,059	4,868	9,289	7,648
	N	490	2,440	1,578	2,052	8,540	3,941
Northern Ballyshannon District	R	136	1,301	569	570	4,553	1,423
	N	1,290	2,238	228	5,405	7,826	571
Letterkenny District	R	1,021	1,823	510	4,276	6,380	1,275
	N	680	801	435	2,851	2,904	1,088
Total	R	1,157	3,124	1,079	4,848	10,933	2,698
	N	1,970	3,037	663	8,256	10,630	1,659
GRAND TOTAL		18,235	37,340	28,335	76,406	130,687	70,848

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

The catch figures set out above for 1981 are based on returns which are not complete. This explains any inconsistency between the figures for 1981 and previous years.

APPENDIX No. 14

Quantity and Value of Eels taken in 1979, 1980 and 1981
by Fisheries Regions

REGIONS	Quantity			Value		
	1981 kg	1980 kg	1979 kg	1981 IR£	1980 IR£	1979 IR£
Eastern						
Dundalk District	151	590	5,050	217	1,199	11,969
Drogheda District	762	1,143	4,048	1,094	1,260	9,594
Dublin District	453	—	1,016	651	—	2,408
Wexford District	1,355	134	242	1,947	177	574
Total	2,721	1,867	10,356	3,909	2,636	24,545
Southern						
Waterford District	1,437	2,400	19,044	2,028	4,800	45,134
Lismore District	185	1,270	1,466	261	1,270	3,474
Total	1,622	3,670	20,510	2,289	6,070	48,608
South Western						
Kerry District	500	440	1,016	731	440	2,408
Total	500	440	1,016	731	440	2,408
Shannon						
Limerick District	46,413	33,459	42,411	99,232	72,821	100,514
Total	46,413	33,459	42,411	99,232	72,821	100,514
Western						
Galway District	31,479	27,637	21,335	64,328	57,520	50,564
Total	31,479	27,637	21,335	64,328	57,520	50,564
North Western						
Bangor District	620	532	2,828	922	1,064	6,702
Ballina District	3,612	1,000	1,032	7,607	2,000	2,446
Sligo District	136	—	254	286	—	602
Total	4,368	1,532	4,114	8,815	3,064	9,750
Northern						
Ballyshannon District	7,020	6,088	10,064	7,523	7,246	23,852
Total	7,020	6,088	10,064	7,523	7,246	23,852
GRAND TOTAL	94,123	74,693	109,806	186,827	149,797	260,241

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 1979, 1980 and 1981 by Fisheries Regions

REGIONS	Total Quantity for Region			Total Value for Region		
	1981 kg	1980 kg	1979 kg	1981 IR£	1980 IR£	1979 IR£
Eastern						
Dundalk District	3,859	5,913	12,599	13,385	20,316	47,111
Drogheda District	11,579	18,109	11,921	39,386	61,901	43,696
Dublin District	4,489	5,818	5,545	16,361	20,560	15,365
Wexford District	10,135	13,436	6,578	33,350	48,049	29,995
Total	30,062	43,276	36,643	102,482	150,826	136,167
Southern						
Waterford District	86,105	68,407	66,576	300,756	243,418	174,481
Lismore District	61,849	84,075	66,019	218,178	300,613	316,109
Total	147,954	152,482	132,595	518,934	544,031	490,590
South Western						
Cork District	64,234	98,881	181,077	228,813	357,328	876,044
Kerry District	67,297	80,919	138,492	237,195	291,324	654,853
Total	131,531	179,800	319,569	466,008	648,652	1,530,897
Shannon						
Limerick District	79,843	84,657	96,439	217,481	257,784	358,722
Total	79,843	84,657	96,439	217,481	257,784	358,722
Western						
Galway District	69,033	71,292	81,024	196,842	215,323	338,840
Connemara District	12,366	11,254	12,254	46,002	40,282	48,800
Ballinakill District	10,662	13,506	14,033	38,088	48,578	66,131
Total	92,061	96,052	107,311	280,932	304,183	453,771
North Western						
Bangor District	14,632	75,420	109,460	51,135	271,588	518,461
Ballina District	87,627	143,392	129,091	304,216	516,653	670,342
Sligo District	16,555	16,912	20,605	58,256	61,116	97,006
Total	118,814	235,724	259,156	413,607	849,357	1,285,809
Northern						
Ballyshannon District	39,270	50,389	46,544	122,226	167,036	198,909
Letterkenny District	128,038	164,161	212,922	452,766	593,336	1,030,451
Total	167,308	214,550	259,466	574,992	760,372	1,229,360
GRAND TOTAL	767,573	1,006,541	1,211,179	2,574,436	3,515,205	5,485,316

APPENDIX No. 16

Number, Quantity and Value of Salmon taken by Single Rod and Line in 1979, 1980 and 1981 by Fisheries Regions

REGIONS	No. of Fish			Quantity			Value		
	1981	1980	1979	1981 kg	1980 kg	1979 kg	1981 IR£	1980 IR£	1979 IR£
Eastern									
Dundalk District	70	34	65	302	116	282	1,064	418	1,373
Drogheda District	322	198	195	1,491	808	637	5,259	2,923	3,089
Dublin District	151	154	118	684	632	475	2,411	2,287	2,304
Wexford District	20	429	441	95	1,751	1,445	336	6,332	7,008
Total	563	815	819	2,572	3,307	2,839	9,070	11,960	13,774
Southern									
Waterford District	1,054	1,218	1,517	5,106	5,537	4,506	18,012	20,022	21,854
Lismore District	274	519	669	879	1,808	3,130	3,101	6,539	15,181
Total	1,328	1,737	2,386	5,985	7,345	7,636	21,113	26,561	37,035
South Western									
Cork District	709	1,018	790	2,913	3,001	3,261	10,275	10,852	15,816
Kerry District	654	1,547	1,122	2,755	4,207	3,664	9,720	15,213	17,770
Total	1,363	2,565	1,912	5,668	7,208	6,925	19,995	26,065	33,586
Shannon									
Limerick District	984	1,502	963	3,571	6,310	3,647	12,595	22,817	17,688
Total	984	1,502	963	3,571	6,310	3,647	12,595	22,817	17,688
Western									
Galway District	861	537	200	3,256	1,826	653	11,486	6,605	3,167
Connemara District	126	232	167	486	693	545	1,714	2,506	2,643
Ballinakill District	100	892	457	449	2,832	1,492	1,582	10,240	7,236
Total	1,087	1,661	824	4,191	5,351	2,690	14,782	19,351	13,046
North Western									
Bangor District	676	580	621	3,385	1,841	1,887	11,942	6,658	9,152
Ballina District	1,308	594	2,289	5,850	2,020	7,954	20,637	7,306	88,577
Sligo District	1,245	538	543	6,235	1,766	1,743	21,995	6,386	8,454
Total	3,229	1,712	3,453	15,470	5,627	11,584	54,574	20,350	106,183
Northern									
Ballyshannon District	94	100	411	320	406	1,193	1,128	1,468	5,786
Letterkenny District	922	1,259	991	3,137	4,282	3,205	11,064	15,486	15,544
Total	1,016	1,359	1,402	3,457	4,688	4,398	12,192	16,954	21,330
GRAND TOTAL	9,570	11,351	11,759	40,914	38,836	39,719	144,321	144,058	242,642

APPENDIX No. 17

Number, Quantity and Value of Sea Trout taken by Single Rod and Line in 1979, 1980 and 1981 by Fisheries Regions

REGIONS	No. of Fish			Quantity			Value		
	1981	1980	1979	1981 kg	1980 kg	1979 kg	1981 IR£	1980 IR£	1979 IR£
Eastern									
Dundalk District	400	1,048	680	136	912	540	570	3,192	1,350
Drogheda District	400	2,065	900	136	1,796	714	570	6,286	1,785
Dublin District	110	891	480	37	830	531	157	2,905	1,328
Wexford District	791	994	560	269	865	381	1,129	3,027	953
Total	1,701	4,998	2,620	578	4,403	2,166	2,428	15,410	5,416
Southern									
Waterford District	50	350	150	17	305	68	72	1,068	170
Lismore District	78	378	420	27	265	143	112	928	358
Total	128	728	570	44	570	211	184	1,996	528
South Western									
Cork District	8,000	1,523	800	2,722	1,187	544	11,403	4,154	1,360
Kerry District	1,000	1,640	2,677	454	916	3,643	1,901	3,206	9,108
Total	9,000	3,163	3,477	3,176	2,103	4,187	13,304	7,360	10,468
Shannon									
Limerick District	800	786	550	272	719	374	1,140	2,517	935
Total	800	786	550	272	719	374	1,140	2,517	935
Western									
Galway District	—	827	100	—	381	91	—	1,334	228
Connemara District	10,410	10,150	11,656	3,542	3,501	3,974	14,839	12,253	9,935
Ballinakill District	1,800	786	565	612	684	513	2,566	2,394	1,283
Total	12,210	11,763	12,321	4,154	4,566	4,578	17,405	15,981	11,446
North Western									
Bangor District	2,819	2,125	1,900	959	1,848	1,724	4,020	6,468	4,310
Ballina District	470	593	986	160	619	739	671	2,166	1,848
Sligo District	123	215	796	42	187	596	177	655	1,490
Total	3,412	2,903	3,682	1,161	2,654	3,059	4,868	9,289	7,648
Northern									
Ballyshannon District	400	1,496	836	136	1,301	569	570	4,553	1,423
Letterkenny District	3,000	2,096	750	1,021	1,823	510	4,276	6,380	1,275
Total	3,400	3,592	1,586	1,157	3,124	1,079	4,846	10,933	2,698
GRAND TOTAL	30,651	27,933	24,806	10,542	18,139	15,654	44,173	63,486	39,139

APPENDIX No. 18

Particulars of Receipts and Expenditure by the Central and Regional Fisheries Boards for the Period
29th October 1980 to 31st December 1981

Fisheries Board	Opening Balance IR£	RECEIPTS					EXPENDITURE			Total Expenditure IR£	Closing Balance IR£
		Licence Duty IR£	Fishery Rate IR£	Grant from Department IR£	Misc. Receipts IR£	Total Receipts IR£	Wages IR£	Legal Costs IR£	Travelling and Misc. IR£		
Central	+ 111,721	nil	nil	1,711,700	146,683	1,858,383	1,254,730	250	706,843	1,961,823	+ 8,281
Eastern	+ 10,336	30,167	8,902	346,000	12,031	397,100	233,003	9,707	154,761	397,471	+ 9,965
Southern	+ 25,527	29,908	16,765	320,000	16,985	383,658	266,079	6,695	148,977	421,751	-12,566
South Western	+ 17,826	24,815	8,734	356,000	25,199	414,748	311,803	9,233	118,589	439,625	- 7,051
Shannon	+ 2,119	24,404	13,332	224,000	25,504	287,240	147,975	5,172	122,929	276,076	+ 13,283
Western	+ 3,000	16,894	19,676	272,000	23,298	331,868	192,628	7,024	149,430	349,082	-14,214
North Western	+ 35,835	25,881	27,007	262,000	12,411	327,299	202,822	268	159,235	362,325	+ 809
Northern	+ 41,994	28,862	23,202	300,300	9,621	361,985	269,019	2,728	136,670	408,417	- 4,438

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APPENDIX No. 19

Particulars of Fishing Licences Issued by Regional Fisheries Boards for the Year 1981

Fisheries Region	Annual (all districts)	Late Season (all districts)	Seven Day (all districts)	Annual (district of issue only)	Late Season (district of issue only)	Foyle (all districts)	Foyle (district of issue only)	Special Local Licence (tidal waters)		Drift Net	Draft Net	Pole Net	Bag Net	Stake Net	Head Weir	Box or Crib	Loop Net	Snap Net	Oyster Dredge	Gap, Eye Basket or Coghill Net for Eels	Long Line for Eels	Eel Trap	Fyke Net for Eels
								Rod	Net														
Eastern	1,127	115	103	887	681	14	—	—	—	15	176	—	—	—	—	6	—	—	—	15	9	6	12
Southern	432	5	380	1,712	86	—	—	—	—	252	16	—	1	4	1	—	—	133	—	13	—	—	3
South Western	455	19	454	993	258	—	—	—	—	115	110	—	1	—	—	1	—	—	116	—	—	—	—
Shannon	355	28	331	1,605	103	—	—	—	—	78	115	—	—	—	—	—	—	—	—	96	3	—	—
Western	227	60	522	292	178	—	—	—	—	108	19	—	—	—	—	5	—	—	178	39	11	3	—
North Western	346	57	659	1,284	544	—	—	—	23	138	25	—	2	—	—	7	—	—	101	22	16	2	—
Northern	304	14	497	1,343	579	13	96	42	13	172	140	—	—	—	—	2	32	—	—	3	56	2	—
TOTAL	3,246	298	2,648	8,116	2,429	27	96	42	36	878	601	—	4	4	1	21	32	133	395	188	95	13	15

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APPENDIX No. 20

Licence Duties Payable on Fishing Engines

	IR£
On each Salmon Rod—Annual (valid all districts)	10.00
do. Salmon Rod—Late Season (valid all districts)	7.00
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 Drift Net	50.00
do. Draft Net	30.00
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. Longline for Eels	10.00
do. Eel trap as used in Drogheda and Ballyshannon Districts	20.00
do. Oyster Fishing Engines	15.00
do. Fyke Net for train of 20 or less Plus 50p for each net thereafter.	10.00
Special Local Licences	
Rod	5.00
Draft Net	40.00

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

APPENDIX No. 21

Particulars of Public Inquiries held during 1981

Date of Inquiry	Where held	Subject Matter	Decision on Report of Inquiry
17th February 1981	Kinvara Parish Hall, Kinvara, Co. Galway.	Application by Mr. Rainer Krause, Dungora, Kinvara, Co. Galway for an Oyster Fishery Order in respect of part of Aughinish Bay, Co. Galway.	Refused
18th February 1981	Kinvara Parish Hall, Kinvara, Co. Galway.	Application by Mr. Michael O'Toole, Roveagh, Killoolgan, Co. Galway for an Oyster Fishery Order in respect of part of Galway Bay, Co. Galway.	Application withdrawn at the inquiry.

APPENDIX No. 22.

Abstract of Statutory Instruments made in 1981

Sea Fisheries:

- (1) An tOrdú um Lárionad Chuan Iascaigh (Ros A'Mhíl), 1981 (I.R. Uimh 208 de 1981) dated 3rd June, 1981. This Order declares Rossaveel a fishery harbour centre under the Fishery Harbour Centres Acts, 1968 and 1980 and defines the limits of the centre. It also transfers the management, control, operation and development of Rossaveel as a fishery harbour centre to the Minister for Fisheries and Forestry.
- (2) Sea Fisheries (Conservation and Rational Exploitation) Order, 1981 (S.I. No. 285 of 1981) dated 14th August, 1981 makes any infringement of Council Regulation (EEC) No. 2527/80, which prescribes certain technical measures for the conservation of fishery resources, an offence in so far as that Regulation relates to the State.
- (3) Sea Fisheries (Conservation and Rational Exploitation) (No. 2) Order, 1981 (S.I. No. 328 of 1981) dated 15th September, 1981 allows boats under 40 ft. in registered length to fish for herring in that part of the Irish Sea which is north of the parallel of 53°00' and within twelve miles from the baseline provided such fishing is carried out using drift nets with meshes of not less than 54mm diagonal measurement; it also provides for the licensing of boats under 50 feet in registered length which are normally based at ports between Cahore Point, Co. Wexford, and Court-macsherry, Co. Cork, to fish for herring in the Celtic Sea.
- (4) Mackerel Fishing (Licensing) Order, 1981 (S.I. No. 339 of 1981) dated 21st September, 1981 prohibits fishing for mackerel by vessels exceeding 55 feet in registered length during the specified period except under licence issued by the Minister for Fisheries and Forestry.

Oyster Fishery Orders, 1981.

- (1) Oyster Fishery (Brandon Bay, Tralee Bay and Ballyheige Bay) Order, 1981 dated 18th February, 1981 grants to Tralee Oyster Fisheries Society Limited of Ashe Memorial Hall, Tralee, Co. Kerry, certain exclusive rights within the limits of the oyster fishery described in the schedule to the Order.
- (2) Oyster Fishery (Cork Harbour) Order, 1980 (Amendment) Order, 1981 dated 19th February, 1981 amends Oyster Fishery (Cork Harbour) Order, 1980 granted to Mr. Cornelius Brosnan, 2 Wellesley Terrace, Wellington Road, Cork on 4th November, 1980.
- (3) Oyster Fishery (Bear Haven—Sheep Islands) Order, 1981 dated 22nd February, 1981 grants to Mr. John J. Sullivan, 14 Ballinakilla, Bere Island, Co. Cork, certain exclusive rights within the limits of the oyster fishery described in the schedule to the Order.

- (4) Oyster Fishery (Adrigole Harbour) Order, 1981 dated 2nd March, 1981 grants to Castletownbere Fishermen's Co-operative Society Limited, Castletownbere, Co. Cork, certain exclusive rights within the limits of the oyster fishery described in the Schedule to the Order.
- (5) Oyster Fishery (Bear Haven) Order, 1981 dated 3rd March, 1981 grants to Castletownbere Fishermen's Co-operative Society Ltd. Castletownbere, Co. Cork, certain exclusive rights within the limits of the oyster fishery described in the Schedule to the Order.
- (6) Oyster Fishery (Cork Harbour) (No. 2) Order, 1981 dated 11th March, 1981 grants to Cork Seafoods Ltd., Parkgarriff, Monkstown, Co. Cork, certain exclusive rights within the limits of the oyster fishery described in the Schedule to the Order.
- (7) Oyster Fishery (Glengarriff Harbour) Order, 1981 dated 19th March, 1981 grants to Glengarriff Fish Farming Co-operative, Glengarriff, Co. Cork, certain exclusive rights within the limits of the oyster fishery described in the Schedule to the Order.

Mussel Fishery Orders, 1981.

- (1) Mussel Fishery (Oyster Haven) Order, 1970 (Determination) Order, 1981 dated 20th March, 1981 determines Mussel Fishery (Oyster Haven) Order, 1970 granted to Experimental Fisheries Ltd. 1 Pope's Road, Cork, on 23rd November, 1970.
- (2) Mussel Fisheries (Clonakilty Harbour and Glandore Harbour) Order, 1972 (Determination) Order, 1981 dated 9th September, 1981, determines Mussel Fisheries (Clonakilty Harbour and Glandore Harbour) Order, 1972, granted to Ring Fisheries Ltd., Clonakilty, Co. Cork, on 1st September 1972.

Inland Fisheries

- (1) Fisheries (Salmon Dealer's Licence) Regulations, 1981 (S.I. No. 36 of 1981), dated 29th January, 1981, prescribe new application and renewal forms for a salmon dealer's licence and the form of that licence.
- (2) Northern Fisheries Region Bye-Law No. 617, 1981, dated 6th March, 1981, prohibits commercial fishing for salmon or trout in the tidal waters of the River Erne, or its tributary, the Abbey River, during the period 6th March, 1981 to 25th July, 1981.
- (3) South Western Fisheries Region (Annual Close Season for Salmon and Trout) Bye-law No. C. S. 124, 1981, dated 13 March, 1981, provides that the annual close season for fishing for salmon and trout by any method, except by rod and line in that part of the South Western Fisheries Region located between Galley Head and Crow Head, both in Co. Cork, as described in the Bye-law, shall extend from 6 a.m. on the 25th of July to the 14th of March.

- (4) Salmon and Trout Conservation (Amendment) Bye-law No. 618, 1981, dated 13th March, 1981, reduces the weekly close time for commercial salmon fishing from 72 hours to 48 hours. The effect of this Bye-law is to bring back into operation the weekly close time for commercial salmon fishing as prescribed in section 139(1) of the Fisheries (Consolidation) Act, 1959 (No. 14 of 1959), that is, the period commencing at 6.00 a.m. on Saturday and ending at 6 a.m. on the next following Monday.
- (5) Owenmore River (Angling) Bye-law No. 619, 1981, dated 3 April, 1981, prohibits angling for salmon or trout with any lure other than artificial fly on the freshwater portion and in part of the tidal waters of the Owenmore River. It also prohibits having possession of any mounted rod to which is attached any lure other than artificial fly on or near the said waters of that river.
- (6) South Western Fisheries Region Bye-law No. 620, 1981, dated 3rd June, 1981 revokes the Bye-laws which prohibited drift netting for salmon in the tidal waters of most of the Kerry Fishery District (now part of the South Western Fisheries Region). Drift netting for salmon in the following waters of that District is still however prohibited:—
- (a) east of a straight line drawn from Bull's Head to Kells Bay (part of Dingle Bay),
 - (b) north of a straight line drawn from Bolus Head to Hog's Head (Ballinaskelligs Bay) and
 - (c) east of a straight line drawn from Lamb's Head to Cod's Head (the whole of Kenmare River).
- (7) North Western Fisheries Region Bye-law No. 621, 1981, dated 17th June, 1981 prohibits the throwing of stones or other missiles into the water of any river or lake in the No.11 or Ballina District and into the tidal waters of the said District.
- (8) Drift Nets for Salmon or Trout (Maximum Length) (Amendment) Bye-law No.622, 1981, dated 17 June, 1981, extends the maximum length of drift net which may be used in fishing for salmon in the waters of the North Western Fisheries Region (except in Blacksod Bay and the inlets thereof where the said length will continue to be 549 metres (600 yards) to 1,372 metres (1500 yards). The maximum length of drift net which may be used in a large part of Donegal Bay viz., east of a straight line drawn from St. John's Point, Co. Donegal, to Mullaghmore Head, Co. Sligo remains at 732 metres (800 yards). The Bye-law also provides for the conversion from imperial measurements to metric measurements of the lengths of drift nets set out in the First Schedule to the Drift Nets for Salmon or Trout Fishing (Maximum length) Bye-law No. 572, 1975. In carrying out the conversion the metric measurements have been rounded upwards to the nearest metre. The following are the metric measurements

inserted in the First Schedule to Bye-law 572 of 1975 and their appropriate imperial equivalents:—

Metric Measurements	Appropriate Imperial Measurements
220 metres	240 yards
366 metres	400 yards
183 metres	200 yards
119 metres	130 yards
211 metres	230 yards
549 metres	600 yards

- (9) Salmon and Trout Conservation Bye-law No. 623, 1981 dated 24th June, 1981, defers the commencement date of the annual close season for angling for salmon to 1 October. The change does not affect the position in certain localities of the Dundalk and Wexford Fishery Districts or in the entire Drogheda Fishery District (all of which form part of the Eastern Fisheries Region) or in certain localities of the Waterford Fishery District (part of the Southern Fisheries Region) where the annual close season for angling for salmon or trout or the annual close season for salmon, as appropriate, commences on any date earlier than 1 October. The commencement dates in those localities and in the entire Drogheda Fishery District remain unchanged.
- (10) Salmon and Trout Conservation (No. 2) Bye-law No. 624, 1981, dated 27th July, 1981, defers the commencement dates in 1981 of the annual close season for salmon and trout to:—
- (a) 6 a.m. on 1st August in the South Western, Shannon, Western, North Western and Northern Fisheries Regions except in those areas where the annual close season commences on any date earlier than 19th July, and
- (b) 6 a.m. on 8th August in the Southern Fisheries Region.
- No change is being made in the commencement date (13th August) of the annual close season for salmon and trout in the Eastern Fisheries Region.
- (11) Elections of Members of Regional Fisheries Boards (First Election Year) Order, 1981 (S.I. No. 360 of 1981), dated 16th October, 1981, fixes 1981 as the year in which the elections of members of the regional fisheries boards are first to be held.
- (12) Elections to Regional Fisheries Boards Regulations, 1981 (S.I. No. 361 of 1981), dated 16th October, 1981 (a) specify the day (the third Tuesday in December) in each election year (1982 and every fifth successive year thereafter) on which the elections of members of regional fisheries boards shall be held, (b) make provision for the nomination of different classes of candidates for election as members of regional fisheries boards and for the elec-

tion of such candidates by different classes of electors, and (c) provide for postal nominations and for postal voting at elections of members of regional fisheries boards.

- (13) Fisheries Regional (Amendment) Order, 1981 (S.I. No. 373 of 1981), dated 2nd November, 1981, provides one seat for eel fishermen on the Southern Regional Fisheries Board and increases the overall number of seats on the Board to nineteen.

Foyle Area

- (1) Foyle area (Licensing of Fishing Engines) (Amendment) Regulations, 1981, dated 27th January, 1981, increase the licence duties payable in respect of each type of net used and game fishing licence issued in the Foyle Area.
- (2) Foyle Area (Weekly Close Time) Regulations, 1981 dated 24th April, 1981, prescribe that the weekly close time period on the River Roe, Lough Foyle and the whole of the open sea in the Foyle Area shall be the period commencing at 0500 hours (5 o'clock a.m.) on Friday and ending at 0500 hours (5 o'clock a.m.) on the following Monday instead of 1800 hours (6 o'clock p.m.) on Friday to 1800 hours (6 o'clock p.m.) on the following Monday on the River Roe and from 0600 hours (6 o'clock a.m.) on Saturday until 1800 hours (6 o'clock p.m.) on the following Monday on Lough Foyle and the whole of the open sea in the Foyle Area. These Regulations also prescribe that the weekly close time period on the River Foyle shall run from 0800 hours (6 o'clock a.m.) on Saturday to 0600 hours (6 o'clock a.m.) on the following Tuesday instead of 0600 hours (6 o'clock a.m.) on Saturday to 1800 hours (6 o'clock p.m.) on the following Monday.
- (3) Foyle Area (Close Season) Regulations, 1981, dated 24th April, 1981 extend the annual close season during which the taking of salmon or trout except with rod and line, is prohibited. The previous period ran from 1st September until the Sunday immediately preceding the seventh Monday after 1st May in the following year. The revised period begins on 1st September and ends on the Sunday immediately preceding the eighth Monday after 1st May in the following year.
- (4) Foyle Area (Control of Netting) Regulations, 1981 dated 29th May, 1981, replace the Foyle Area (Control of Netting) Regulations, 1966 and the Foyle Area (Control of Netting) (Amendment) Regulations, 1970 which controlled and restricted both draft and drift netting in the Foyle Area. They introduced further measures to conserve salmon stocks by extending to the open sea the prohibition of daylight drift netting in Lough Foyle. Such fishing is now prohibited in Lough Foyle and seaward thereof between 0500 hours (5 o'clock a.m.) and 1700 hours (5 o'clock p.m.). They also provide that a draft net shall not be carried on any boat in the Foyle Area during the weekly close time. Under the previous Control of Netting Regulations it was prohibited to carry a draft net or a drift net on a boat in the Foyle Area during the weekly close time.

- (5) Foyle Area (Salmon Dealers Licences) (Londonderry Area) Regulations, 1981, dated 30th December, 1981, increase the fee for a salmon dealer's licence in the Northern Ireland part of the Foyle Area (or the Londonderry Area) from £1 stg. to £20 stg. The fee for a similar licence in the Republic of Ireland part of the Foyle Area (or the Merville Area) is already IR£25, this amount being fixed by the Minister for Fisheries and Forestry.

APPENDIX No. 23

Output and Disposal of Fish Hatchery Produce 1980/81

Hatchery	Output (ova)			Disposal (000)	River System Stocked
	Salmon (000)	Sea Trout (000)	Brown Trout (000)		
Carrigadrohid	963	—	—	102 Eyed Ova 102 Eyed Ova 52 Eyed Ova 101 Eyed Ova 124 Fingerlings 231 Smolts	Cork District Waterford District Kenmare Waterville Rivers Bride, Shournagh, Liffey River Lee below Inniscarra Dam
Parteen	1,419	—	—	120 Eyed Ova 52 Unfed Fry 584 Fingerlings 3 Pre Smolts 188 Smolts	Mulcair, Liffey Athloony River Rivers Mulcair, Suck, Inny, Kilcrow, L/Brosna, B/Brosna and Silver River Mulcair Rivers Suck, Inney, Silver River, L/Brosna, Kilcrow, B/Brosna, Shannon below Parteen
Cong	400	12	—	15 Salmon Ova	Not stocked to date
Fanure (Roscrea)	100	—	510 510	2 Ova 8 Ova 250 Fry 17 Fingerlings 121 Fingerlings	Retained in Hatchery Various Central Board waters in Cos. Cavan, Westmeath, Longford, Roscommon and Mayo and Angling Interests Retained
Cullion (Mullingar)	50	—	660	22 Ova 30 Ova 118 Fry 120 Summerlings 236 Fingerlings	Retained in Hatchery Various Central Board waters in Cos. Cavan, Longford, Roscommon and Mayo and Angling Interests Retained
Carrowmore Lake Incubating Unit	105	—	—	5 Ova 10 Ova 76 Ova	Upper Glencullen River Owininny River Altanabrocky River
Clenties	136	—	—	10 Ova 30 Ova 30 Ova 36 Ova 20 Ova 10 Ova	Owenea River Gweebarra Anglers Rosses Anglers Lennon Anglers Ardara Anglers Buncrana Anglers

Hatchery	Output (ova)			Disposal (000)	River System Stocked
	Salmon (000)	Sea Trout (000)	Brown Trout (000)		
Salmon Research Trust	116	—	—	50 Ova 20 Ova	Curraun Fisheries Cong Hatchery
Mallow	120	—	—	30 Ova 20 Ova 20 Ova 20 Ova 10 Ova	River Douglas River Awbeg River Bride River Funcheon River Araglin
Virginia	290	—	—	135 Fingerlings 45 Parrs 45 Smolts 30 Ova	Boyne Boyne Boyne Retained
Inistioge	200	—	—	130 Ova 70 Ova	Barrow and Nore and Tributaries Suir

APPENDIX No. 24

Scientific and Other Papers

DEPARTMENTAL

A. IRISH FISHERIES INVESTIGATIONS

Series A (Freshwater)

19. E. Fahy. Sea trout from the tidal waters of the River Moy.
20. M. A. O'Connor and J. J. Bracken. An investigation of the chemical and biological effects of pollution in the River Tolka.
21. J. P. K. Horkan. A list of Rotatoria known to occur in Ireland with notes on their habitats and distribution.
22. M. F. O'Grady. Some direct gillnet selectivity tests for brown trout *Salmo Trutta L populations*.

Series B (Marine)

22. A. J. M. Walker and E. I. S. Rees. Benthic ecology of Dublin Bay in relation to sludge dumping: Fauna.
23. J. M. Baker, S. Hiscock, K. Hiscock, D. Levell, G. Bishop, M. Precous, R. Collinson, R. Kingsbury, A. J. O'Sullivan. The rocky shore biology of Bantry Bay: a re-survey.

B. FISHERY LEAFLETS

106. D. de G. Griffith. Mulroy Bay, Scallop Research.
107. J. Molloy and A. Cullen. The fat content of Irish herring.
108. E. Fahy. The sea trout year 1980.
109. C. Moriarty. Prospects for the development of the Irish eel fishery.
111. J. Molloy. Some comments on the management of the Irish mackerel fishery.
112. J. Browne and P. Gallagher. Population estimates of juvenile salmonids in the Corrib system 1980.
113. E. Fahy. A review of the national sea trout catch.
114. J. Browne. First results from a new method of tagging salmon—the coded wire tag.

C. FISHERIES BULLETIN

1. D. Minchin. The scallop *Pecten maximus* in Mulroy Bay.
2. E. Fahy. Sea trout and their fisheries from the Dublin fishery district.
3. E. Fahy. The Wexford commercial sea bass *Dicentrarchus labrax* (L) fishery.

OTHER PUBLICATIONS

- R. J. R. Grainger and J. Woodlock. Sprat egg surveys off the south coast of Ireland in 1980. ICES CM 1981 H: 43.
- R. J. R. Grainger and A. Cullen. The distribution and abundance of herring larvae to the south of Ireland in 1980/81. ICES CM 1981 H: 44.
- J. P. Hillis and E. Fannon. The role of cod as a producer on *Nephrops norvegicus* in the western Irish Sea. ICES CM 1981 G: 55.
- J. P. Hillis. Further investigations into the ageing of gadoid fish by whole otoliths. ICES CM 1981 G: 56.
- J. P. Hillis. Assessing the rate of discarding commercial species at sea where the total weight of discards is unknown. ICES CM 1981 G: 57.
- J. P. Hillis. Maturity in male *Nephrops norvegicus*: A study in secondary sexual characters. ICES CM 1981 K:22.
- J. P. Hillis. Further studies on catch, landings and discarding in *Nephrops*. ICES CM 1981 K: 23.

