

## **Fish and fisheries in SEA6**

The purpose of this report is to provide an initial assessment of the availability, type and quality of fish resource and commercial fisheries data in SEA6. It consists principally of a list of references in EndNote format which act as an input to the meta-data inventory, and which describe the source of information, its spatial extent, and where they can be found. The list of references is provided in hard copy and in electronic format.

The area covered by SEA6 corresponds to the eastern half of the St George's Channel and Irish Sea. This area is a major proportion of the ICES division VIIa, which is the area generally used for fisheries assessment purposes (Figure 1). Division VIIa extends from 52°N (Pembrokeshire) to 55°N (the North Channel). This review has considered all of this ICES division and, therefore, some of the surveys and data sources referred to include parts of the western Irish Sea (Republic of Ireland) and the north-western Irish Sea (to the north and west of the Isle of Man), which is also included as a part of SEA7.

The purpose of this report is not to describe the extent of fish resources, fisheries activities or the potential implications of oil and gas exploration activities on them. However, the following description provides a brief overview of the major issues that will need to be considered. The main focus of oil and gas exploration activity in the region is in the Eastern Irish Sea, where gas fields in Liverpool Bay and off Morecambe Bay are now well-established. There is also a small gas field in St George's Channel due west of Fishguard, which is currently the subject of exploration activity. The entire region supports valuable fisheries, including demersal fish, pelagic fish and shellfish, and several of these are prosecuted by international fleets, particularly those of the French, Spanish and Belgians. Some of the more important demersal fish landed include flatfish (e.g. plaice and sole), gadoids (e.g. cod and whiting) and elasmobranchs (spurdog, and skates and rays), and these species are typically caught by beam and otter trawlers. The eastern Irish Sea is an important spawning and nursery area for flatfish species, especially plaice and sole, and is the focus of seasonal fisheries. Pelagic species are of lesser importance, although certain

species (e.g. Manx herring) are important. Shellfish are of great importance in SEA6, especially scallops and *Nephrops*. The Isle of Man is the primary ground for both scallop and queen scallop fisheries, and scientists at the Port Erin Marine Laboratory have undertaken much research on both the biology of scallops and the effects of the dredge fisheries. The main fishing ground for *Nephrops* is in the western Irish Sea, and this ground covers the north-west part of SEA6 and the southern-most part of SEA7. There is a second, smaller muddy ground off the coast of Cumbria, and *Nephrops* are also taken here. There are important coastal fisheries for edible crab and lobster off the Welsh coast (e.g. Lley Peninsula and Pembrokeshire).

Biological and fisheries data for SEA6/VIIa are collected by CEFAS (annual beam-trawl survey for the whole of VIIa, young-fish survey data for Morecambe Bay, ichthyoplankton surveys, shellfish surveys) and DEFRA (over-flight and landings data). Several published analyses of these data sets are available without the need for access to the raw data. CEFAS surveys in the area provide the most spatially comprehensive fish resource data sets for SEA6.

Several other organisations are also engaged in fisheries research in the Irish Sea. The Department of Agriculture and Rural Development (DARD) in Northern Ireland has undertaken otter trawl surveys in the Irish Sea since 1991, although their data does not extend as far south as Cardigan Bay. The Marine Institute (Dublin) also have a groundfish survey in the Irish Sea, with most stations in their national waters and comparatively fewer stations (<20) in SEA6. The Fisheries Research Service (Aberdeen) include the northern-most part of the Irish Sea in their groundfish survey off the western coast of Scotland, with only a few (<10) stations in SEA6.

Other organisations that hold data and/or reports pertinent to the fish and fisheries of SEA6 include:

- Port Erin Marine Laboratory (Isle of Man)
- Department of Agriculture, Fisheries and Forestry (Isle of Man Government)
- School of Ocean Sciences (Menai Bridge, University of Wales Bangor)
- Cumbria Sea Fisheries Committee (Carlisle)

- North Western and North Wales Sea Fisheries Committee (University of Lancaster)
- Irish Sea Forum (University of Liverpool)

### Bibliography

The attached list of published and unpublished paper references and sources of useful metadata has been completed according to the request in Section IV – Scope of Services, section 3.2.3. They are presented in alphabetical order. In general, all publications which refer to a scientific journal will be freely available from one of the main marine biological libraries in the UK. More precise details are provided for unpublished reports and working papers which provide useful information but which are not freely available. There are considerable quantities of data for SEA6 which describe the distribution of fish and shellfish species, and the seasonal deployment of commercial fishing fleets. While these can be purchased, it is considered an unnecessary expense as many useful summaries are already available, and for datasets such as commercial fish landing and effort data, regional summaries can be obtained from DEFRA at modest cost.

We have used a 5 point quality scale as advised. Many of the references listed are of high quality and should be used in a description of the fisheries of SEA6. We have not distinguished between those references which present raw data (i.e. in the form of data reports or bubble charts), and those which draw on these raw data to produce more generalised descriptions of resource distribution. Fisheries datasets collected by the marine laboratories have a high level of quality assurance and can be considered to be a reliable source of information. While there are ongoing concerns in relation to the quality of commercial fisheries catch and effort data, there is no other source of such information.

Commercial fisheries data and fish resource information are generally collected on a broad scale, so we have referred to the location of these data in terms of the ICES division in which they occur (Figure 1, and note (d) in the bibliography).

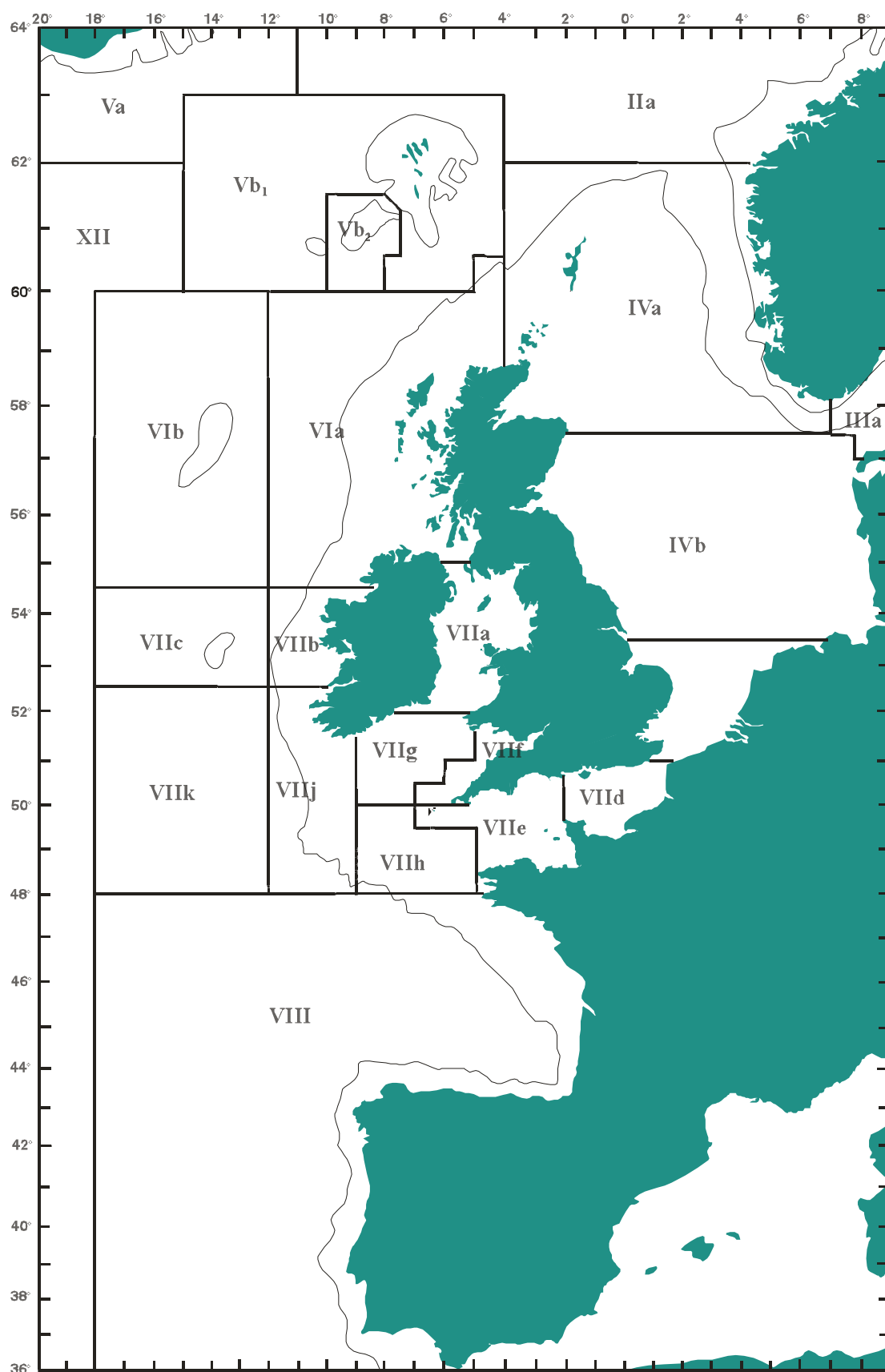


Figure 1: Map of north-western Europe with ICES areas marked. Area SEA6 corresponds with ICES division VIIa.

**Reference Type:** Journal Article

**Record Number:** 368

**Author:** Agnew, DJ

**Year:** 1989

**Title:** The distribution and biology of hake (*Merluccius merluccius*) subject to the Northern Ireland spring fishery

**Journal:** ICES CM

**Volume:** 1989/G:58

**Pages:** 11

**Notes:** a. Available from ICES and CEFAS Library

b. Cost

c. 4

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 372

**Author:** Allison, EH

**Year:** 1994

**Title:** Seasonal growth models for great scallops (*Pecten maximus* (L.)) and queen scallops (*Aequipecten opercularis* (L.))

**Journal:** Journal of Shellfish Research

**Volume:** 13

**Pages:** 555-564

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 351

**Author:** Amezcua, F; Nash RDM

**Year:** 2001

**Title:** Distribution of the order Pleuronectiformes in relation to the sediment type in the North Irish Sea

**Journal:** Journal of Sea Research

**Volume:** 45

**Pages:** 293-301

**Keywords:** Irish Sea, Fishes, Pleuronectiformes, distribution, sediment

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 248

**Author:** Armstrong, MJ

**Year:** 1982

**Title:** The predator-prey relationships of Irish Sea poor-cod (*Trisopterus minutus* L.), pouting (*Trisopterus luscus* L.) and cod (*Gadus morhua* L.)

**Journal:** Journal du Conseil International pour l'Exploration de la Mer

**Volume:** 40

**Issue:** 135-152

**Keywords:** Fishes, Irish Sea, Gadidae, diet, feeding habits

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 267

**Author:** Ball, B; Munday, B; Fox, G

**Year:** 1999

**Title:** The impact of a *Nephrops* otter trawl fishery on the benthos of the Irish Sea

**Journal:** Journal of Shellfish Research

**Volume:** 18

**Pages:** 708

**Keywords:** Irish Sea, *Nephrops*, fishing effects, benthos

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 383

**Author:** Bannister, RCA

**Year:** 1999

**Title:** Dr Walne Memorial Lecture: A review of the shellfish resources and their management.

**Journal:** Proceedings of the thirtieth annual shellfish conference 1999.

**Pages:** 30

**Notes:** a. CEFAS library; Shellfish Association.

b. Free

c. 4

d. UK coast

**Reference Type:** Journal Article

**Record Number:** 365

**Author:** Basimi, RA; Grove, DJ

**Year:** 1985

**Title:** Studies on feeding, growth and production of a recruited inshore population of *Pleuronectes platessa* (L.) at East Anglesey, North Wales

**Journal:** Journal of Fish Biology

**Volume:** 27

**Pages:** 765-783

**Keywords:** Irish Sea, Fishes, Pleuronectiformes, Plaice, diet

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 249  
**Author:** Boon, MJ  
**Year:** 1992  
**Title:** Landings into England and Wales from the UK demersal fisheries of the Irish Sea and Western Approaches, 1979-1990  
**Journal:** MAFF Fisheries Research Data Report  
**Volume:** 26  
**Pages:** 37pp  
**Keywords:** Irish Sea, Bristol Channel, English Channel, Celtic Sea, fisheries  
**Notes:** a. CEFAS Library  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 268  
**Author:** Bradshaw, C; Veale, LO; Hill, AS; Brand, AR  
**Year:** 1999  
**Title:** The effect of scallop dredging on Irish Sea benthos: experiments using a closed area  
**Journal:** Journal of Shellfish Research  
**Volume:** 18  
**Pages:** 709  
**Keywords:** Irish Sea, Mollusca, fishing effects, benthos, closed area  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 4  
d. ICES area VII a

**Reference Type:** Book Section  
**Record Number:** 371  
**Author:** Brand, AR; Allison, EH  
**Year:** 1994  
**Title:** Estimating abundance on North Irish Sea scallop, *Pecten maximus* (L.), fishing grounds  
**Editor:** Bourne, NF; Bunting, BL; Townsend, LD  
**Book Title:** Proceedings of the 9th International Pectinid Workshop, Nanaimo, B.C., Canada, April 22-27, 1993. Volume 2.  
**Publisher:** Canadian technical report of fisheries and aquatic sciences  
**Volume:** 1994  
**Pages:** 121-130  
**Notes:** a. Held at CEFAS Library  
b. Free  
c. 4  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 279  
**Author:** Brand, AR; Paul, JD; Hoogesteger, JN  
**Year:** 1980

**Title:** Spat settlement of the scallops *Chlamys opercularis* (L.) and *Pecten maximus* (L.) on artificial collectors

**Journal:** Journal of the Marine Biological Association of the United Kingdom

**Volume:** 60

**Pages:** 379-390

**Keywords:** Irish Sea, Mollusca, settlement, Cellaria, biogenic

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 250

**Author:** Brander, KM

**Year:** 1977

**Title:** The management of Irish Sea fisheries - a review

**Journal:** MAFF Laboratory Leaflet

**Volume:** 36

**Pages:** 40pp

**Notes:** a. CEFAS Library

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 366

**Author:** Brander, KM

**Year:** 1980

**Title:** Fisheries management and conservation in the Irish Sea.

**Journal:** Helgolander Meeresuntersuchungen

**Volume:** 33

**Pages:** 687-699

**Keywords:** Irish Sea, fisheries

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 251

**Author:** Brander, KM

**Year:** 1981

**Title:** Disappearance of the common skate *Raia batis* from the Irish Sea

**Journal:** Nature

**Volume:** 290

**Pages:** 48-49

**Keywords:** Elasmobranchii, Rajidae, Dipturus, long-term change, extirpation, Irish Sea, fishing effects

**Notes:** a. Held at larger libraries

b. Free

c. 4

d. ICES area VII a



**Reference Type:** Journal Article

**Record Number:** 362

**Author:** Brander, KM

**Year:** 1989

**Title:** The location and timing of cod spawning in the Irish Sea and central North Sea

**Journal:** Rapp. P.-V. Reun. Conseil International pour l'Exploration de la Mer

**Volume:** 191

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 5

**Author:** Briggs, RP

**Year:** 1985

**Title:** Catch composition in the Northern Ireland *Nephrops* fishery.

**Journal:** Fisheries Research

**Volume:** 3

**Pages:** 47-60.

**Keywords:** Irish Sea, *Nephrops*

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Book

**Record Number:** 6

**Author:** Bruce, JR; Colman, JS; Jones, NS

**Year:** 1963

**Title:** Marine Fauna of the Isle of Man

**Publisher:** Liverpool University Press

**Number of Pages:** 307pp.

**Keywords:** Irish Sea, fishes, invertebrates

**Notes:** a. Held at most Marine Biological Libraries

b. Cost

c. 4

d. ICES area VII a

**Reference Type:** Generic

**Record Number:** 374

**Author:** CEFAS

**Year:** 1989-present

**Title:** Fish and shellfish catches in the Irish Sea from 4m-beam-trawl catches

**Notes:** a. CEFAS, Lowestoft

b. Cost for data analysis and interpretation

c. 5

d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 387  
**Author:** Coull, KA; Johnstone, R; Rogers, SI  
**Year:** 1998  
**Title:** Fisheries Sensitivity Maps in British waters  
**Journal:** Published and Distributed by UKOOA, UK.  
**Pages:** 1-58  
**Notes:** a. <http://www.cefas.co.uk/fsmaps/default.htm>  
b. Free  
c. 4  
d. UK continental shelf

**Reference Type:** Journal Article  
**Record Number:** 364  
**Author:** Crozier, WW  
**Year:** 1985  
**Title:** Observations on the food and feeding of the angler-fish, *Lophius piscatorius* L., in the northern Irish Sea  
**Journal:** Journal of Fish Biology  
**Volume:** 27  
**Pages:** 655-665  
**Keywords:** Irish Sea, fishes, Lophiiformes, diet  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Generic  
**Record Number:** 375  
**Author:** DARD  
**Year:** 1991-present  
**Title:** Groundfish survey of the Irish Sea  
**Notes:** a. DARD, Northern Ireland  
b. Cost for analysis and interpretation  
c. 4  
d. ICES area VII a

**Reference Type:** Generic  
**Record Number:** 378  
**Author:** DEFRA  
**Year:** 1972-present  
**Title:** Fishing Activity Database  
**Notes:** a. CEFAS, Lowestoft and DEFRA London ([alan.cornell@defra.gsi.gov.uk](mailto:alan.cornell@defra.gsi.gov.uk))  
b. Cost for analysis and interpretation  
c. 5  
d. ICES area VII a

**Reference Type:** Generic  
**Record Number:** 379  
**Author:** DEFRA  
**Year:** 1989-present

**Title:** Overflight data of fishing activity in UK coastal waters  
**Notes:** a. CEFAS, Lowestoft and DEFRA London  
b. Cost for analysis and interpretation  
c. 5  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 355  
**Author:** Dickey-Collas, M; Briggs, RP; Armstrong, MJ; Milligan, SP  
**Year:** 2000  
**Title:** Production of *Nephrops norvegicus* larvae in the Irish Sea  
**Journal:** Marine biology  
**Volume:** 137  
**Pages:** 973-981  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 7  
**Author:** Dickson, RR; Boelens, RGV  
**Year:** 1988  
**Title:** The status of current knowledge on anthropogenic influences in the Irish Sea  
**Journal:** ICES Cooperative Research Report  
**Volume:** 155  
**Pages:** 88pp  
**Keywords:** Irish Sea  
**Notes:** a. Held at ICES and CEFAS Library  
b. Cost  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 242  
**Author:** Dulvy, NK; Metcalfe, JD; Glanville, J; Pawson, MG; Reynolds, JD  
**Year:** 2000  
**Title:** Fishery stability, local extinctions, and shifts in community structure in skates  
**Journal:** Conservation Biology  
**Volume:** 14  
**Pages:** 283-293  
**Keywords:** Irish Sea, fishes, Rajidae, extirpation, assemblage, long-term change, fishing effects  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 175  
**Author:** Durazo, R; Harrison, NM; Hill, AE

**Year:** 1998  
**Title:** Seabird observations at a tidal mixing front in the Irish Sea  
**Journal:** Estuarine, Coastal and Shelf Science  
**Volume:** 47  
**Pages:** 153-164  
**Keywords:** Irish Sea, front  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Conference Proceedings  
**Record Number:** 367  
**Author:** Ellis, JR; Armstrong, M; Rogers, SI; Service, M  
**Year of Conference:** In Press  
**Title:** The distribution, structure and diversity of fish assemblages in the Irish Sea  
**Conference Name:** Marine Biodiversity in Ireland  
**Conference Location:** Belfast  
**Keywords:** Irish Sea, fishes, Groundfish survey, beam trawl, otter trawl, biodiversity, faunal list  
**Notes:** a. From author  
b. Free  
c. 4  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 78  
**Author:** Ellis, JR; Pawson, MG; Shackley, SE  
**Year:** 1996  
**Title:** The comparative feeding ecology of six species of shark and four species of ray (Elasmobranchii) in the North-East Atlantic  
**Journal:** Journal of the Marine Biological Association of the United Kingdom  
**Volume:** 76  
**Pages:** 89-106  
**Keywords:** Elasmobranchs, Scyliorhinus, Galeorhinus, Rajidae, Squalus, Squatina, Mustelus, Irish Sea, Bristol Channel  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 4  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 2  
**Author:** Ellis, JR; Rogers, SI; Freeman, SM  
**Year:** 2000  
**Title:** Demersal assemblages in the Irish Sea, St George's Channel and Bristol Channel  
**Journal:** Estuarine and Coastal Shelf Science  
**Volume:** 51  
**Issue:** 3  
**Pages:** 299-315  
**Keywords:** Irish Sea, St George's Channel, Bristol Channel, fishes, invertebrates, beam trawl  
**Notes:** a. Held at most Marine Biological Libraries

- b. Free
- c. 4
- d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 356

**Author:** Ellis, T; Nash, RDM

**Year:** 1997

**Title:** Predation by sprat and herring on pelagic fish eggs in a plaice spawning area in the Irish Sea

**Journal:** Journal of Fish Biology

**Volume:** 50

**Pages:** 1195-1202

**Keywords:** Irish Sea, fishes, clupeids, flatfish, predation, eggs

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 357

**Author:** Ellis, T; Nash, RDM

**Year:** 1997

**Title:** Spawning of plaice *Pleuronectes platessa* L. around the Isle of Man, Irish Sea

**Journal:** ICES Journal of Marine Science

**Volume:** 54

**Pages:** 84-92

**Keywords:** Irish Sea, Fishes, Pleuronectiformes, spawning

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Generic

**Record Number:** 377

**Author:** Fisheries Research, Scotland

**Year:** 1989-present

**Title:** Groundfish survey of the northern Irish Sea

**Notes:** a. Fisheries Research Laboratory, Aberdeen

b. Cost for analysis and interpretation

c. 5

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 180

**Author:** Fogg, GE; Egan, B; Hoy, S; Lochte, K; Scrope-Howe, S; Turley, CM

**Year:** 1985

**Title:** Biological studies in the vicinity of a shallow-sea tidal mixing front I. Physical and chemical background

**Journal:** Philosophical Transactions of the Royal Society of London B

**Volume:** 310

**Pages:** 407-433

**Keywords:** Irish Sea, front

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 2

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 181

**Author:** Fogg, GE; Egan, B; Floodgate, GD; Jones, DA; Kassab, JY; Lochte, K; Rees, EIS; Scrope-Howe, S; Turley, CM

**Year:** 1985

**Title:** Biological studies in the vicinity of a shallow-sea tidal mixing front VII. The frontal ecosystems

**Journal:** Philosophical Transactions of the Royal Society of London B

**Volume:** 310

**Pages:** 555-571

**Keywords:** Irish Sea, front

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 2

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 252

**Author:** Fox, CJ; Dickey-Collas, M; Winpenny, AJ

**Year:** 1997

**Title:** Spring plankton surveys of the Irish Sea in 1995: the distribution of fish eggs and larvae

**Journal:** CEFAS Science Series Technical Report

**Volume:** 104

**Pages:** 106pp

**Keywords:** Irish Sea, fishes, plankton, ichthyoplankton

**Notes:** a. CEFAS Library

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 253

**Author:** Fox, C; O'Brien, C; Dickey-Collas, M; Nash, R

**Year:** 2000

**Title:** Patterns in the spawning of cod (*Gadus morhua* L.), sole (*Solea solea* L.) and plaice (*Pleuronectes platessa* L.) in the Irish Sea as determined by generalized additive modelling

**Journal:** Fisheries Oceanography

**Volume:** 9

**Pages:** 33-49

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 354  
**Author:** Fox, CJ; Planque, BP; Darby, CD  
**Year:** 2000  
**Title:** Synchrony in the recruitment time-series of plaice (*Pleuronectes platessa* L) around the United Kingdom and the influence of sea temperature  
**Journal:** Journal of Sea Research  
**Volume:** 44  
**Pages:** 159-168  
**Keywords:** Irish Sea, Fishes, Pleuronectiformes  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 84  
**Author:** Goodwin, NB; Dare, PJ; Belson, SJ; Gunstone, KL; Ellis, JR; Rogers, SI  
**Year:** 2001  
**Title:** A catalogue of DEFRA historical Research Vessel data  
**Journal:** CEFAS Science Series Technical Report  
**Volume:** 112  
**Pages:** 32  
**Notes:** a. CEFAS Library  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 254  
**Author:** Gray, MJ  
**Year:** 1995  
**Title:** The coastal fisheries of England and Wales, Part III: A review of their status 1992-1994  
**Journal:** MAFF Fisheries Research Technical Report  
**Volume:** 100  
**Pages:** 99pp.  
**Keywords:** Irish Sea, North Sea, English Channel, fisheries  
**Notes:** a. CEFAS Library  
b. Free  
c. 4  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 370  
**Author:** Heipel, DA; Bishop, JDD; Brand, AR; Thorpe, JP  
**Year:** 1998  
**Title:** Population genetic differentiation of the great scallop *Pecten maximus* in western Britain investigated by randomly amplified polymorphic DNA  
**Journal:** Marine Ecology Progress Series  
**Volume:** 162  
**Pages:** 163-171

**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 369  
**Author:** Heipel, DA; Bishop, JDD; Brand, AR  
**Year:** 1999  
**Title:** Mitochondrial DNA variation among open-sea and enclosed populations of the scallop *Pecten maximus* in western Britain  
**Journal:** Journal of the Marine Biological Association of the United Kingdom  
**Volume:** 79  
**Pages:** 687-695  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 9  
**Author:** Hensley, RT  
**Year:** 1996  
**Title:** A preliminary survey of benthos from the *Nephrops norvegicus* mud grounds in the north-western Irish Sea  
**Journal:** Estuarine, Coastal and Shelf Science  
**Volume:** 42  
**Pages:** 457-465  
**Keywords:** Irish Sea, benthos, Nephrops  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 243  
**Author:** Herdman, WA; Dawson, RA  
**Year:** 1902  
**Title:** Fishes and fisheries of the Irish Sea  
**Journal:** Lancashire Sea-Fisheries Memoir  
**Volume:** 11  
**Pages:** 98pp  
**Keywords:** Irish Sea, fishes, fisheries, faunal list  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 269  
**Author:** Hill, AS; Veale, LO; Pennington, D; Whyte, SG; Brand, AR; Hartnoll, RG



**Year:** 1999

**Title:** Changes in Irish Sea benthos: Possible Effects of 40 years of Dredging

**Journal:** Estuarine, Coastal and Shelf Science

**Volume:** 48

**Pages:** 739-750

**Keywords:** Irish Sea, benthos, long-term change, disturbance

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 31

**Author:** Holt, EWL

**Year:** 1910

**Title:** Report of a survey of trawling grounds on the coasts of Counties Down, Louth, Meath and Dublin. Part I Record of fishing operations

**Journal:** Scientific Investigations, Fisheries Branch (Ireland)

**Volume:** 1909

**Issue:** Part 2

**Pages:** 1-538

**Keywords:** Irish Sea, Ireland, beam trawl, fishes

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Book

**Record Number:** 192

**Author:** ISSG

**Year:** 1990

**Title:** The Irish Sea: An environmental review. Part 1: Nature Conservation

**Series Title:** Irish Sea Study Group

**Publisher:** Liverpool University Press

**Number of Pages:** 404pp.

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Book

**Record Number:** 193

**Author:** ISSG

**Year:** 1990

**Title:** The Irish Sea: An environmental review. Part 2: Waste inputs and Pollution

**Publisher:** Liverpool University Press

**Number of Pages:** 165pp

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 292

**Author:** Jenkins, SR; Beukers-Stewart, BD; Brand, AR

**Year:** 2001

**Title:** Impact of scallop dredging on benthic megafauna: a comparison of damage levels in captured and non-captured organisms

**Journal:** Marine Ecology Progress Series

**Volume:** 215

**Pages:** 297-301

**Keywords:** Irish Sea, Isle of Man, benthos, fishing impacts, disturbance, catch efficiency

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 11

**Author:** Jones, NS

**Year:** 1952

**Title:** The bottom fauna and the food of flatfish off the Cumberland coast

**Journal:** Journal of Animal Ecology

**Volume:** 21

**Pages:** 182-205

**Keywords:** Irish Sea, benthos, fishes, plaice, sole, dab

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 106

**Author:** Kaiser, MJ

**Year:** 1996

**Title:** Starfish damage as an indicator of trawling intensity

**Journal:** Marine Ecology Progress Series

**Volume:** 134

**Pages:** 303-307

**Keywords:** Echinodermata, Asteroidea, starfish, fishing

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 195

**Author:** Kaiser, MJ; Hill, AS; Ramsay, K; Spencer, BE; Brand, AR; Veale, LO; Prudden, K; Rees, EIS; Munday, BW; Ball, B; Hawkins, SJ

**Year:** 1996

**Title:** Benthic disturbance by fishing gear in the Irish Sea: A comparison of beam trawling and scallop dredging

**Journal:** Aquatic Conservation: Marine and Freshwater Ecosystems

**Volume:** 6  
**Pages:** 269-285  
**Keywords:** Irish Sea, dredge, disturbance, benthos  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 107  
**Author:** Kaiser, MJ; Rogers, SI; McCandless, DT  
**Year:** 1994  
**Title:** Improving quantitative surveys of epibenthic communities using a modified 2-m beam trawl  
**Journal:** Marine Ecology Progress Series  
**Volume:** 106  
**Pages:** 131-138  
**Keywords:** Epibenthos, beam trawl, Irish Sea  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 359  
**Author:** Leah, RT; Evans, SJ; Johnson, MS; Collings, S  
**Year:** 1991  
**Title:** Spatial patterns in accumulation of mercury by fish from the NE Irish Sea.  
**Journal:** Marine Pollution Bulletin  
**Volume:** 22  
**Pages:** 172-175  
**Keywords:** Irish Sea, fishes, pollution  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 360  
**Author:** Leah, RT; Evans, SJ; Johnson, MS  
**Year:** 1991  
**Title:** Mercury in muscle tissue of lesser-spotted dogfish (*Scyliorhinus caniculus* L.) from the north-east Irish Sea  
**Journal:** Science of the Total Environment  
**Volume:** 108  
**Pages:** 215-224  
**Keywords:** Irish Sea, fishes, Elasmobranchii, Scyliorhinidae, pollution, stocks  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 358

**Author:** Leah, RT; Evans, SJ; Johnson, MS

**Year:** 1992

**Title:** Mercury in flounder (*Platichthys flesus* L.) from estuaries and coastal waters of the north-east Irish Sea

**Journal:** environmental Pollution

**Volume:** 75

**Pages:** 317-322

**Keywords:** Irish Sea, Fishes, Pleuronectiformes, Platichthys, pollution

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Conference Proceedings

**Record Number:** 15

**Author:** Mackie, ASY

**Year of Conference:** 1990

**Title:** Offshore benthic communities of the Irish Sea

**Pages:** 169-218

**Series Title:** The Irish Sea: An environmental review. Part One: Nature Conservation

**Abstract:** Irish Sea, St George's Channel, benthos, communities, sediment

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 16

**Author:** Mackie, ASY; Oliver, PG; Rees, EIS

**Year:** 1995

**Title:** Benthic biodiversity in the southern Irish Sea

**Journal:** Studies in Marine Biodiversity and Systematics from the National Museum of Wales. BIOMÖR Reports

**Volume:** 1

**Pages:** 263pp

**Keywords:** Irish Sea, St George's Channel, Bristol Channel, benthos

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 284

**Author:** Mackie, ASY; Parmiter, C.; Tong, LKY

**Year:** 1997

**Title:** Distribution and diversity of Polychaeta in the southern Irish Sea

**Journal:** Bulletin of Marine Science

**Volume:** 60

**Issue:** 2

**Pages:** 467-481

**Keywords:** Irish Sea, Polychaeta, assemblage, St George's Channel, Cardigan Bay, Bristol Channel, diversity

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Generic

**Record Number:** 376

**Author:** Marine Institute, Dublin

**Year:** 2001

**Title:** Groundfish survey of the Irish Sea

**Notes:** a. Marine Institute

b. Cost for analysis and interpretation

c. 5

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 381

**Author:** MNCR, Irish Sea Pilot

**Year:** 2002-03

**Title:** Marine Nature Review Irish Sea Pilot Scheme

**Notes:** a. Information available from DEFRA EWD

b. Free

c. 4

d. VIIa

[ DEFRA (EWD) funded programme to test existing nature conservation legislation and identify gaps. Programme currently in progress.]

**Reference Type:** Book Section

**Record Number:** 244

**Author:** Nash, RDM

**Year:** 1990

**Title:** Fish assemblages in the Irish Sea

**Book Title:** Irish Sea Study Group Report Part 1: Nature Conservation

**Publisher:** Liverpool University Press

**Pages:** 325-333

**Keywords:** Irish Sea, fishes, fisheries

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 353

**Author:** Nash, RDM; Geffen, AJ

**Year:** 2000

**Title:** The influence of nursery ground processes in the determination of year-class strength in juvenile plaice *Pleuronectes platessa* L. in Port Erin Bay, Irish Sea

**Journal:** Journal of Sea Research

**Volume:** 44  
**Pages:** 101-110  
**Keywords:** Irish Sea, Fishes, Pleuronectiformes, juveniles  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 255  
**Author:** Nash, RDM; Witthames, PR; Pawson, M; Alesworth, E  
**Year:** 2000  
**Title:** Regional variability in the dynamics of reproduction and growth of Irish Sea plaice, *Pleuronectes platessa* L.  
**Journal:** Journal of Sea Research  
**Volume:** 44  
**Pages:** 55-64  
**Keywords:** Fishes, Pleuronectiformes, Pleuronectidae, Irish Sea  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Report  
**Record Number:** 386  
**Author:** Nichols, JH; Haynes, GM; Fox, CJ; Milligan, SP; Brander, KM; Chapman, RJ  
**Year:** 1993  
**Title:** Spring plankton surveys of the Irish Sea in 1982, 1985, 1987, 1988 and 1989: hydrography and the distribution of fish eggs and larvae.  
**Institution:** Directorate of Fisheries Research, Lowestoft  
**Pages:** 111  
**Date:** 1993  
**Report Number:** 95  
**Notes:** a. Available from CEFAS ([www.cefas.co.uk](http://www.cefas.co.uk))  
b. Free  
c. 4  
d. ICES Area VIIa

**Reference Type:** Journal Article  
**Record Number:** 304  
**Author:** Patterson, KR  
**Year:** 1985  
**Title:** The trophic ecology of whiting (*Merlangius merlangus*) in the Irish Sea and its significance to the Manx herring stock  
**Journal:** Journal du Conseil International pour l'Exploration de la Mer  
**Volume:** 42  
**Pages:** 152-161  
**Keywords:** Irish Sea, fishes, Gadidae, diet, feeding habits, mud, sand, Nephrops, invertebrates  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 373

**Author:** Paul, JD

**Year:** 1981

**Title:** Natural settlement and early growth of spat of the queen scallop *Chlamys opercularis* (L.), with reference to the formation of the first growth ring.

**Journal:** Journal of Molluscan Studies

**Volume:** 47

**Pages:** 53-58

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 270

**Author:** Perkins, EJ

**Year:** 1968

**Title:** The marine fauna and flora of the Solway Firth area

**Journal:** Trans. J. Proc. Dumfries. Galloway Nat. Hist. Antiq. Soc

**Volume:** 45

**Pages:** 15-43

**Keywords:** Irish Sea, Solway Firth, marine fauna

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 352

**Author:** Righton, D; Metcalfe, J; Connolly, P

**Year:** 2001

**Title:** Different behaviour of North and Irish Sea cod

**Journal:** Nature

**Volume:** 411

**Pages:** 156

**Keywords:** Irish Sea, fishes, Gadidae, movements

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 21

**Author:** Rogers, SI

**Year:** 1994

**Title:** Species composition and production of sole, *Solea solea* L. in a flatfish nursery ground on the North Wales coast, UK

**Journal:** Aquaculture and Fisheries Management

**Volume:** 25  
**Issue:** Supplement 1  
**Pages:** 161-177  
**Keywords:** Irish Sea, beam trawl  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 3  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 145  
**Author:** Rogers, SI  
**Year:** 1997  
**Title:** A review of closed areas in the United Kingdom Exclusive Economic Zone  
**Journal:** Scientific Series, Technical Report, CEFAS (Lowestoft)  
**Volume:** 106  
**Pages:** 20  
**Keywords:** Closed areas, Irish Sea, Bristol Channel, North Sea, English Channel  
**Notes:** a. CEFAS Library  
b. Free  
c. 4  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 245  
**Author:** Rogers, SI; Clark, KR; Reynolds, JD  
**Year:** 1999  
**Title:** The taxonomic distinctness of coastal bottom-dwelling fish communities of the Northeast Atlantic  
**Journal:** Journal of Animal Ecology  
**Volume:** 68  
**Pages:** 769-782  
**Keywords:** Fishes, North Sea, Irish Sea, English Channel  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 4  
d. ICES area VII a

**Reference Type:** Journal Article  
**Record Number:** 3  
**Author:** Rogers, SI; Ellis, JR  
**Year:** 2000  
**Title:** Changes in the demersal fish assemblages of British coastal waters during the 20th century  
**Journal:** ICES Journal of Marine Science  
**Volume:** 57  
**Pages:** 866-881  
**Keywords:** Long-term change, Irish Sea, North Sea, English Channel, fishes, beam trawl, elasmobranchs  
**Notes:** a. Held at most Marine Biological Libraries  
b. Free  
c. 4



d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 4

**Author:** Rogers, SI; Ellis, JR; Dann, J

**Year:** 2001

**Title:** Starfish arm damage in relation to fishing intensity

**Journal:** Sarsia

**Volume:** 86

**Pages:** 107-112

**Keywords:** Irish Sea, echinoderms, beam trawl

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 361

**Author:** Rogers, SI; Lockwood, SJ

**Year:** 1990

**Title:** Observations on coastal fish fauna during a spring bloom of *Phaeocystis pouchetii* in the eastern Irish Sea

**Journal:** Journal of the Marine Biological Association of the United Kingdom

**Volume:** 70

**Pages:** 249-253

**Keywords:** Irish Sea, fishes

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 246

**Author:** Rogers, SI; Maxwell, D; Rijnsdorp, AD; Damm, U; Vanhee, W

**Year:** 1999

**Title:** Fishing effects in Northeast Atlantic shelf seas: patterns in fishing effort, diversity and community structure IV. Can comparisons of species diversity be used to assess human impacts on coastal demersal fish faunas?

**Journal:** Fisheries Research

**Volume:** 40

**Pages:** 135-152

**Keywords:** Fishes, North Sea, Irish Sea, English Channel

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 224

**Author:** Rogers, SI; Rijnsdorp, AD; Damm, U; Vanhee, W

**Year:** 1998

**Title:** Demersal fish populations in the coastal waters of the UK and continental NW Europe from beam trawl survey data collected from 1990 to 1995

**Journal:** Journal of Sea Research

**Volume:** 39

**Pages:** 79-102

**Keywords:** Fishes, North Sea, Irish Sea, English Channel

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 363

**Author:** Symmons, CR

**Year:** 1989

**Title:** The sea fishery regime of the Irish Sea

**Journal:** Int. J. Estuar. Coast. Law

**Volume:** 4

**Pages:** 192-216

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 247

**Author:** Symonds, DJ; Rogers, SI

**Year:** 1995

**Title:** The influence of spawning and nursery grounds on the distribution of sole *Solea solea* (L.) in the Irish Sea, Bristol Channel and adjacent areas

**Journal:** Journal of Experimental Marine Biology and Ecology

**Volume:** 190

**Pages:** 243-261

**Keywords:** Fishes, Pleuronectiformes, Soleidae, Irish Sea, Bristol Channel, nursery grounds

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 4

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 272

**Author:** Veale, LO; Hill, AS; Hawkins, SJ; Brand, AR

**Year:** 2000

**Title:** Effects of long-term physical disturbance by commercial scallop fishing on subtidal epifaunal assemblages and habitats

**Journal:** Marine biology

**Volume:** 137

**Pages:** 325-337

**Keywords:** Irish Sea, Isle of Man, benthos, scallop dredging, fishing effects, epifauna

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

**Reference Type:** Journal Article

**Record Number:** 285

**Author:** Veale, LO; Hill, AS; Brand, AR

**Year:** 2000

**Title:** An *in situ* study of predator aggregations on scallop (*Pecten maximus* (L.)) dredge discards using a static time-lapse camera system

**Journal:** Journal of Experimental Marine Biology and Ecology

**Volume:** 255

**Pages:** 111-129

**Keywords:** Irish Sea, Mollusca, fishing effects, benthos, scavenging, starfish

**Notes:** a. Held at most Marine Biological Libraries

b. Free

c. 3

d. ICES area VII a

Addresses of relevant organisations

CEFAS,  
Lowestoft Laboratory,  
Pakefield Road,  
Lowestoft,  
Suffolk,  
NR33 0HT.

Irish Sea Forum,  
Oceanography Laboratories,  
University of Liverpool,  
Liverpool,  
L69 3BX

Cumbria Sea Fisheries Committee,  
6 Duncan Square,  
Whitehaven,  
Cumbria,  
CA28 7LN.

Marine Institute,  
80 Harcourt Street,  
Dublin 2,  
Ireland.

Department of Agriculture, Fisheries and  
Forestry,  
Murray House,  
Mount Havelock,  
Douglas,  
Isle of Man.

North Western and North Wales Sea  
Fisheries Committee,  
University of Lancaster,  
Lancaster,  
LA1 4XY.

Department of Agriculture and Rural  
Development (DARD),  
AESD, Aquatic Sciences,  
Newforge Lane,  
Belfast,  
BT9 5PX,  
Northern Ireland.

Port Erin Marine Laboratory,  
University of Liverpool,  
Port Erin,  
Isle of Man,  
IM9 6JA

Fisheries Research Services,  
Marine Laboratory Aberdeen,  
PO Box 101,  
Victoria Road,  
Aberdeen,  
AB11 9DB,  
Scotland.

School of Ocean Sciences,  
University of Wales Bangor,  
Menai Bridge,  
Anglesey,  
LL59 5EY,  
Wales.

Fisheries Statistics Unit  
Department for Environment, Food &  
Rural Affairs (DEFRA),  
Room 434, Nobel House,  
17 Smith Square,  
London,  
SW1P 3JR