

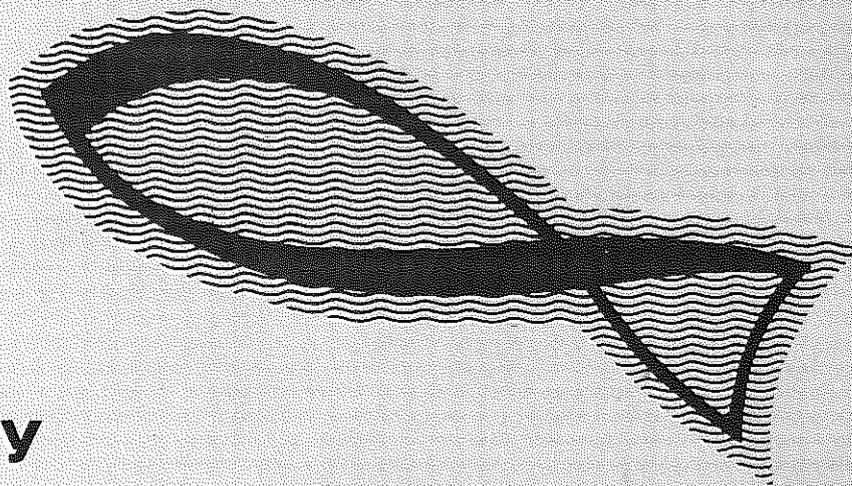
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**THE ZOOGEOGRAPHY OF  
SOME FISHES IN IRISH  
WATERS**



**by  
Arthur E.J. Went**

**Department of Fisheries  
Trade and Information Section  
Dublin 2**

THE ZOOGEOGRAPHY OF SOME FISHES IN IRISH WATERS

BY

ARTHUR E J WENT.

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Trinity College, Dublin on 16 March 1978).

INTRODUCTION.

Some thirty years ago the then Fisheries Branch of the Department of Agriculture decided to give rewards for specimens of rare or interesting species of fish sent for examination. This coupled with the enlightened attitude of Irish fishermen to their catches in recent years, has provided valuable information about the rarer species of fishes found in Irish waters. Even so information is still lacking on many species because normal fishing methods are not really geared to their capture. This is so with many of the smaller members of the fish fauna, and, particularly, those which live in rocky areas where normal fishing is not practised. The advent of skin-diving, however, is likely to improve knowledge of many such species, so that in the near future it may be necessary to revise drastically current views as to the abundance and distribution of many such species of fishes known to frequent Irish waters.

The term rare used in relation to a species of fish usually means merely that it has been rarely recorded. It is particularly fortunate that in the past thirty years in one important area of the Irish coasts, namely Dingle Bay, which is open to the currents coming from warmer areas in the Atlantic, Mr. Michael Long of Dingle, Co. Kerry has made himself responsible for collecting specimens of interesting species of fishes taken by local fishermen. Due to these much-appreciated efforts on the part of Mr Long a good knowledge of the species taken in the Dingle Bay (Kerry) area is now available

A difficulty is experienced with commercial fishing in that small specimens of fishes are often ignored. Bearing all this in mind, a large body of information on the zoogeography of Irish fishes has been built up. A List of Irish Fishes

(Went, 1957A) was published by the National Museum, in time for the meeting in Dublin of the British Association in 1957 it was recognised from the beginning that this List had many defects. It was modelled, in most respects, on J. R. Norman's section on Fishes in the British Museum's List of British Vertebrates, published in 1935. In one respect, however, the 1957 List differed from Norman's in that it restricted information to that obtained from within the 100 fathoms line, whereas Norman included all species taken off the coasts of Great Britain and Ireland, irrespective of the depth of capture. Second and third editions of the List were produced by Went and Kennedy in 1969 and 1976. These lists revised the nomenclature and gave modern scientific names to those species of fishes genuinely identified within the Irish 100 fathoms line, together with detailed references to the capture of specimens of rare fishes.

FRESHWATER FISHES

In the freshwater field the distribution/<sup>of</sup> certain species has been greatly influenced by transfers of fish into and within Ireland.

Most unpolluted waters in Ireland contain trout and eels and a high proportion of rivers hold salmon and often sea trout also, so little need be said about these species.

Tate Regan (1911) identified six "species" of Irish char but to-day all Irish char are considered to belong to one species, Salvelinus alpinus. The zoogeography of Irish char has already been described in detail by Went (1971). Since 1930, specimens of char have been identified from the following locations - (Went, 1971).

County Clare: Loughs Cloonsnaghta, Gortglass and Lickeen,

County Donegal: Loughs Esk, Fad (Meendoran) Fad (Moville) Finn, Kindrum, Melvin and Sessiagh.

County Galway: Loughs Ballinahinch, Corrib, Fee, Glenicmurrin, Inagh, Kylemore and Shindilla.

County Kerry: Loughs Cloonee, Coomasaharn, Currane, Inchiquin and the Killarney Lakes.

County Longford: Lough-na-Brack.

County Mayo: Loughs Conn, Dhulough, Mask and Nafooey.

County Wicklow: Lough Dan.

Specimens taken before 1930 have been preserved in different museums (Went, 1971) as follows:-

County Donegal: Lough Derg.

County Galway: Lough Derryneen and Glendalough.

County Mayo: Glenawough Lough.

County Kerry: Loughs Acoose and Iskanamacteary and Currane River.

County Westmeath: Loughs Ennell and Owel.

County Wicklow: Luggala Lough (Lough Tay).

Char have also been reported in the literature from other waters but specimens have not been preserved. In many of these waters char are now almost certainly extinct (Went, 1971). One further comment might be made about the distribution of char. For a long period char were not caught in some waters. For example, no char were taken from Lough Corrib for many years and suddenly several specimens were taken on rod and line. When pike removal operations were in progress on Loughs Conn and Mask numerous char were found in pike stomachs. Perhaps the most outstanding case is the char of Lough Finn at the head of the River Finn in County Donegal. Only two specimens, taken in 1906 and 1910 were known until February/March 1976 when no less than 35 specimens of char were taken by netting (Ferguson, 1977). White-fishes or pollan (Corcgonus albula) are represented in Ireland. Tate Regan (1908) identified three sub-species as follows:-

C. pollan pollan from Lough Neagh

C. pollan altior from Lough Erne and

C. pollan elegans from the Shannon lakes.

A number of species of Cyprinidae occur in Irish waters.

The rudd (Scardinius erythrophthalmus) and bream (Abramis brama) are widely distributed, particularly in the limestone regions of Ireland. The gudgeon (Gobio gobio) and minnow (Phoxinus phoxinus) are common locally and the distribution of the latter is expanding, often by transfers by man. As regards the dace (Leuciscus leuciscus) it is known that this was introduced into the Cork Blackwater, its only Irish location, in the year 1889 (Went, 1946, a). At the same time the roach (Rutilus rutilus) was also introduced into the Cork Blackwater. Some years ago roach were identified from the Fairywater, a tributary of the River Mourne (Co Tyrone). It is thought that they reached the Fairywater through the breaking of a dam in the Baronscourt Demesne and the thereby releasing roach from an ornamental pond. Since that time roach have appeared in the Erne and Shannon (Fitzmaurice 1974) almost certainly due to transfers by anglers. Hybrids of rudd and bream are known from many waters, as are hybrids of rudd with roach and rudd with bream (Kennedy and Fitzmaurice 1973).

Only one species of loach, the stone loach, (Noemacheilus barbutulus), has been identified from Irish waters.

Carp (Cyprinus carpio) and the tench (Tinca tinca) were first introduced into Ireland in the seventeenth century (Went, 1946A) Carp are now common in the Lough in Cork city and tench are common locally in the Shannon and Barrow systems. The two species of sticklebacks, (Gasterosteus aculeatus) and (Pungitius pungitius) are also widespread in Irish waters. Of the remaining two freshwater fishes, the pike (Esox lucius) is known to have been introduced after the thirteenth century into Irish waters. Since that time the pike has spread into most of the limestone waters in Ireland. (Went, 1957 b). The perch (Perca fluviatilis) is a common species, widespread in Irish waters; they may also have been spread by man's activities but no clear information is available on the subject.

Although not fishes in the normal sense of that term three species of lampreys, the sea lamprey (Petromyzon marinus) the lampern or river lamprey (Lampetra fluviatilis) and the brook or Plener's lamprey (Lampetra planeri) are all well known. The brook lamprey is fairly widespread, much more than most people would believe. It is to be found in many small streams particularly in the limestone regions of Ireland. Less is known

of the river lamprey because there is no fishery for them in Ireland. The sea lamprey comes in from the open sea in varying numbers to spawn in the lower waters of some of the larger rivers and non-migratory populations have been recorded by workers of the Inland Fisheries Trust during their development work in Loughs Conn and Corrib and the reservoirs on the River Lee.

#### MARINE FISHES

On the marine side it is known that some species are well, if not uniformly distributed, in Irish waters. Some dog-fishes and rays, herrings, sprats, conger eel, cod, haddock, hake, ling, whiting, coalfish, pollock, mackerel, gurnards, turbot, brill, megrims, dab, plaice, lemon sole, witch, flounder and sole are common, so there is no need to discuss their zoogeography here. It is proposed, therefore, to consider the distribution of only the rarer species of marine fishes.

The hag-fish (Myzine glutinosa) has been recorded only on two occasions from Dalkey, Co. Dublin and Carrickfergus, Co Antrim.

The scarce six-gilled shark (Hexanchus griseus) has been recorded occasionally on the south and south-west coasts and once from Achill. It reaches large dimensions and a 154 lb (C. 70 Kg) specimen was taken on rod and line at Kinsale in 1968. Another shark, the mako (Isurus oxyrinchus) which may have been mistaken on occasion for the commoner porbeagle shark (Lamna nasus), has been taken twice at Kinsale Co. Cork in 1965 and 1969.

Another small shark-like fish, the black-mouthed dogfish (Galeus melastomus) has been taken from various parts of Dingle Bay in recent years, a specimen having been first identified from Irish waters at Portrush in 1839. The blue shark (Prionace glauca) is common on the south and south-west coasts but it has seldom been taken on the other Irish coasts. A single specimen of a shark-like fish Oxynotus paradoxus, which has no common name, was taken at Sybil Head, Co. Kerry in 1967. The spinous or bramble shark (Echinorhinus brucus) has only been recorded from Skerries, Co. Dublin in 1882 and Galway Bay in 1885.

Electric rays (Torpedo nobiliana) are occasionally captured along the south and west coasts, single specimens being recorded from Killybegs, Co Donegal (in 1967) and the Irish Sea (in 1976). Most of the other rays and skates are fairly common along the Irish coasts but some species are local in distribution. The undulate ray (Raja undulata) appears to be highly localised in Dingle, Brandon and Tralee Bays in the south-west of Ireland. Specimens of the sandy ray (Raja circularis) have so far only been recorded from the Dublin, Cork Harbour and south-west coasts. Although five adult specimens of the Shagreen ray (Raja fullonica) have been recorded from Portrush, Co. Derry the Irish Sea, off the Skelligs, Co. Kerry and Dingle Bay, juvenile specimens have been identified from Dingle Bay with numerous specimens off Ballycotton, Co Cork and Valentia, Co. Kerry. The white skate (Raja alba) is also local in distribution in Dingle, Tralee, Liscannor, Galway and Clew Bays. Essentially a deep water species the long-nosed skate (Raja oxyrinchus) has only once been recorded in Irish waters at Annalong, Co. Down, in 1851. Sting rays (Dasyatis pastinaca) are occasionally taken on the south and south-west coasts but not elsewhere. The eagle ray (Myliobatis aquila) and the horned-ray or devil-fish (Mobula mobular) are both southern species. The former has been taken four times only at Timoleague, Co Cork, off the Fastnet, at Ardfry, Co. Galway and at Magilligan Bay, Co. Derry, and the latter only once along the south coast about the year 1830.

#### TELEOSTS (BONY FISH).

In the deep waters off the south-west and west coasts there is an abundant fish fauna. Included are the rabbit-fish (Chimaera monstrosa), the grenadier fish (Malacocephalus laevis), the great silver smelt (Argentina silus). The rabbit-fish has been recorded from within the 100 fathoms line on four occasions, twice in Dingle Bay, once from the North Sound in Galway Bay and once off Tory Island, Co. Donegal. Only two specimens of the grenadier fish, both from Dingle Bay, have been recorded so far. In recent years the great silver smelt has been taken fairly frequently within the 100 fathoms line off the south west coast.

Another interesting deep water species, the darkie charley (Dalutias licha),

has only been recorded twice, <sup>one</sup> in Dingle Bay in August 1976 and the second at Killybegs, Co. Donegal in October of the same year.

Occasional specimens of sturgeon (Acipenser sturio) mostly from the south coast, have been taken in recent years. This species does not seem to have changed much in status over the centuries, as is shown in a paper on the historical aspects of the fish. (Went 1948).

Two species of shad, the allis shad (Alosa alosa) and the twaite shad (Alosa fallax) are known from Irish waters. The former is rare in fresh water in Ireland but there are sporadic records from estuaries and from the sea off the south west, north west and north coasts. On the other hand, the twaite shad is common in the estuaries of the Rivers Slaney, Suir, Nore, Barrow, and Cork Blackwater, but only occurs sporadically elsewhere. A land-locked form of the twaite shad (A. fallax Killariensis) is to be found only in the Lakes of Killarney. (Trewavas, 1938).

Pilchards are common in some years, especially on the south and south-west coasts, and on occasion, large quantities have been taken in the mistaken belief that they were herring. The story of the pilchard fishery in Ireland has already been told elsewhere (Went, 1946 b). Although the anchovy is very plentiful along the French coasts it has only been recorded from Dingle Bay, Kinsale Harbour, and the estuary of the Castletown River in Co. Louth. The pearlside (Maurolicus muelleri) abundant in deep water, is rare in the shallower waters around Ireland and has only been recorded three times, twice from the south-west coast and once from the Irish Sea.

The smelt (Osmerus eperlanus) because of its distinctive smell could hardly have been missed if it were a common member of the Irish fish fauna. However, it has only been recorded from three localities, the estuaries of the Shannon, Fergus and Foyle (Kennedy, 1948 and Vickers, 1974) and from the stomach contents of a cormorant (Phalacrocorax carbo) in June 1969 (Westetal, 1975) .

Flying fish, probably of the species Cyselurus peterurus, have only been reported from the Cork/Waterford coasts. Only one specimen of the trumpet fish or snipe-fish

(Macrorhamphosus scotopax) has so far been recorded, the locality not being given.

The exact status of some members of the Syngnathidae or pipe-fishes is doubtful.

The ocean pipe fish (Entelurus acquoreus) is probably not uncommon at some distance from the shore on the south, west and north coasts. With disappearance of the

Zostera beds, the broad-nosed pipefish (Syngnathus typhle) is probably now scarce,

although in former days according to Holt (1891), it was very common in Clew and Blackso

Bays. Seven specimens of the true sea horse (Hippocampus ramulosus) have been

recorded to date from Ardmore Bay, Co. Waterford, Co. Cork, Youghal, the Cliffs

of Moher, Co. Clare, Whitehead Bay, Co. Antrim, Belfast Bay (2) and Dublin Bay.

This species is quite common in the warmer waters well to the south of Ireland and

it is surprising that more have not been recorded.

Of the Gadidae, or "cod-fishes", the torsk (Brosme brosme) has only been recorded

on five occasions, four from the Achill area and one from Kinsale. It is a

northern species, sufficiently abundant further north to be a commercial source

of fish fillets. Although the ling (Molva molva) is a common species in Irish

waters, the Mediterranean ling (Molva macrophthalma), a more southern species,

has only been recorded on three occasions from Dingle Bay. Of the rockling, the

northern rockling (Ciliata septentrionalis) has been recorded only twice, as adults,

from Baltimore, Co. Cork and Meveenish Bay, Co. Galway. A young palagic specimen

was also taken off the Labadie Bank to the south of Ireland. The greater fork-beard

(Phycis blennoides) is occasionally captured, sometimes in very large number

particularly in the Dingle Bay area (O'Riordan, 1961).

Opah or moonfish (Lampris guttatus) have been recorded thirteen times at localities

on all coasts. Deal-fish (Trachipterus arcticus) have been recorded, twice from

Dingle Bay and once each off Caherciveen, Co Kerry, the Stags of Broadhaven, Co Mayo,

Inishmurray, Co. Sligo, Bundoran, Co. Donegal, and Tory Island, Co Donegal.

At one time the boar-fish (Capros aper) was believed to be rare in Irish waters,

whereas in recent years fair numbers have been taken annually, particularly from

the south-west coasts. This is a southern species which obviously reaches the

Irish coasts via the warmer currents moving northwards.

The comber (Serranus cabrilla) has only been recorded twice from Irish waters at Ballycotton and Dingle Bay. An interesting species the stone basse, often called the wreck-fish, (Polyprion americanus) has been recorded occasionally from the south and south-west coasts where it has usually been found associated with floating objects, hence its alternative name wreck-fish. An interesting note about the capture of a stone basse in August 1950 came from the skipper of the M.F.V. Hidden Treasure (Went, 1950).

Other specimens were reported "following floating wreck timber with barnacles" (Andrews, 1855), "trapped in floating meal barrel" (Andrews, 1855), "taken from floating box "Want 1968) and "floating container with Lepas attached" (Roberts, 1977). Roberts (1977) has recently reviewed the number of Irish records.

A closely related species, the dusky perch (Epinephalus guaza) has only been recorded once from Irish Waters - the Gregory Sound off the Aran Islands in 1955. (Healy 1956).

Pilot-fish (Naucrates ductor) are well known over a wide area as accompanying large sharks and the species has been recorded on a number of occasions along the south and south-west coasts, once off County Dublin and once off Inishowen Head, Co. Donegal. A closely related species the bluefish (Pomatomus saltatrix) has only been recorded once, at Ballycotton, Co Cork (Cross and Lyes 1974). Thirty years ago Ray's bream (Brama brama) were regarded, if not rare, as scarce in Irish waters. Since that time they have been recorded on numerous occasions along the south and south-west coasts with single specimens from the Clare coast northwards to Lough Swilly and Belfast Lough. In 1975 they were so numerous that supplies were sent to Dublin where they were sold in retail shops as Silver bream. The long-finned bream (Tavactes longipinnis) has only been recorded once, off Valentia Island, Co. Kerry in 1914 (Scharff 1915).

Specimens of the meagre (Argyrosomus regium) were taken at Passage West, Co. Cork and Annagassan, Co. Louth, last century, but none have been recorded since. A single

specimen of the dentex (Dentex dentex) was recorded from Dingle Bay in 1903. Five specimens of the bogue (Boops boops) have been recorded since 1959, four in the Dingle Bay area and one at Kinsale. A single specimen of pandora (Pagellus erythrinus) was recorded from Dingle Bay in 1889. Although an upper jaw only of the gilthead (Sparus aurata) was obtained from Bantry Bay in 1897, the only complete specimen recorded was from Ardmore, Co. Waterford, in 1972.

Red-band-fish or red-snake-fish (Cepola rubescens) have been recorded from all coasts except the north. They live in burrows in the muddy/sandy substratum. These burrows are apparently often destroyed by heavy storms with the result that afterwards the species may be taken in quantity by small meshed nets. Earlier regarded as rare, they are now known to be quite abundant in localised areas.

Of the wrasses two species have been rarely recorded. The rainbow wrasse (Coris julis) is known from one specimen in the Museum of University College, Galway, but eggs have been recorded from Achill Co. Mayo and Inver, Co. Donegal. A second species, the rock cook or small-mouth wrasse (Centrolabrus exoletus) is known from the Galway coasts, off Lough Foyle, Co Derry and at Carnlough, Co. Antrim. Its status requires further investigation because a number of juvenile specimens were recorded by Dunne (1972) from Meenish and Kilkieran Bays, Co Galway. Two species of weever, Trachinus draco and T. vipera have been recorded from the Irish coasts, the former occasionally on the south and south-west coasts and the latter around most of the Irish coastline.

The hair tail (Trichiurus lepturus) has been recorded from Dingle, Brandon and Tralee Bays, Co Kerry. There is some doubt as to the number of specimens, which, however, probably did not exceed six in all. A closely related species the frost-fish or seabard fish (Lepidopus caudatus) has been recorded only once from Dublin Bay.

Mackerel (Scomber scomber) are, of course, exceedingly common in Irish waters but on several occasions the more southern species, the Spanish mackerel (S. colias) had been recorded. There are considerable doubts as to the identity of the earlier

Spanish mackerel referred to in the literature but from 1967 onwards five specimens have been definitely identified, four from Dingle Bay and one from Brandon Creek, Co. Kerry. The plain bonito or frigate mackerel (Auxis thazard) has only been recorded twice, once from Ballycotton, Co. Cork and once from Killybegs, Co. Donegal. Tunas or tunny fish are exploited commercially well to the south of the Irish coasts but only a few specimens of the abacore or long-finned tunny (Thunnus alalunga), the oceanic bonito (Katsumonus pelamis) and the bonito (Sarda sarda) have been recorded from Irish waters. The albacore has been recorded off Wexford, Brandon Creek, Co. Kerry and Achill, Co. Mayo within the 100 fathoms line. Three other specimens were reported as having been taken "50 miles due west of the Blaskets" in 1976 (Minchin and Molloy 1978). These specimens would not have qualified for the List of Irish fishes as they were taken well outside the 100 fathoms line.

Oceanic bonito have been recorded from Wexford, Waterford Harbour, Ardmore, Co. Waterford Head, Helvick /Co. Waterford. Cork Harbour, Off Kinsale, Co. Cork (2) and Clifden, Co. Galway. Bonito have been recorded from Howth, Co. Dublin Wexford, Ballycotton, Co Cork Cork Harbour, Courtmacsherry, Co. Cork Fenit, Co Kerry Achill, Co. Mayo Broadhaven, Co. Mayo Killala Bay and off Killybegs. Ireland is probably close to the northern extremity of the range of some "tuna" species as regards waters of 100 fathoms or less in depth.

The Louvar (Luvarus imperialis), probably a rare species over most of its range, has been recorded twice from Irish waters, both occasions off the coast of west Cork. Swordfish are not uncommon in parts of the Meditteranean and the warmer waters of the Atlantic and they are much sought after by anglers. Only two specimens of the swordfish (Xiphias gladius) have been recorded from Irish waters off Wexford and in Bantry Bay, Co. Cork.

A number of species of gobies are known from Irish waters but their status requires investigation. For example, limited numbers of the leopard spotted goby (Thorogobius ehippiatus) have been recorded but in recent years it has been seen frequently by Scuba divers, particularly in the Galway/Mayo area. Similarly the status of Gobius creuntatus, of which specimens have been recorded from Lough Ine, Co. Cork and Bantry Bay, Co. Cork and the deep-water goby (Pomatoschistus norvegicus),

which has been identified from Galway Bay, certainly deserve further attention, particularly from experienced Scuba divers.

Three species of dragonets are known from Irish waters, one Callionymus lyra, being quite common. The second species, the spotted dragonet (C. maculatus) is not often recorded but its eggs are of common occurrence on the south and west coasts. The third species, the reticulated dragonet (C. reticulatus) has only been recorded twice, once for the Irish Sea and once from Meveenish Bay, Co. Galway.

Of the blennies, the butterfly blenny (Blennius ocellaris) has been recorded on a few occasions, once from near the Coningbeg Lightship off Co Wexford and at Toormore, Co. Cork, and on a number of occasions in the Galway/Mayo area. A second blenny, Yarrell's blenny (Chirolophis ascanii) has been recorded from Dalkey, Co. Dublin Dingle Bay, Co. Kerry Roundstone, Co. Galway, Portush, Co Derry, Rathlin Island, and Carrick-fergus, Co. Antrim. The status of these two species certainly deserves further attention as they may well be more common than the number of records would suggest.

A good example of the danger of taking the number of records as a true indication of the abundance of a species is afforded by the snake blenny (Lumpenus lampraeformis). This rare northern blenny had only been recorded three times previous to 1960, in all cases from the Irish Sea. On 1 June 1960, whilst on board L.T. Cu Feasa the Irish fisheries research vessel, the author noticed a large specimen of the Dublin Bay prawn, Nephrops norvegicus, with a specimen of the snake blenny in its claws. Knowing of the few previous records the specimen was carefully preserved. Attention having been drawn to the species, during the same month the same vessel recorded no less than 23 additional specimens. Wheller and Edwards (1971) give details of specimens taken off Bennett's Bank, Dublin Bay, in 1970. Subsequent investigations have shown this species to be quite common in parts of the Irish Sea but it has not been recorded from other areas of the Irish coasts to date. L. lampraeformis is a thin fish and probably escapes from all but small meshed nets such as used in the Dublin Bay prawn and sand eel fisheries. Only one specimen of the eel pout or viviparous flenny (Zoarces viviparus) has been recorded to date (from

Donaghadee, Co. Down). Pearlfish (Echiodon drummondi) have been recorded as adults on six occasions, from Valentia Harbour, and one each from Dingle Bay, the Blasket Sound, Co Kerry and Carnlough, Co. Antrim, but post larvae have been taken also along the Cork/Kerry coasts.

Blackfish (Centrolophus niger) have been recorded from the south, south-west, west and north coasts, but not from the Irish Sea. Two species of barrel-fish, the Portrush barrel-fish (Schedophilus medusophagus) and a second species (Hyperoglyphe perciforma) have both been recorded from Irish waters, on two occasions the first from Portrush, Co. Derry and Doega, Achill, Co Mayo and the second from Dingle Bay and the Aran Islands, off Galway Bay.

An interesting account of the capture of H. perciforma was recorded by Holt and Byrne (1903), which shows that very large numbers were present when the account was written.

The thick-lipped grey mullet (Crenimugis labrosus) is very common in the sea and brackish waters but the closely related thin-lipped mullet (Liza ramada) has only been recorded once from Meelick Lake, Killala, Co. Mayo (Kennedy and Fitzmaurice 1972). The species may, however, be much more common than this single record would suggest and further investigation of mullet are needed to settle the status of the thin-lipped species.

Scharff first pointed out that specimens originally identified as Sebastes marinus were, in fact, the closely related species, the bluemouth (Melicolenus dactylopterus). The bluemouth has been recorded from the south and south-west coasts with a single record from Killybegs, Co. Donegal.

The true red-fish or Norway haddock (Sabastes marinus) has been recorded on four occasions only, all from Dingle Bay. This species is of great importance in more northerly countries where it is the source of "rose-fish" fillets much in demand, for example, in Germany, Scandinavia and the U.S.A. Four out of the five species of gurnard found in Irish waters are fairly common but the streaked gurnard (Trigloporus lastoviza) is only recorded occasionally from the south coast, single specimens having

been obtained also from Galway Bay, off Broadhaven and Belmullet, Co Mayo.

The Norway bullhead (Taurulus lillejeborgi) amongst the sea scorpions is the only rare species, having been recorded only once from Meenish Bay, Co Galway. For a long period Montagues sea snail (Liparis montagui) was thought to be the only Irish species but Wheeler (1962) identified a second species (L. liparis) from the Irish Sea on the Arklow Bank, the Fergus estuary, Co. Clare and the north coast of Ireland. The status of these two species requires systematic investigation.

Of the flatfishes only two have been regarded as rare heretofore. They are the Norway top-knot (Phrynorhombus norvegicus) and Arnoglossus thori, which has no common name. Adult specimens of P. norvegicus have been recorded from Dundrum Bay, Co. Dublin, Strangford Lough, Co. Down and off the coast of County Dublin, but eggs and post larvae of the species have been obtained in large numbers from Dalkey, Co Dublin southwards in the Irish Sea, along the south and south-west coasts and up the west coast to Killeany Bay, Co. Galway. Accordingly the species may be much commoner than the number of records of capture of adults would indicate. A. thori was only recorded on three occasions up to 1970 from Bantry Bay, Co. Cork Ballynakill, Co. Galway, and Killybegs, Co. Donegal. Dunne (1972) states that the species was common in certain localities in Galway Bay and its inlets in 1970 and 1971 and Kennedy (Pers. com.) mentioned that the eggs of the species were obtained in Broadhaven Bay, Co Mayo in 1971. The status of this species also requires investigation.

Only two specimens of the remora or shark sucker (Remora remora) have been recorded one from Dublin Bay and the second in the Ordnance Survey Collections in the National Museum, Dublin. Trigger-fish or file-fish (Balistes carolinensis) were regarded thirty years ago as rare fishes in Irish waters but since that time the species has been recorded many times from Arklow southwards in the Irish Sea and around the Irish coast to Inishowen Head, Co Donegal. Large numbers were reported in 1975 from along the Kerry coast (Wait, in press). The species is well known over a very wide range in the warmer waters of the Atlantic to the south of Ireland. A small number of specimens of the puffer-fish (Lagocephalus lagocephalus) have been recorded from Irish waters, namely at Wexford, Tramore, Ardmore, Co Waterford, Oysterhaven, Co. Cork

Dingle Bay and one other place on the Kerry coast not specified in detail.

Of the two Sunfishes only one, the truncated sunfish (Ranzania laevis) is rare in Irish waters it having been recorded from Wexford, Tramore, Co. Waterford Youghal, Co. Cork Baltimore, Co. Cork and off the Fastnet Lighthouse.

Two species of angler fishes have been identified from Irish waters. Lophius piscatorius is known to be common and, indeed, until recently all angler fish taken in Irish waters were deemed to be of this species. However the second species L. budegassa closely resembles L. piscatorius and may have been confused with it in the past. Fitzmaurice (1976) has shown L. budegassa to be as common as the other species in Dingle Bay and it may be common elsewhere also.

From these notes it will be obvious that further systematic investigations are needed before the status of a number of species can be determine. Consequently the recording of specimens of the critical species is highly desirable and can be achieved by anglers and fishermen generally sending specimens for identification to either the Fisheries Research Centre, Abbotstown, Co. Dublin, or to the National Museum, Dublin. The best thanks of the Department of Fisheries are due to those who have provided information and specimens so that in the past twenty years it has been possible to make notable advances in the knowledge of the zoogeography of Irish fish species.

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