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The coastal fisheries of England and Wales, Part V: a review of their status 2005–6

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1. Introduction

This review updates the description of the inshore fisheries around England and Wales provided in Pawson *et al.* (2002), which in turn succeeded Gray (1995), Pawson and Rogers (1989) and Pawson and Benford (1983). The original structure that started with Pawson and Benford (1983) has been retained. A general overview of each fishery sector (for demersal and pelagic fish, shellfish, and migratory species) within each of twelve Sea Fishery Committee (SFC) Districts is provided, with a résumé of the fishing activity undertaken from each port or landing place. Though the descriptions of fishing gear given in Gray (1995) have not been replicated, a brief discussion of the management framework is given, as is the distribution of the major commercial shellfish species around England and Wales, updating those featured since Pawson and Benford (1983).

Whilst previous reviews noted the steady increase in the relative importance of English and Welsh inshore fisheries in the last quarter of the 20th Century, a comparison with Gray (1995) reveals a general downturn in activity in many of these fisheries. Some, such as the eel trawl fishery in the Thames Estuary have lapsed due to a lack

of resource, whilst others, exemplified by the coastal net fisheries for salmon, are being deliberately phased out to protect resources. In contrast, the production from inshore fisheries for sea bass and shellfish has been maintained, and the fishing fleet in England and Wales still contains a large number of small vessels capable of operating a wide range of fishing gears in seasonal and opportunistic fisheries close to their home ports.

Acknowledgements

This review was updated through contact with officials of each of the twelve SFC Districts: Northumbria, North Eastern, Eastern, Kent & Essex, Sussex, Southern, Devon, Cornwall, Isle of Scilly, South Wales, North Western & North Wales, and Cumbria. Pete Walker, Andy Lawler and Steve Lovewell of the shellfish team at Cefas and Marine Fisheries Agency district fishery inspectors and officers supplied additional valuable information. The authors wish to take this opportunity to thank all these individuals for their input, but we reserve responsibility for any inaccuracies.

2. Fisheries management in England and Wales

2.1 Legislature and institutes

All European marine fisheries are managed within the Common Fisheries Policy (CFP), which was agreed between Member States in 1983. This was reviewed and ratified by the Council of Ministers in 1992 (EC 3760/92). For many finfish fisheries this policy ensures that fishermen from all member states have access to marine fishing opportunities allocated as a fixed proportion - the national quota - of total allowable catches (TAC), based on historic performance by species and sea area. The distribution of these quotas within the national fishing fleet is left to Member States. Additionally, the amount of usable fishing power has been limited through structuring (essentially, balancing the funding of new vessels and decommissioning to achieve fleet capacity reduction). Performance of the fisheries that catch non-quota species is controlled by technical measures mainly aimed at protecting juvenile fish and shellfish.

In 2002, the CFP was further revised and ratified by the Council of Ministers (EC 2371/2002). This review, which came into effect on 1 January 2003, aims for a long-term approach to management measures, the inclusion of all stakeholders in the management process, and better application of the rules governing the CFP across Member States. Within the CFP, coastal states have preferential access to, and authority to manage, fisheries within their Territorial Sea (12 nautical miles from base lines), subject to Community regulations on TACs, quotas, non-discrimination etc. Enforcement of the regulations of the CFP on British-registered fishing vessels throughout the UK's Exclusive Economic Zone is the responsibility of British Sea Fisheries Officers (BSFOs) and officers of the Royal Navy Fisheries Protection Squadron and Scottish Office Fisheries Protection Agency. From the foreshore to 6 miles from baselines around England and Wales, enforcement of fisheries management measures is also devolved to SFC officers. There are 12 local SFC Districts around England and Wales (Appendix 1), which have the primary function of safeguarding the interests of the local (inshore) fishing industry through the conservation of coastal fish stocks and the management of fishing activities that exploit those stocks. For this purpose, each SFC drafts byelaws specific to their district, which must be ratified by the Minister responsible for fisheries. One notable addition to the CFP in 1992 was the requirement that fisheries managers pay due regard to the environment. To this end, SFC powers have now expanded to meet environmental responsibilities such as those required by the Sea Fisheries (Wildlife Conservation) Act 1992,

and those attached to the management of special areas for conservation (SAC - Directive for the conservation of natural habitats and of wild fauna and flora: 92/43/EEC) and special protection areas (SPA - Directive for the conservation of wild birds: 79/409/EEC). Henceforth, the composition of a SFC will include someone with expertise in marine nature conservation. In some river estuaries, eg all those in Cornwall, the Taw and Torridge, the Severn and the Welsh Dee, the Environment Agency (hereafter, the EA) exercises the responsibilities of a SFC, though its main fisheries responsibilities in coastal waters relate to the conservation and management of fisheries for migratory species (salmon, sea trout and eel) to a distance of 6 miles from base lines.

Other national legislation that has been introduced in recent years is The Registration of Buyers and Sellers and Designation of Fish Auctions and Site Regulations (SI 2005 No. 1605). The purpose of this legislation is to record the first sale of fish landed in the UK in order to improve monitoring and control of landings. It also aims to aid secondary buyers in determining whether the fish they are buying were legitimately landed. This new legislation will be particularly important in recording the landings of vessels <10 m length, which have not, until now, had to submit as detailed records as vessels >10 m length.

The Restrictive Shellfish Licensing Scheme came into effect in January 2006. Under the scheme, all vessels of <10 m that have a shellfish entitlement are required every month to submit details of their daily landings of lobsters, crawfish, edible crabs, spider crabs, velvet swimming crabs and shore crabs together with the potting or netting effort used and the area fished.

2.2 Restrictions on the use of fishing gear

Throughout this review mention is made of the main restrictions applying to particular types of fishing gear used around the coast of England and Wales. SFC or EA byelaws cover most of these (a comprehensive list of which can be obtained from each SFC district or EA region), but there are a number of national and international measures that apply throughout, and these are briefly dealt with here to avoid unnecessary repetition.

2.2.1 Marine fish

Fishing gear can be categorised as 'towed' (eg trawl nets and dredges) or 'static' (eg fixed enmeshing nets, pots and lines) gear. A summary of fishing methods used to target individual or combinations of species is given in Table 2.1.

Table 2.1. A summary of the main types of fishing gear used inshore around England and Wales to catch specific species or combination of species.

Category	Sub-category	Species	Fishing gear
White fish	Roundfish	Cod, whiting, haddock, saithe, pollack and dogfish.	Demersal otter trawl, pair trawl, seine net, gill net, trammel net, longline and handline.
	Flatfish	Dover sole, plaice, flounder, turbot, monkfish and rays.	Beam trawl, demersal otter trawl, seine net, tangle net, trammel net and longline (turbot, monkfish and rays).
Pelagic fish	Small pelagic	Mackerel, herring and sprat.	Gill net, pelagic trawl and handline (mackerel).
	Large pelagic	Bass and mullet.	Gill net, pelagic and demersal trawl, beach seine, trolling (bass) and handline (bass).
	Diadromous fish	Salmon, sea trout and eel.	Gill net and beach seine (salmonids), trap, hand-held nets, and fyke nets (eels).
Shellfish	Crustacea	Lobsters, crabs, crawfish, <i>Nephrops</i> and shrimp.	Pot, tangle net, beam trawl (shrimp) and demersal otter trawl (<i>Nephrops</i>).
	Molluscs	Cockles, mussels, scallops, oysters, clams, whelks, periwinkles, cuttlefish and squid.	Dredge (bivalves), trawl (cuttlefish and squid), pot (whelks), hand-gathering (bivalves and gastropods), pots, and traps (cuttlefish).

European Commission Regulation (850/98) sets the minimum landing size (MLS) and minimum mesh size (MMS) permitted for each species in all northern European waters and came into effect on 1 January 2000. This regulation stipulates permitted mesh size ranges for both towed and fixed nets with which particular groups of target species may be taken. Its major feature is that, for each mesh size used, fishermen are only allowed to retain a limited (5–70%, depending on mesh size and target species) level of bycatch of (non-target) species, which for conservation reasons require a larger mesh size. The intention is to encourage larger mesh sizes to be used for the larger-bodied species.

In England and Wales, regulation of fixed and drift netting for sea fish is principally undertaken by SFCs (and the EA where it has sea fisheries powers). Under the Salmon and Freshwater Fisheries Act 1975 and the Salmon Act 1986, the use of fixed nets or fish traps within the 6-mile zone is only lawful if authorised by byelaw made by the SFC. Such byelaws may include restrictions on the use of the gear to minimise bycatches of migratory salmonids. Consequently, SFCs have introduced byelaws authorising the use of otherwise banned sea fishing gear in places and at times when the risk of catching salmon or sea trout is small. The SFCs also have powers to limit the use of other gears to protect migratory salmonids and prevent any interference with their migrations. These SFC byelaws must all be approved by the EA and confirmed by the Minister for Fisheries. SFC byelaws are more restrictive and supercede National or EC regulations with the same restrictive intention, within 6-mile limit.

The national strategy for the long-term conservation and management of the bass fishery, implemented by MAFF (now Defra) since 1990, includes a prohibition on the use of gill nets and similar enmeshing nets with a mesh size of between 65–89 mm. This was supplemented by the banned range of 70–89 mm in the EC Regulation 850/98

(fixed nets). The bass package also includes the designation of 37 'bass nursery areas' in estuaries and harbours, and around power station outfalls in England and Wales, in which fishing for bass is prohibited for all or part of the year. During 2006, the results of a consultation exercise, on increasing the minimum landing size for bass from 36 to 45 cm total length in all English waters, prompted Defra to propose implementation of a 40 cm MLS from 1 April 2007, and to increase the minimum mesh size for enmeshing nets deployed by vessels whose catches are composed of >10 % bass to 100 mm stretched mesh.

2.2.2 Migratory fish

In England and Wales, the public right to fish for salmon and sea trout in estuaries and in the sea has been limited by regulations on fishing methods, period of fishing (annual and weekly fishing times) and fishing intensity. It is an offence for anyone to fish for migratory salmonids without a fishing licence issued by the EA, and a Net Limitation Order (NLO) limits the numbers of licences issued in each area (eg a river estuary). Since February 1973, there has been an absolute prohibition on fishing for salmon in waters off England and Wales beyond the six-mile limit. Despite these controls, the numbers of salmon returning to rivers in England and Wales have fallen steadily, and a number of additional measures has been introduced to try to halt this decline. NLOs in many regions have been reduced, and there is a national policy to phase out mixed stock fisheries operating in coastal water. In April 1999, the EA introduced a national byelaw that delays the start of the salmon-netting season to 1 June in order to protect early running multi-sea-winter salmon. A small number of fisheries that principally target sea trout have been exempted from this measure, but any salmon caught before 1 June must be released alive back to the water. Measure to limit the incidental catch of salmon and sea trout in nets set for marine species are described in 2.2.1 above.

2.2.3 Shellfish

With the notable exception of scallops, most mollusc fisheries are found close inshore and are managed by SFCs or the EA, all of whom have the power to close a fishery on conservation grounds. Some wild and cultivated mollusc fisheries are managed through Several or Regulating fishery orders, which often limit access to licence holders. Fishing may be further restricted through closed seasons and TACs. In addition, the EU stipulates MLSs for lobster, crawfish, edible crab, spider crab and velvet swimming crab, which are supplemented by SFC byelaws in some districts. National legislation requires the return of V-notched lobsters and crawfish and egg-bearing (berried) or soft edible crabs to the sea. There are a number of SFC byelaws that require the submission of catch and effort data for crabs and lobsters, ban landing of berried lobsters, restrict landing of parts of shellfish, require redeposit of undersize shellfish close to point of capture, fitting of escape gaps in pots and impose vessel size limitation. MLS, gear regulations and quotas are also in place for *Nephrops*.

Increasing demand from the restaurant and hotel trade for supplies of locally-caught shellfish, resulting from a greater appreciation of seafood by a more sophisticated public, has been accompanied by increased vigilance of the health and safety aspect of its production. Algal blooms are thought to cause Diuretic Shellfish Poisoning (DSP), a gastrointestinal illness. Under EU regulations, harvesting areas assessed to be positive for DSP must remain closed until 2 successive samples have proved negative.

2.3 Scale of UK fisheries

In order to put the scale and importance of UK finfish and shellfish fisheries into context, data on landed weight and landed value by species were extracted for UK (E&W) vessels landing into UK (E&W) ports during 2006 from Defra's Fishing Activity Database (FAD). For each port, groups of species were created to highlight the importance of different fisheries. Nine finfish groups were defined: cod, other gadoids, sole, turbot & brill, other flatfish, small pelagics (horse mackerel, mackerel, sprat, pilchard, herring & anchovy), bass, sharks & rays, and all other finfish species. Eleven groups of shellfish were defined: whelks, other gastropods, scallops, cockles, other bivalves (clams, mussels, oysters, queen scallops and razor clams), edible crabs, other crabs, lobsters (& crawfish), *Nephrops*, shrimps & prawns, and cephalopods (octopus & squids). The landings and value of each species group were calculated for each SFC District by summing the

data for all the ports in each District. These are presented at the end of each of the relevant sections of this review (Sections 3-13). A summary of all UK (E&W) landings is given in Table 2.2 below. Total reported landings in 2006 were approximately 95 000 t with a landed value of £138 million. Finfish contribute 40% and 45% to the total landing and landed value, respectively. A list of the common and scientific names of the fish and shellfish mentioned in this report is given in Appendix 2. Maps showing the general areas where the major crustacean and molluscan fisheries are found around the England and Wales coast are given in Appendix 3 and 4, respectively.

Table 2.2. Weight and first sale value of landings made by UK (E&W) vessels into UK (E&W) ports during 2006. Source: FAD database.

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	4,194	5,450
Other gadoids	7,280	7,343
Sole	1,822	14,450
Turbot & brill	466	3,530
Other flatfish	4,712	10,965
Small pelagics	12,855	5,246
Bass	483	2,938
Other finfish	2,967	9,189
Sharks & rays	2,233	3,030
Shellfish		
Whelks	10,950	6,350
Gastropods	2	2
Scallops	5,482	10,745
Cockles	11,002	4,925
Other bivalves	10,280	1,821
Edible crab	9,156	12,406
Other crabs	2,538	2,828
Lobsters	1,549	18,397
<i>Nephrops</i>	2,636	9,957
Shrimps & prawns	498	1,257
Cephalopods	4,032	6,794
Total	95,138	137,623

Fisheries description by Sea Fisheries Committee districts

3. Northumberland: Berwick to North Shields (Northumberland SFC)



3.1 Synopsis of current inshore fisheries

Fishing vessels operating from ports in this district traditionally fish inshore, exploiting resources found within daily steaming distance of most ports, such as *Nephrops*, white fish, salmon, crustaceans and, locally, molluscs and pelagic fish. The trawler fleet fish out to 25 miles offshore, targeting *Nephrops* and white fish, often in the 'Farn Deeps'. Since the 1970s, *Nephrops* have assumed greater importance as demand has steadily increased and white fish landings have fallen in line with quota allocations. Static gear fishermen use a variety of seasonal fishing methods throughout the year: for example, gill and

trammel nets are used for cod in winter, pots are mainly set during the warmer months for lobsters and brown crabs, and salmon and sea trout are taken in summer in drift nets and Northumbria T-nets. Many fishermen operating from fishing villages such as Newton, Craster, Boulmer and Newbiggin still use 'cobles', traditional high-bowed, flat-bottomed, clinker-built beach boats characteristic of this coast that are usually around 10 m in length. Landing quota restrictions have disrupted traditional fishing patterns, and there has been a partial buy out of licences for salmon drift netting (53 of the 69 licences fished in 2002) to help phase out this fishery, which takes a mix of salmon stocks from English and Scottish rivers.

3.2 Information on species targeted, fishing methods and fishing restrictions inshore

3.2.1 Demersal fish (eg cod, whiting, haddock, saithe, pollack, ling, plaice, lemon sole, turbot and dab)

White fish are caught both as a bycatch in the *Nephrops* ("prawn") fishery and in a directed fishery. The Farn Deep, a deep-water trench some 10–20 miles offshore, has traditionally provided good catches of haddock, cod and whiting for most of the year, though they are also caught closer inshore, particularly in winter. Northumberland SFC byelaws prohibit the use of purse seines, ring nets or similar encircling nets and trawlers over 11.6 m in length operating within 3 miles of the coast. In the late-1980s, pair trawling for roundfish became increasingly popular, though a high proportion of the catch in this gear tends to be made up of small fish. This fishery has now ceased. Flatfish, such as lemon sole (and, until recently, turbot) command a high market price and form an important part of the mixed demersal trawl fishery. Plaice are landed in greater quantities during the warmer months of the year.

Boats <10 m, many of which are cobbles, principally set gill nets and, to a lesser extent, trammel nets for cod, which move inshore from autumn through to spring. These nets also take whiting, pollack, saithe and crustacea. Each net measures 75–100 m in length and 1.5–2 m in depth and up to 6 nets are joined together to form a 'fleet'. In order to prevent the illegal capture of salmon and sea trout, Northumberland SFC have only authorised the use of nets (other than licensed salmon T-nets) in areas where the depth of water exceeds 7 m, and netting is prohibited around the mouths of the Rivers Tyne, Wansbeck and Coquet. Tangle and trammel nets are used to catch flatfish, principally plaice and turbot. Nets used to catch plaice generally have a mesh size of 100–120 mm, whereas nets used for turbot and monkfish can have a mesh size of up to 300 mm. Boats under 10 m may set over 5 000 m of netting, though most set between 1 000 and 2 500 m.

Gill netting activity has decreased notably in the last 5 years, principally due to a scarcity of cod during the winter. As a result, fishermen are not investing in new nets.

3.2.2 Pelagic fish (eg herring and mackerel)

In the past, trawlers and seiners targeted herring on well known spawning grounds off the Farne Islands. Following the re-opening of the herring fishery in 1983, fishing effort

has been minimal as local stocks have failed to recover and demand is low. Herring are now occasionally caught in drift nets close inshore and they are sometimes exploited for pot bait.

3.2.3 Diadromous fish (eg salmon, sea trout and eel)

Salmon migrating to spawn in rivers on the east coast of Scotland and the north-east coast of England are believed to enter the North Sea from the north, to move south and then inshore, before swimming north along the English coast to their home rivers. Sea trout originating from these same rivers are thought to migrate southwards to feed in the southern North Sea and are also exploited as they migrate north to spawn. Drift nets up to 550 m in length take a greater proportion of salmon than Northumbria T-nets, and the mesh varies between 120 and 135 mm, depending on the area and time of year. For example, a smaller mesh size is chosen when sea trout are targeted before 1 June or when grilse (salmon that have spent only one winter in the sea) make up a large part of the salmon catch. Northumbrian T-nets intercept and trap salmon and sea trout moving along the coast close to the shore. They are worked primarily around the mouths of the Rivers Coquet and Tyne, with the majority being found within 5 miles of the Coquet.

Following the buy-out of 53 drift net licences in 2003, 7 licences were issued in 2006 for fishing for salmon and sea trout with drift or T-net in the Northumberland region (from Holy Island down to Souter Point (3 miles south of the River Tyne), 7 for 'stell' net only and 20 for T-net only. Fishing for salmon and sea trout in the 'Tweed Box' at the mouth of the River Tweed and which extends into England as far south as Holy Island (as defined by the Tweed Fisheries Acts 1857–1969) is subject to Scottish law, and drift nets are banned. The fishing season for drift nets in the whole of the North East Coast fishery starts on 1 June and ends on 31 August. The T/J-net fishery for sea trout starts on 26 March. Closed areas (known as 'playgrounds') have been established around the mouths of the Rivers Coquet, Wansbeck and Tyne, although T-nets are permitted in some of these areas. T-nets used between Boulmer and Hauxley (within private stell fisheries) and close to the River Tyne are set at fixed berths and fishermen operate under a rota system. In the Druridge Bay, Beadnell and Holy Island areas, there are no formal rotas or rigidly fixed stations for T-netting.

3.2.4 Shellfish (eg *Nephrops*, lobster, brown crab, velvet crab, shrimp, scallop, mussel, oyster and periwinkle)

Nephrops are abundant in deep-water areas where the seabed is muddy and provide the main income for the majority of inshore trawlers working from Seahouses, Amble, Blyth and North Shields. Trawlers from Scotland, Northern Ireland and the west coast may also exploit this stock in winter. Traditionally a winter/spring fishery, it is now also prosecuted in the summer after the *Nephrops* have cast their shells. During the winter, the fishery is concentrated 8–20 miles offshore, around the Farn Deeps, whereas a viable fishery may occasionally take place only 3 miles offshore in summer. *Nephrops* is a cryptic species and seeks refuge in burrows in response to diurnal changes in light levels. Catch rates decrease when there is increased sea movement (eg strong tides and stormy weather) and this may also be due to the animals' behaviour. Trawlers operating from North Shields sometimes land *Pandalus* shrimp along with *Nephrops*. In order to reduce the bycatch of juvenile white fish caught in 70 mm mesh *Nephrops* nets, it is compulsory to incorporate a section of 80 mm square mesh panelling into the top of the net just in front of the cod-end.

The pot fishery is particularly important to the smaller coastal communities whose fleet used to be comprised entirely of cobs. The Northumberland SFC introduced a byelaw in August 2001 that prohibits all potting within the 6-mile zone without a written permit from the Committee (although a permit is not required for boats using fewer than 5 pots). The main brown crab season begins in late spring and lasts through to autumn. Lobster pots are set both close inshore and around the Farne Islands and other offshore areas, and the peak season occurs during the summer when part-time fishermen also participate. Lobsters are targeted until the end of the year, although rough weather may curtail fishing due to the risk of damage to pots. Since the mid-1980s, velvet crabs have attracted more interest as markets have opened up. They are caught in pots set in the shelter of the coast, often as a bycatch to lobsters, and provide an important resource during the winter when they have a higher survival rate when stored prior to being taken in vivier lorries to Europe, where they are sold live. A small scallop fishery a few miles off Holy Island provides an alternative to white fish trawling and, in some years, attracts visiting Scottish and west coast vessels. Pacific oysters and mussels are cultivated around Holy Island, and mussels and periwinkles are gathered by hand throughout the district.

3.3 Description of coastal fisheries by port

3.3.1 Berwick

The lobster and crab fisheries support 5 full-time boats, all <10 m, setting up to 400 pots per boat out to 5 miles offshore. The lobster fishery peaks towards the end of the summer, whereas brown crabs normally provide a steady income from spring through to autumn. During the winter, pots are generally set closer inshore and yield brown crabs, velvet crabs and lobsters, which command a high price at that time. The increase in velvet crab landings in recent years has boosted local incomes

One boat works both gill and trammel nets taking lobsters, saithe and cod. Two boats work licensed T-nets for salmon off Goswick beach. The Atlantic Salmon Conservation Trust has bought out the majority of estuary net fishing on the Tweed.

3.3.2 Holy Island

Five full-time boats set pots for lobster and brown crab. The brown crab fishery takes place both inshore and offshore and is most productive in spring. Effort moves inshore in the spring and autumn when lobster catches peak. Fishermen have reported an increase in the number of octopus being caught in pots, which are sold if a substantial quantity is landed.

Together with increased licence fees, poor landings of salmon and sea trout in recent years and an offer of compensation, some fishermen have relinquished their licences, and only two licensees now operate salmon drift nets. Mussels and periwinkles are gathered to the north of the Island, around Coves Haven, and to the south, opposite the Harbour and in Budle Bay. These areas are on the margins of the Lindisfarne National Nature Reserve where shellfish gathering is authorised by English Nature, who work in close liaison with the Holy Island Fishermen Society. One person cultivates Pacific oysters on intertidal flats south of the island.

3.3.3 Seahouses

This small port supports one full-time otter trawler, targeting *Nephrops*, with haddock and whiting being landed as a bycatch. In the past, a number of trawlers used 8–12 Newhaven-type dredges for scallops within 2 miles of the coast, but only one vessel now occasionally turns to dredging.

A total of 15 vessels work pots, taking brown crabs and lobsters. The lobster season tends to peak between the end of July and September, while crab landings are

usually best during the spring. Landings of velvet crab have steadily increased.

For many years Seahouses has been a launching site for rigid inflatable boats used by divers wishing to explore the many wrecks and waters around the Farne Islands. This has often been a cause of conflict for the potting industry. There has been an increase in angling activity from this port in recent years.

3.3.4 Beadnell/Newton

Four full-time boats are based at Beadnell, potting for lobster in late summer and autumn and brown crab in winter and spring. The few part-time cobles based at Newton are involved in potting, but these tend to fish only during the summer. Both these small landing places attract a lot of recreational divers, some of whom take lobsters.

One of the full-time Beadnell fishermen possesses a salmon licence and works a salmon T-net inshore or a drift net further offshore.

3.3.5 Craster

Three vessels operate from this port, potting for lobster, brown crab and velvet crab throughout the year, although only a small number of pots are used during the colder months. Lobsters and velvet crabs are taken close to the shore. When crustacean catches are poor, one vessel takes out angling parties. One of these vessels also has a licence for a T-net and takes salmon and sea trout.

3.3.6 Boulmer

All 3 cobles hold licences to use T-nets for salmon, which they set in fixed berths in Alnmouth Bay (Boulmer 'stell' fishery). Pots are set virtually the entire year round for crabs and lobsters. Low returns and poor weather in winter usually prompt fishermen to haul their cobles ashore for an annual refit.

3.3.7 Amble

Seventeen otter trawlers of 10–16 m take *Nephrops* and white fish, the larger boats fishing offshore spending 2–3 days at sea, whereas the smaller trawlers fish out to 20 miles and land daily. Up until the late-1980s, the majority of trawlers alternated between *Nephrops* and white fish in winter, concentrating on white fish in the summer. The trawling fleet is now more dependent on *Nephrops*, which it exploits all year round. This fishery has become more profitable due to the construction of a *Nephrops* processing plant in Amble, scarcity of white fish on local grounds and the attendant quota restrictions, and the cost of transporting white fish to the North Shields fish market.

Up to 25 boats work pots and gillnets. Most set 200 to 600 pots during the summer, particularly for lobsters after the salmon season has closed. In winter, more emphasis is placed on the brown crab fishery with pots being set 3–9 miles north-east of Coquet Island. Some of the vessels also deploy *Nephrops* pots at this time. Conflicts can occur with trawlers that fish the same grounds. Gill nets are set for cod from autumn to spring, but catches have recently been very poor.

Eleven vessels hold salmon licences and set T-nets for salmon and sea trout at various berths. Drift netting is not permitted in the 'Coquet playground' and T-netting is also prohibited within half a mile of the river mouth. Five T-netting stations form part of the Amble and Hauxley 'stell' fishery and a committee elects the netsmen. T-netting also takes place in Druridge Bay. Licensed eel nets are used in the Coquet with consent from riparian owners.

3.3.8 Hadstone and Huxley

One vessel works a few pots from Huxley and a few angling vessels are launched from Hadstone during the summer.

3.3.9 Cresswell

One small boat works pots for lobster in late summer and gillnets for cod over the winter. Several small angling boats are launched from the beach during the summer.

3.3.10 Newbiggin

Three full-time and one part-time vessel operate from this port, potting for lobster and crab in the spring, late summer and autumn. Two vessels also pot for prawns during the winter. Recent catches have been poor, but this has been offset by the good quality of the catch. Some vessels use static gillnets for cod, whiting and flatfish between autumn and spring. Only 1–2 bins of net of 400–500 m length are carried per vessel.

Two boats have salmon drift net licences and one of these vessels also has a T-net licence.

3.3.11 Blyth

Nineteen otter trawlers of 10–18 m take *Nephrops* and white fish, generally fishing out to 20 miles, although some of the larger vessels venture further offshore. These vessels target *Nephrops* in the Farn Deep area for most of the year, with cod, haddock, whiting, plaice and lemon sole providing an important bycatch, particularly when *Nephrops* catch levels are low, for example during stormy weather or strong tides.

Eight boats set pots and nets, some of the boats work pots virtually the entire year round for brown crabs and

lobsters, using between 120 and 600 pots each. Some boats will also set between 150 and 600 pots for *Nephrops*. Other boats switch to cod netting in autumn and use tangle nets for flatfish from spring onwards, but gill net activity has declined in recent years due to inconsistent catches.

There are three vessels with salmon drift net licences, one of which also has a T-net licence, and three other vessels have T-net licences.

3.3.12 Seaton Sluice

One full-time and a few part-time vessels use pots and gill nets when the weather permits.

3.3.13 Cullercoats

One full-time and one part-time vessel use pots all year round, with brown crabs and lobsters providing the mainstay and velvet crab being targeted towards the end of the year. The lobster fishery attracts the greatest interest from August to October. Nets are set for cod from around October to March.

One boat holds a salmon licence and uses both T and drift nets.

3.3.14 North Shields

North Shields is the only port on the Northumbrian coast that holds a daily fish market. It is home to 19 otter trawlers, 10 of which are >10 m. The trawlers regularly fish within 12 miles of the coast, particularly in winter, though some of these boats fish out to 30 miles offshore in calm weather. Scottish boats, particularly those from the Firth of Forth, frequently land their catches here. The inshore fleet targets *Nephrops* for most of the year, landing cod, haddock, whiting, plaice and, occasionally, *Pandulus* shrimp as a bycatch. White fish are sometimes targeted, but pair-trawling for roundfish, which increased in the early 1990s, has now ceased, possibly because the fish tend to be small and can prove difficult to sell. Some of the smaller trawlers set nets, often over wrecks and on the way to trawling grounds.

Between five and seven boats work pots for lobster, velvet and brown crab. Brown crabs are most important at the beginning of the season, followed by lobsters in late summer. Landings of velvet crab have increased in recent years. There are also two boats working *Nephrops* pots from here, with one setting his pots south of the Tyne.

Gillnets are worked during autumn and winter if the weather permits, between 2 and 8 bins of nets of 500 m per boat, taking whiting, coalfish and flatfish.

There is one boat that has both salmon drift and T-net licences, and two vessels have drift net licences. Permits are issued to these fishermen to allow access to the berths, fishing to an agreed rota. Salmon drift netting begins at the start of the season (June) whereas T-nets are usually used slightly later in the season and catch a greater proportion of sea trout. Drift netting is not permitted around the mouth of the River Tyne, known as the 'Tyne playground'. There is no longer any fyke netting for eels in the Tyne.

3.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	179	263
Other gadoids	1,953	1,210
Sole	5	23
Turbot & brill	15	82
Other flatfish	186	268
Small pelagics	4	2
Bass	0	1
Other finfish	93	182
Sharks & rays	5	3
Shellfish		
Whelks	0	+
Gastropods		
Scallops	12	57
Cockles		
Other bivalves		
Edible crab	382	356
Other crabs	91	121
Lobsters	110	1,588
<i>Nephrops</i>	1,823	7,255
Shrimps & prawns		
Cephalopods	32	71
Total	4,889	11,482

4. Durham, Cleveland and Yorkshire: South Shields to Cleethorpes (North Eastern SFC)



4.1 Synopsis of current inshore fisheries

Fishing activity along the Durham coast tends to be inshore, whereas the Cleveland and Yorkshire fleets can be more easily designated as inshore and offshore. In the north, otter trawlers concentrate more on *Nephrops* than on white fish and, since the mid-1980s, an increasing number of trawlers (especially those <12 m) have also set nets.

Crab and lobster potting is very important to the static gear fleet from March onwards, with many vessels also setting nets for cod, flatfish, salmon and sea trout. Trawlers up to 18.3 m are permitted to fish within the 6-mile zone (North Eastern SFC byelaw), and losses and disturbance of set gear sometimes occur during bad weather when trawlers may have to work close inshore. In general, netting effort, has declined since the early 1990s.

White fish provide the mainstay for the trawler fleet in the south of the district, although a small number of vessels dredge for scallops and queen scallops, and beam trawls are used for shrimp in the Humber. In addition to pots and nets, longlines are occasionally used off the Yorkshire coast, mainly for cod from ports with strong fishing-family concerns, this method being more labour intensive than netting. A large crab and lobster fishery is exploited from Whitby, Scarborough, Bridlington, Grimsby and minor sites throughout the district.

A substantial part-time fleet operates trawls, nets and pots throughout the district, with peak activity occurring at weekends between March and October. Charter hire by angling parties remains popular in many areas.

4.2 Information on species targeted, fishing methods and inshore fishing restrictions

4.2.1 Demersal fish (eg cod, whiting, haddock, saithe, lemon sole, plaice, dab, sole, turbot, brill, ray and dogfish)

The trawl and netting fleet takes cod, whiting, saithe, haddock, lemon sole, plaice and rays. Whiting are caught virtually all year round, haddock are normally caught in deeper waters, appearing closer inshore in spring, and flatfish and rays are caught in the greatest quantities in spring and summer. The development of rock-hopper gear has given trawlers access to rough ground, leaving few safe havens for fish and shellfish. Species associated with rough ground, eg lemon sole, have become important, and crustacea often feature in bycatches. Cod, haddock and whiting are commonly taken as a bycatch in the *Nephrops* fishery off the Durham and Cleveland coast. Trawling is prohibited in three areas off the North Yorkshire coast: between Staithes and Sandsend; in Filey Bay; and off Hornsea, to avoid conflict with static gear fishermen and to protect juvenile fish and shellfish stocks. Pair trawlers no longer operate from Grimsby.

Gill nets with a mesh of 120–150 mm and trammel nets are used for cod and each boat may set up to 10 fleets of up to 6 nets of 100–600 m each. The average 5–8 m boat or coble probably has between 1500 and 3000 m of net fishing at any one time. Together with cod, these nets frequently take whiting, sea bass and flatfish. The same species are caught on longlines (baited with mussel, squid, whelk or lugworm), which are more effective than nets during strong tides and provide fish in prime condition that often fetch high prices. From spring onwards, flatfish appear in greater numbers inshore, and trawling often takes place from dusk to dawn during the summer when most species

are more active. Plaice, turbot, brill and rays are landed throughout the district, whereas sole are principally caught in the south. Tangle nets with a mesh size of 100–120 mm for sole and plaice are most commonly used, though nets of 120–150 mm for plaice and brill and 250–300 mm for turbot, brill and rays are also used. These nets also take a bycatch of crabs and lobsters.

Since 1999, the NESFC has gathered and collated comprehensive statistics on the level of netting effort throughout its jurisdiction, which show a general decline from 11.4 million metre days in 1999 to 6.8 million metre days in 2004. The primary cause of such a change in fishing pattern is the general decline in North Sea cod stocks.

4.2.2 Pelagic fish (eg herring, sprat and mackerel)

Inshore trawlers rarely target herring or sprat, chiefly due to low market demand. Drift nets, with a mesh of 50–65 mm are used periodically to catch pelagic species, sometimes to bait pots and lines. Mackerel are caught on rod and line for personal consumption and for pot bait.

During 2002 a small intertidal gillnet fishery was established to take sea bass along the East Yorkshire coastline. In 2005 the NESFC applied to the Marine Stewardship Council for this fishery to be certified in recognition of its low impact, sustainable practices. The application has been agreed in principal and final MSC certification is subject to an objection period. The Committee is also constructing a new byelaw, which will assist in the management of the fishery by restricting the use of fixed nets and by issuing permits to fish between Flamborough Head and Withernsea lighthouse from October to March. This byelaw will be advertised for consultation in 2007. The quantity of sea bass caught by demersal trawling has increased steadily since 2003.

4.2.3 Diadromous fish (eg salmon, sea trout and eel)

Thirty licences were issued in 2006 for fishing for salmon and sea trout between Souter Point and the Yorkshire/Lincolnshire border, two for drift nets and 28 for T and J-nets. A weekly closure time from 1800h Friday to 0600h Monday applies to drift netting, and from 2000h Friday to 0600h Monday for T and J-netting. A nightly close time between 2000h and 0400h also applies to drift netting. There are closed 'playgrounds' around the mouths of the Rivers Wear and Esk and the Humber Estuary

Eels are commercially fished in the Rivers Humber, Tees and Wear, using fyke nets, eel criggs and pots, set

from spring through to autumn. Over-fishing, pollution and harbour developments have all been blamed for the decline of this fishery, but there is a general scarcity of eels throughout Europe due to a combination of anthropogenic and environmental factors. In 2005, the EA North East Region issued 35 licences for fyke nets.

4.2.4 Shellfish (eg *Nephrops*, lobster, brown crab, velvet crab, pink shrimp, brown shrimp, queen scallop, cockle, mussel and whelk)

The majority of inshore otter trawlers based in the north of the district target *Nephrops* between September and April; larger trawlers fish the Farn Deep, whereas the smaller vessels trawl off the Durham and Cleveland coast. Fishing effort has increased since the late-1980s as landings of white fish have fallen and demand for *Nephrops* has increased.

There is a small-scale beam-trawl fishery for brown and pink shrimp in the Humber Estuary and along the Lincolnshire coast, using nets with a mesh of between 20–25 mm. Brown shrimps are caught in shallower waters and in greater quantities than pink shrimps. Juvenile flatfish caught in shrimp trawls are separated from the shrimp catch using an onboard sieving device and then discarded back into the sea.

Potting for lobsters and brown crabs from near shore to grounds up to 40 mile offshore provides the main income for many vessels in this region, particularly in areas where landings of white fish have fallen. Effort has steadily increased over the years as operators switched from trawling to potting. In some places (eg Whitby and Bridlington), boats of 12–17 m set up to 2000 pots each. The highest quantity of lobsters is landed between July and September, when fishing conditions are suitable and the lobsters are active. Brown crabs are targeted for much of the year, the weather being the most restrictive factor. The smaller boats usually bring the majority of pots ashore in winter to avoid them being damaged, although pots are left fishing for lobsters and velvet crabs all year round in sheltered areas. Since June 1998, potting for lobsters, crabs, velvet crabs and whelks within the North Eastern SFC District, has been by written permit only (Byelaw XXII). Whelks are exploited in the south of the district, eg Bridlington, where they are taken in pots virtually all year round.

There is a queen scallop fishery off the Yorkshire coast, which has once again yielded good catches following their regeneration over the past decade. Although only a few

local boats specifically target this species during the colder months, queen scallops are also taken as a bycatch in the demersal trawl fishery. Since 2000 a limited king scallop fishery has developed between October and June. Vessels are restricted to working a maximum of ten dredges and dredging is prohibited within three nautical miles of the coast. Cockles and mussels are gathered by hand and there has been an increase in local interest towards cockle stocks.

4.3 Description of coastal fisheries by port

4.3.1 South Shields

Two full-time boats set nets and pots, and several part-time vessels are active during the warmer months. Several boats <10 m (including 2 cobbles) set gill and trammel nets for cod from autumn to spring, and then use tangle and trammel nets for plaice and turbot. This is one of the few places to show an increase in netting effort since 1999. The full-time static gear boats use pots for brown crabs and lobsters, plus 3 or 4 part-timers who work up to 30 pots each during the summer lobster fishery. Lobsters are also taken as a bycatch in the net fishery. Two licensed fishermen operate drift nets and T-nets for sea trout and salmon between April and August, fishing to an agreed rota, which includes 3 fishermen from North Shields.

4.3.2 Whitburn

Two beach boats of 4–5 m set nets and up to 100 pots each all year round, although the weather and tides can severely restrict fishing activity, especially in winter. Several part-time boats operate during the summer. During the colder months, cod and whiting predominate in net landings, whilst sole and plaice are taken from spring onwards. Sport anglers may launch up to 15 beach boats, principally during the weekends from April to the end of the year, and account for substantial quantities of cod, whiting and mackerel.

4.3.3 Sunderland (North and South)

Seven boats may use otter trawls for *Nephrops* and white fish, and a further 12 or so small boats and cobbles work fixed gear, the majority part-time. Since 1998, fishermen have landed directly to a purpose-built processing and retailing facility on the quay. The trawler fleet exploits *Nephrops* primarily between September and April, and effort on this species has increased following the development of a summer fishery during the late 1980s. White fish are often targeted during spring when *Nephrops* catch rates are lowest, and landings usually comprise cod, whiting, plaice, dabs, sole, lemon sole, turbot and rays.

Fishing activity is greatest during the warmer months, when nets are set for plaice and turbot and take a bycatch of dabs, rays, lobster and sea bass. Gill and trammel nets are set virtually all year round for cod and whiting. Several boats work up to 4500 m of netting, but there has been a general decline in netting effort in this area since 1999. Three boats are licensed to use drift nets for salmon and sea trout, which are not permitted around the mouth of River Wear. Only one eel licensee regularly fishes on the Wear, with fyke nets.

Pots are set for brown crabs from spring and lobsters during summer and autumn.

4.3.4 Seaham

Three small boats and cobbles, some fishing part-time, use gill and trammel nets from autumn to spring for cod. For the rest of the year, a variety of fisheries are undertaken, including gill and trammel netting for flatfish and potting for brown crabs and lobsters. Turbot, plaice and sole are caught along the sandy stretches of coastline from spring onwards, with the occasional landing of lobsters. The amount of nets and pots set by local fishermen increased through the 1980s and into the 1990s following the decline of local mining industries. However, effort has since declined. As a result of the buy-out of drift net licences in 2003, there is no longer anyone fishing for salmon and sea trout out of Seaham.

4.3.5 Hartlepool

Hartlepool supports a large inshore fishing fleet. The majority of the 13 otter trawlers have become increasingly versatile since the 1980s and now also use static gear for white fish, setting nets over wrecks for cod, pollack and ling on the way out to trawling grounds. One key recent development has been the use of large tangle nets for turbot. Between 20 and 30 small boats and cobbles are involved in netting, with over half doing so part-time, setting gill and trammel nets for codling and tangle and trammel nets for flatfish. Some of the larger boats work in excess of 15 nets totalling 9 000 m length and, as a consequence, many areas are saturated with netting out to 3 miles. Netting effort has increased in this port over the last 6 years.

As a result of the buy-out of drift net licences, there is no longer anyone fishing for salmon and sea trout out of Hartlepool.

The pot fishery begins in March and involves 27 vessels. The lobster fishery first peaks in April/May, followed by a quiet period and then a resurgence in August until the end of the year. Around a dozen boats set pots through the winter, hauling 2 or 3 times per week.

4.3.6 South Gare and River Tees

Up to 10 mainly part-time boats on this section of coast use gill and trammel nets for codling, plaice, sole and turbot in season, although poor cod catches have recently resulted in reduced activity with these gears. In winter, only 3 boats continue to fish, taking mainly codling. From spring onwards, 5 full-time crews regularly work pots, whilst a dozen or so part-time boats set pots for lobsters and crabs. In addition to the commercial fishing fleet, there are around 20 or so angling boats moored in this area, a small proportion of which also set nets and pots. One licence holder occasionally fishes for eels using fyke nets in the tidal section of the River Tees.

4.3.7 Redcar

Around 5 full-time cobbles and boats <8 m may work fixed nets throughout the year for cod, whiting, plaice, sole and turbot, and use pots for brown crabs and lobsters. They are joined by 6 part-timers during summer. The number of vessels using gill nets continues to decline, due mainly to the lack of cod. One or two of the larger cobbles occasionally use otter trawls, particularly during the summer for flatfish. Up to 15 vessels set lobster pots close to the shore over the rocky scars during the summer, and there are 7 full-time crews working up to 400 pots each. Up to 10 small angling boats take mainly cod, saithe and mackerel, and a few also set the occasional net or pot. One boat uses a licensed T-net for sea trout and salmon.

4.3.8 Marske

One full-time boat works from this beach landing, setting crab and lobster pots, and is joined by two part-time boats in summer. There is very little activity during the winter.

4.3.9 Saltburn

Up to three small boats operate from the beach landing, setting gill and trammel nets for cod and flatfish in season, and taking lobsters and crabs in pots and also in nets during the warmer months. There are no longer any lobster-holding tanks in the town. Angling is popular from the pier.

4.3.10 Skinningrove

Up to four beach boats are active throughout the year, setting nets for a mixed catch of white fish plus the occasional lobster, and two crews continue to operate during the winter with short-lines and gill nets. Three boats have salmon licences and use drift nets for both salmon and sea trout in season.

4.3.11 Staithes

Two of the four full-time boats use nets throughout the year, whilst one coble nets only in winter. In autumn and winter, gill nets are set close inshore for cod, whilst trammel and tangle nets are used in spring and summer, mainly for sole, plaice, codling and the occasional lobster. From March onwards, one boat sets up to 400 pots for brown crabs and lobsters, and is joined by two boats working fewer pots. Lobster storage tanks are located at the back of the village

4.3.12 Port Mulgrave

Two part-time boats use a beach-launched boat to work a few pots during the summer for brown crabs and lobsters.

4.3.13 Runswick Bay

Two boats set pots and nets throughout the year for cod, flatfish and shellfish. Ten or more non-commercial boats set a few gill and trammel nets during the summer.

4.3.14 Sandsend

A couple of boats set pots for brown crabs and lobsters from spring to autumn. Six pleasure boats use handlines for a variety of species including cod and mackerel. Both Runswick and Sandsend boats are launched by tractor from the beach.

4.3.15 Whitby

One of the main ports in this district, Whitby supports a fish market supplied by otter trawlers and static gear boats. The trawler fleet has declined in recent years and currently stands at 8 vessels of 12–23 m that fish widely in the North Sea. White fish provide the main landings from otter, pair and multi-rig trawls, consisting of cod, haddock, whiting, plaice, lemon sole, sole, rays and dogfish, plus *Nephrops*, the proportions of which vary according to season. Trawlers have been discouraged from fishing too close to the shore by the high levels of static gear set, and SFC byelaws prohibit trawling in the 3-mile zone between Staithes and Sandsend to reduce such conflicts and safeguard nursery grounds. Some trawlers also use *Nephrops* trawls, scallop dredges and static nets. A few local boats take queen scallops in dredges and trawls, 3–10 miles offshore from autumn to spring. This fishery expanded rapidly around 15 years ago, when boats from other districts visited the area, but soon declined. In the last two years, some Whitby fishermen have found a useful sideline in red mullet that have become more abundant in the southern North Sea. Catches of sea bass have also increased in recent years.

Up to three boats set nets regularly for white fish, targeting cod during the winter and taking saithe, whiting, pollack and the occasional flatfish as a bycatch. From spring onwards, flatfish such as sole, plaice, turbot, brill and rays are landed. Nets set around wrecks yield cod, pollack, ling and conger eel. Netting effort has declined since 1999.

Up to 7 vessels still use traditional longlines, principally for cod and often as an alternative to nets. Most boats use 4–6 lines each with 250 or so hooks, baited with mussel or squid.

The lobster fishery is very popular during the summer, when it attracts 25 boats. Brown crabs are exploited both inshore and offshore by larger boats setting up to 1 000 pots each. Velvet crabs are caught in shallow waters and sometimes taken as a bycatch with lobsters.

Whitby fishermen take up the two drift net licences issued in the Yorkshire area, and 5 netsmen are licensed to fish for salmon and sea trout with T-nets. Net fishing is not permitted around the mouth of the Esk.

4.3.16 Robin Hood's Bay

Five beach boats of 4–6 m set up to 100 pots each for crabs and lobsters during the warmer months and, during the winter, 2 or 3 boats operate a small number of trammel and gill nets, mainly for cod. Since the late 1980s, the fleet has halved and the longline fishery has petered out in favour of nets.

4.3.17 Scarborough

Scarborough is a well-facilitated port with a market supplied by 9 otter trawlers and up to 20 small static gear boats. The trawling fleet has declined in recent years and concentrates on white fish throughout the year. Several boats are classed as offshore vessels, being up to 24 m in length and regularly make week-long trips. The remainder are of 10–18 m and work 12–36 hour trips fishing within 50 miles of the coast. Up to four vessels may work as pair teams, a method which has become less popular since the early 1990s, possibly because catches contain a high proportion of small fish, especially haddock and whiting, which are often difficult to sell. During the colder months, the inshore trawler fleet lands cod, haddock, whiting and, to a lesser extent, flatfish such as lemon sole, plaice and rays. In spring, a greater proportion of sole, plaice, turbot, brill and rays are taken inshore. Since 2003, catches of sea bass by trawlers have increased significantly. Trawlers frequently operate from dusk to dawn during the summer and a good plaice fishery is expected in autumn, before cod re-appear. Several visiting Scottish vessels dredge locally for queen

scallops between autumn and spring in some years. Queen scallops are also taken as a bycatch in demersal fish trawls. Since 2000, a small inshore scallop fishery has developed between October and June, which has also attracted a small number of nomadic vessels.

In autumn and winter, up to 5 cobbles and small boats fish gill and trammel nets for codling and Dover sole in season, often close to the coast in areas such as Filey Bay. The influence of part-time fishing activity is much less here than further north.

Up to 16 vessels set pots out to 6 miles all year round, though many are brought ashore in winter to avoid storm damage. Effort aimed at crabs has recently increased, and a few of the larger boats set pots further offshore for brown crab all year working as far south as the Wash. The lobster fishery attracts a lot of interest during the summer. One fisherman possesses a T-net licence and predominantly catches sea trout from April onwards.

4.3.18 Filey

Five full-time cobbles, launched from the beach, use a variety of fishing gears including pots, gill and trammel nets, longlines and T and J-nets. Trawling is prohibited within Filey Bay to protect juvenile fish and avoid conflict with static gear fishermen. Nets are used to catch mainly cod from autumn to spring in and around the Bay. From April, most boats turn their attention to the pot fishery and some cobbles each set up to 650 pots for lobsters. Some boats continue to net for demersal fish and good catches of sole can be expected from April to June. Three licensees regularly set T and J-nets to take mainly sea trout.

4.3.19 Flamborough (North and South Landing)

Three cobbles fish full-time from the north of Flamborough Head and three beach boats fish from South Landing. Nets are used for cod, taking bycatches of ling, rays, pollack, whiting and sea bass from autumn until spring, and pots are favoured during the summer and autumn. In spring and summer, a couple of beach boats from South Landing set gill nets for cod and other roundfish, and nets are also set for flatfish, particular sole. Two cobbles from North Landing also take out angling parties and sightseeing trips.

4.3.20 Bridlington

Thirty eight vessels target shellfish all year round up to 75 miles from port, each setting up to 2000 pots for brown crabs and lobsters, whereas the smaller vessels in the fleet, including cobbles, mini-keel-boats and fast-workers, set up to 800 pots each from spring onwards. During the colder months, 12–14 boats set cod nets and one boat

uses longlines. From spring onwards, flatfish nets are set along the Holderness coast for sole, sea bass, plaice, turbot and rays, plus a bycatch of crustacea.

There are no longer any dedicated trawlers based at this port. One vessel periodically works trawls combined with scallop dredges between October and June.

Twelve licensed fishermen use mainly T and J-nets to catch sea trout and a few salmon.

4.3.21 Hornsea

Up to 8 beach boats of 5–7 m are active throughout the year, setting nets within a few miles of the shore for sole and potting for brown crabs and lobsters. Several boats use nets for cod and whiting during winter, although stormy weather and strong tides significantly reduce effort.

4.3.22 Tunstall and Withernsea

Up to 15 beach boats regularly fish from this exposed coastline and are joined by many more during the summer, working up to 400 pots each for brown crabs and lobsters and also netting for flatfish. Some of these boats also use cod nets in winter and spring, when fishing is often restricted by the weather.

Two licensed netsmen fish for sea trout with T-nets.

4.3.23 Spurn Point, Kilnsea and Stone Creek

One beach-launched boat fishes full-time throughout the year, setting nets for cod and flatfish weather and tides permitting. Pots are set out to a few miles offshore for brown crabs and lobsters. Several part-time boats set pots and the occasional net in the summer. Several angling boats are active during the weekends.

4.3.24 Kingston upon Hull

Following the declaration of 200-mile territorial limits in the mid-1970s, the large distant-water Arctic fleet at Hull dwindled to the 9 or 10 offshore trawlers today. These vessels work mainly in mixed fisheries in the Norwegian sector and have also tried for redfish off Iceland and Atlantic deep-water species, but with little success. The large processing sector based here depends on fish supplied from other parts of the UK, together with imports. Most landings by UK vessels are frozen fish that go directly to cold store, and an increasing amount of fish goes direct to processors, by-passing the auction market. Hull has one <10 m vessel, which fishes full-time mainly inshore along the Holderness coast, using nets to take cod during the winter, pots for brown crabs, or otter and beam trawls to take brown shrimp, sole, dabs, plaice and flounders in spring.

A licensed eel fishery takes place between April and October in the upper reaches of the River Humber and some of its tributaries, such as the Ouse, Hull and Trent.

4.3.25 South Ferriby to Immingham

Fishing activity on the south side of the River Humber has declined since the early-1980s, though a few vessels <10 m use light beam trawls for shrimps in autumn and winter, whilst several other boats use gill nets and lines for cod. From spring onwards, the trawlers focus on sole and other flatfish. The area is popular with anglers, who catch cod, whiting, eels and sole as far upstream as the Humber Bridge.

4.3.26 Grimsby

Until the mid-1970s, this port supported around 200 offshore fishing vessels plus around 30 inshore boats. Like Hull, the port's processing industry has become increasingly dependant on fish transported overland from other UK ports and imported from countries such as Iceland and Norway. The local fleet has greatly declined and now consists of 8 beam and otter trawlers, 4 seiners, 4 gill-netters, 2 longliners and 1 potter. This fleet still principally works offshore and over 50% of the vessels are ex-Danish anchor seiners of 17–24 m, some having been adapted to trawl or use static gear. In addition to the local fleet, up to 19 >10m Dutch 'flagship' boats are administered from Grimsby, where they are registered as British owned and fish against the UK quotas, but have mainly non-British crews and land in other EU countries. Several medium-sized Grimsby based vessels have worked on oilrig guard ship duties when this was more profitable than fishing, thus freeing up quota for others.

Approximately 10 boats are confined to fishing inshore, several of which are only active in the Humber Estuary. Inshore trawlers target sole during the summer and, from autumn, the smaller trawlers exploit brown shrimps and are sometimes joined by larger vessels from the Wash. The estuary is recognised as an important nursery area for sole, plaice and cod, and shrimp vessels use a 'veil' separator in their nets and onboard sieving devices to reduce the by catch of juvenile flatfish in particular. When catch rates are low, the shrimpers move down the Lincolnshire coast or take up alternative fisheries such as gill netting for cod. The static gear fleet sets nets and lines for cod within the Estuary during the colder months and, from spring onwards, nets are used for flatfish and pots are set for crabs, lobsters and whelks. Visiting boats, eg from Devon and Cornwall, occasionally prosecute an

offshore brown crab fishery (depending on crab fishing activities elsewhere), and target whelks when crab catches are low.

4.3.27 Cleethorpes, Humberston and Tetney

Ten to twelve part-time and hobby vessels work from Cleethorpes, using nets to catch mainly cod in autumn and winter and flatfish and rays from spring onwards. In winter, stake nets are set on the beaches for a mixed catch of cod, whiting and flatfish. The hand-rake cockle fishery that ceased in 1994 has since recommenced although it was closed again during 2005 due to low stock levels. Oysters are occasionally taken off this coast, although there has been no directed effort in recent years.

4.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	3,327	3,609
Other gadoids	2,225	1,483
Sole	19	110
Turbot & brill	24	131
Other flatfish	446	703
Small pelagics	0	+
Bass	7	44
Other finfish	278	290
Sharks & rays	52	67
Shellfish		
Whelks	310	164
Gastropods		
Scallops	20	183
Cockles		
Other bivalves	0	=
Edible crab	2,464	2,484
Other crabs	491	747
Lobsters	607	6,679
<i>Nephrops</i>	458	1,359
Shrimps & prawns	23	40
Cephalopods	34	103
Total	10,786	18,196

5. Lincolnshire, Norfolk and Suffolk: Donna Nook to Shotley (*Eastern SFC*)



5.1 Synopsis of current inshore fisheries

This exposed, low-lying and fine sediment type coast has led to the development of most ports in river estuaries that provide the only permanent, safe anchorages. Beach boats (known locally as longshore boats) operate throughout the district, although their activity can be severely restricted by the wind and tides and a high proportion of vessels fish part-time in seasonal fisheries. Most fishing is undertaken on day-trips.

The principal inshore fisheries off the south Lincolnshire and north Norfolk coasts are for shellfish. Wild and cultivated stocks of molluscs are important throughout the district; mussels and cockles in the Wash, and

mussels and oysters that are grown-on in harbours along the north Norfolk coast. Brown shrimp, mussels and cockles provide the mainstay for vessels at Boston and King's Lynn that fish throughout the Wash, which is characterised by its shallow waters, intertidal areas and sand banks. Chalk reefs off the north Norfolk coast and offshore banks support crab and lobster fisheries, and many fishermen process their catches themselves. Sprat are trawled in the Wash, herring are taken in drift nets in April and May, and sea trout, bass, mullet, sprat and mackerel are taken in summer and autumn south of Sheringham. Bait diggers and shellfish gatherers operate in the extensive intertidal zones between Donna Nook and Sheringham.

Finfish are more important along the north Lincolnshire and Suffolk coasts, both offering very little in the way of safe berths or anchorages other than at Lowestoft, Southwold, Felixstowe and Ipswich. Consequently, many small beach boats (of around 6 m) are used to trawl, longline up to 12 miles offshore and use drift nets within a mile or two of the shore. These longshore boats exploit seasonal fisheries - sole, bass and sea trout in summer, shrimp, herring and whiting in autumn, cod and sprats in winter and rays in spring - and catches are usually sold on the beach or locally to fish retailers. Anglers fishing from the shore or in boat parties can catch substantial quantities of cod, whiting, rays and bass.

5.2 Information on species targeted, fishing methods deployed and fishing restrictions inshore

5.2.1 Demersal fish (eg cod, whiting, sole, plaice, brill, flounder, dab, ray, dogfish)

Gill and trammel nets are set for cod and whiting during the colder months and, in spring, tangle and trammel nets are set for flatfish, such as sole, plaice, turbot and rays. Sole are particularly important in the south. However, the last few years have seen a general reduction in the level of netting activity. Longlines are used for cod, rays, dogfish, ling, pollack and turbot. Spurdog are exploited during spring and early summer when they appear nearshore. Fish caught on lines are landed in better condition and therefore fetch a higher price than fish caught in nets or trawls. Inshore trawlers land a mixed catch of demersal fish throughout the year. Beam and otter trawlers target flatfish during the warmer months, using tickler chains attached to the front of the trawls to dig into the sediments and disturb the fish into the nets. Eastern SFC byelaws, which were amended in December 2001, prohibit trawling within 3 miles of the north Norfolk coast between Blakeney and Mundesley to protect traditional potting grounds. Vessels over 15.2 m are prohibited from trawling within 3 miles of the Suffolk coast (south of Covehithe to the southern extremity of the district). Elsewhere, any trawlers of more than 15.2 m that regularly fished inside 3 miles before advertisement of this byelaw may continue to do so until change of ownership of the vessel.

5.2.2 Pelagic fish (eg bass, mullet, herring, sprat and mackerel)

At times of local abundance, mainly in late autumn, drift nets with a mesh of 50–65 mm are used for herring. During late summer, sprats and mackerel are caught in

small quantities, and a winter sprat fishery takes place in some years when these fish are locally abundant. Bass are caught in fixed and drift nets during the summer, especially off the Suffolk coast and in north Norfolk, together with grey mullet. Most activity directed towards bass is by unlicensed, part-time individuals using nets or angling, though fishermen that usually pot for lobster and crab may switch to fishing for bass if catches are poor.

5.2.3 Diadromous fish (eg sea trout and eel)

Sea trout are seasonally abundant off the Norfolk and Suffolk coasts, and 36 licences were issued to net them in 2006, through an NLO introduced in 1996 as part of the fishery phase-out. The season extends from 1 April to 30 September, and licensed drift nets tend to be 200–500 m in length and have 80–90 mm meshes. A quarter of the licences are for 'other' nets that take sea trout, bass and mullet (sea trout are also taken in unlicensed nets set for bass and mullet). Eels are taken in fyke nets set in numerous rivers and estuaries. Falling catches since the 1970s have been accompanied by an increasing incidence of red spot virus (*Vibrio anguillarum*), which can result in up to 50% of the landings being unfit for live sale. The eel fishery was particularly important in the Broads rivers and the Rivers Stour and Orwell, and 517 fyke nets were licensed by the EA in 2005/6.

5.2.4 Shellfish (eg cockle, shrimp, mussel, brown crab, velvet crab, lobster, whelk and oyster)

Wild and cultivated mollusc fisheries occur throughout the district, but mainly in the Wash and off the north Norfolk coast. The principal fisheries in the Wash are for cockles, mussels and brown shrimps. Following the improvement of shellfish markets during the 1980s, these shellfisheries have expanded, though they are subject to strict management by licensing, fishing gear design, closure of shellfish beds and landing quotas through the 'Wash Fishery Order (1992)' in order to safeguard stocks. The SFC leases areas of seabed for the cultivation of molluscs under several orders, which are also granted along the north Norfolk coast where oysters and mussels are farmed and cultivated.

Cockles are harvested from the Wash from spring through until the end of the year, primarily by hydraulic suction dredging. This has superseded the traditional method of 'blowing-out' (where a vessel's propeller is used to concentrate the cockles into a pile, the cockles then being gathered by hand when the tide recedes) as dredging is more efficient, especially in areas where

cockles are found in low densities. Under Eastern SFC byelaw 3, however, molluscan shellfish can only be taken by hand gathering or fishing gears that cause less than 10% of the catch to be smashed or have been shown not to cause environmental damage. Fishing effort for cockles has risen since the mid-1980s as other fisheries have declined in the Wash and demand for cockles has increased. Together with a decline in the spawning stock, this has led the Eastern SFC to impose seasonal closures to conserve cockle stocks, which have been supported by local cockle processors.

Mussels are harvested in the Wash and around the north Norfolk coast during the winter when meat quality is best, using either simple 'Baird' dredges or by hand. An MLS of 50 mm is imposed, except in the Wash where the MLS is 45 mm. The wild stocks have decreased since the mid-1980s due to a high level of fishing and recruitment failure. Consequently, the number of privately owned beds on which fishermen have re-laid mussel seed has increased as stock levels on public beds have fallen. Many of the remaining mussel beds are situated in littoral areas, where mussels tend to grow less well. Pacific oysters are cultivated in private beds principally along the north Norfolk coast in harbours and inlets. They are farmed in preference to the native oyster as they grow faster, are immune to the effects of the *Bonamia* parasite, and can be grown intertidally as they are resistant to frost.

The shrimp beam-trawl fishery in the Wash takes place all year round, though it is restricted during the winter as storms and low temperatures force shrimps into deeper waters. Brown shrimp are caught in the channels between the inner banks of the Wash and are of greater commercial importance than pink shrimp, which are caught in the deeper regions (usually >10 m) and for which there are limited market opportunities. Although the EC legal MMS for shrimp has been 16 mm since 1 January 2000, most fishermen continue to use 22 mm mesh. This is an important nursery ground for finfish such as plaice, sole, cod and herring and, since July 2002, all boats trawling in the Wash have to use a veil net or separator grid (EC Council Reg 850/98 Art 25) attached to shrimp trawls to separate flatfish from the shrimp.

A brown crab fishery takes place on the Race Bank, Dudgeon Shoal, and Triton Knoll off the Lincolnshire coast and along the north Norfolk coast from spring to autumn, though very few crabs are landed at Lincolnshire ports. There has also been a recent expansion of this fishery on inshore grounds in north Norfolk and also at Aldeburgh in Suffolk, and the fishery now starts in February. Many

beach boats still use traditional wooden creels, although parlour pots made out of metal or plastic have become popular. Some of the smaller fishing communities are highly dependent on this resource and prepare the crabs for sale themselves. Lobster potting off the north Norfolk coast peaks during the summer when part-timers join the fishery. A thriving whelk fishery once existed between Brancaster and Wells with boats fishing out to 30 miles offshore. However, catch rates have fallen since the mid-1980s and few vessels actively pursue this fishery today.

5.3 Description of coastal fisheries by port

5.3.1 Donna Nook, Saltfleet and Mablethorpe

No local vessels are currently active in this area, but shrimp beam trawlers from Boston, Kings Lynn and Grimsby periodically fish off this coast. Large vivier-equipped potting boats working from Grimsby exploit brown crabs outside 6 miles.

5.3.2 Huttoft to Gibraltar Point

Approximately 6 Grimsby vessels use shrimp beam trawls, and longlines and fixed nets to catch cod in autumn and winter, taking bycatches of whiting, dogfish, pollack and ling. Visiting otter trawlers and beam trawlers (some from SW England) fish within a few miles of this coast during the spring sole fishery. One 10 m stern trawler is based at Gibraltar Point and two <10 m vessels are based at Skegness, one deploying longlines and pots and the other targeting shrimps. One <10 m vessels is based at Chapel Point, fishing part time using a variety of pots, nets and longlines. Most boats set pots for brown crabs from spring onwards.

5.3.3 Boston

Twenty-one local boats use hydraulic suction dredges to harvest cockles in the Wash from spring until autumn, and up to 22 boats use 'Baird' dredges to harvest mussels from November through winter, when the cockle fishery has finished. However, as the mussel stocks have declined in the Wash, it has become more profitable to exploit cockles until the end of the year. The quality of cockle meat is poor at the start of the season after spawning, and the main effort occurs June and August. Several local vessels dredge for cockles elsewhere, for example in the Thames and Solway, often at the end of the summer, when nearly all of them switch to shrimping. Some of the fishermen also gather cockles by hand on the sands between Donna Nook and Cleethorpes.

Thirteen boats of 7–14 m regularly beam trawl for both brown and pink shrimp from the end of summer to the following spring, depending on availability, weather and market prices. Sprat and herring are taken in mid-water trawls (32 mm mesh) during autumn and winter.

5.3.4 Fosdyke

One part-time boat beam trawls in the river channels for brown and pink shrimp and sometimes takes mussels and cockles. One vessel uses fixed nets to catch mullet and flatfish during spring and summer.

5.3.5 Sutton Bridge and Wisbech

No boats are active from this port. Local fishermen dig for bait (lugworm and ragworm) and collect samphire (a marsh plant eaten as an hors d'oeuvre). There is eel fishing in the River Nene from spring to late autumn, principally with fyke nets.

5.3.6 King's Lynn

This port has 31 active vessels of 8.5–18 m length. Two <10 m vessels use twin beam trawls to catch shrimp and the remainder of the fleet (all >10 m vessels) either use twin-beam shrimp trawls or dredges for cockles and mussels.

Brown shrimp and smaller quantities of pink shrimp are landed all year round. Marketing improvements during the 1980s led to a rapid modernisation of the fleet, but rising competition within the Wash has forced many shrimp trawlers to fish in the Thames and Humber estuaries, as well as further offshore.

The cockle fishery has attracted more interest from the local fleet in recent years as stocks have recovered. Some of the smaller boats not equipped with suction dredges use traditional hand gathering. In recent years, high demand has ensured good prices for locally processed cockles.

5.3.7 Wootton to Hunstanton

Three longshore boats use nets for sea trout, bass, mullet and flatfish from spring to autumn, when 12 other individuals set fixed nets on the beach for bass, mullet and flatfish.

Most of this coastline is covered by the private Le Strange shellfishery, and there are 2 or 3 natural mussel beds between Wootton and Hunstanton. A few boats use suction dredges for cockles and several people rake them from the beach. Grimsby trawlers take sole and rays off this coast in June.

5.3.8 Thornham and Titchwell

Four or five sea trout licence holders operate in this area, setting stake nets part-time. Twenty other individuals set fixed nets on the beach for bass, mullet and flatfish from spring to autumn. Three part-time angling boats are registered in Thornham. Few native oysters now remain along this coast, where Pacific oysters are farmed in numerous creeks. Around a dozen part-time <10 m boats trawl for shrimp and pot for crabs.

5.3.9 Brancaster and Burnham Overy Staithe

Pacific oysters, Manila clams and mussels are cultivated in areas covered by several orders. Oysters cultivated by 7 full and part-time growers from Titchwell to Burnham Norton are harvested all year round. From late autumn to early spring, 8 full and part-time fishermen harvest mussels, which are sent to market after purification. Seed mussel obtained from the Wash is relayed onto private beds, although in recent years there has been a shortage of seed mussel in the Wash.

Six <10 m vessels are active in this area, potting for brown crabs and whelks and dredging for mussels. Two >10 m vessels dredge for cockles and mussels and may set pots for crustaceans. One full-time potter works from Burnham. Brown crabs appear to have become more abundant on the whelk fishing grounds.

5.3.10 Wells

Twelve boats of 8–11 m from this tidal drying harbour each set between 100–400 pots for brown crab and a similar number of whelk pots out to 50 miles offshore (eg Triton Knoll, Race Bank) for most of the year. Though more effort has been directed towards crabs since the mid-1980s due to a fall in whelk catches inshore, and crabs still provide the mainstay, whelk landings increased substantially in the late 1990s. Fishing effort peaks during the autumn when lobsters are also taken. Two vessels also use drift nets for sea trout, bass and mullet during the summer and, along with 8 individuals, set fixed nets on the beach for sea trout, bass, mullet and flatfish.

5.3.11 Morston and Blakeney

Six longshore boats set pots for crabs and lobsters from spring through to autumn, and two boats target crabs all year round, with the peak season in the autumn. A few fishermen cultivate mussels and oysters within a several fishery in the harbour. Two vessels may also set fixed nets for sea trout, bass and mullet. Two other individuals

set fixed nets on the beach for sea trout, bass, mullet and flatfish. Many fishermen supplement their earnings from reed cutting, bait digging and chartering angling trips. From Sutton Bridge to Blakeney, between 200–300 people dig lugworms, which for some is a full-time occupation. There may be 300–400 gill nets set for flatfish between Thornham and Blakeney. To the east and south from Blakeney there is a considerable amount of shore angling, especially for cod in winter and bass in the warmer months.

5.3.12 Cley, Salthouse and Weybourne

Chalk reefs between Cley and Bacton provide good crab and lobster potting grounds. There are currently three active longshore boats fishing full-time from these villages, each setting up to 250 pots, around 25 pots to a line, out to 5 miles offshore. Peak landings of crab are expected in May and June. These vessels also set nets and lines for cod and whiting in winter, and target rays and dogfish in spring.

5.3.13 Sheringham

Six full-time boats of 5–7 m rely almost entirely on the pot fishery, fishing single-handedly for brown crabs and lobsters from March to October. All vessels may also use trammel and tangle nets to target cod in the winter and bass during the summer. Drift nets are used during the autumn herring fishery.

5.3.14 East and West Runton

Nine longshore boats base themselves at these two landing points and concentrate on the potting fishery for brown crabs and lobsters for most of the year. Two vessels use trammel and tangle nets during the winter for cod, and trammel and gill nets for bass during the summer. Occasional drift netting for herring takes place during the autumn.

5.3.15 Cromer, Overstrand and Trimingham

A fleet of around 11 boats between 5–10 m use pots principally for brown crab from March to November. This fishery peaks between April and June, each boat setting between 150 and 300 pots out to 5 miles from the coast. Pot bait includes cod and plaice frames acquired from the Lowestoft market or dab, flounder, gurnard, herring or sprat. The fishermen themselves process much of the catch. Lobsters are targeted for a short period during the summer at a time when brown crab moult. A few boats set whelk pots, use lines and nets for cod in winter and drift nets for herring in autumn. Three or four boats move between these ports and may also fish out of Mundesley.

At Cromer there is a trend away from traditional wooden boats to single-handed fibre-glass craft and two catamarans are now potting from this port. Three vessels deploy drift nets during the autumn herring fishery.

5.3.16 Mundesley, Bacton, Happisburgh and Sea Palling

Five vessels operate from the beach, using pots for brown crabs and lobsters and tangle and gill nets for sole, bass and sea trout during the summer. One vessel sets tangle nets for cod during the winter. Drift nets may be used for herring. The whelk fishery off Sea Palling supported 10 full-time Cromer boats during the winter until the late 1980s, when the fishery declined before recovering in the mid 1990s.

5.3.17 Winterton, Hemsby and California

Twelve beach boats from Winterton and the surrounding small landing points fish mainly pots for crabs and lobsters on a small scale during the warmer months. This is the southerly limit of the Norfolk potting grounds

5.3.18 Caister

Five vessels operate from this area, mostly part-time using drift nets for herring and mackerel. There is some gill netting for thornback rays, and some of the full-time boats occasionally trawl for brown shrimps and flatfish.

5.3.19 Great Yarmouth and Gorleston

An offshore fleet of longliners and an inshore fleet that participates in numerous fisheries base themselves in Great Yarmouth harbour, which is also used by many private angling boats. Four boats >10 m use longlines for cod in winter and rays and dogfish in spring and summer, with ling, whiting and turbot also being caught. A few boats use baited lines attached to jigging machines. Two vessels use gill and trammel nets for thornback rays and sole. In the summer, drift netting for bass occurs. Four charter vessels operate from this port, offering fishing trips to local wrecks.

5.3.20 Hopton and Corton

The 5–7 longshore boats operating from these villages are at the mercy of the weather and water currents, and onshore winds and large swells can prevent launching for long periods. Nets are drifted for herring in autumn and for sea trout and bass during spring and summer. Gill and trammel nets are set for cod and whiting in winter, and sole, plaice, rays and dabs from spring onwards. Small

beam trawls are used for brown shrimp in season. There is a strong presence of anglers along the beaches, but the once excellent cod and whiting fishing from autumn to spring has greatly declined.

5.3.21 Lowestoft

There is a full-time fleet of around 12 vessels at Lowestoft, with a few part-timers from the Pakefield area. There has been a steep decline in the offshore fleet, and only one local beam trawler of >10 m remains. Two visiting beam trawlers from King's Lynn occasionally join this vessel. One >10 m vessel fishes for sole and bass using otter trawls, but many other trawlers have elected to perform oil-rig guardship duty. The beam and otter trawlers fish within 12 miles of the coast, landing mainly plaice, sole, turbot, rays, dabs, cod and whiting. The local beam trawler also fishes for brown shrimp. One >10 m and approximately ten <10 m vessels set longlines. The larger vessel is fully automated and tends to work offshore. The smaller longliners often set nets for white fish on the way out to longlining grounds, though intense trawling activity restricts netting in many areas. Fixed nets are used to target demersal species such as sole, rays and cod, whilst drift nets are used for bass, mullet, herring, mackerel and sea trout. Pots may be set for lobsters and crabs. Inshore fishing along this coast is sometimes disrupted by marine aggregate dredging activities.

5.3.22 Pakefield and Kessingland

There are three part-time longshore boats fishing along this stretch of coast whose landings are sold from beach stalls. Various types of fixed nets (eg gill, tangle and trammel nets) are used to catch cod, whiting, sole and plaice in season, and longlines are also set for cod, whiting, rays and dogfish. During the summer, the high incidence of weed often forces fishermen to set pots for brown crabs and lobsters or else set nets around the many wrecks within 6 miles of the coast. Drift nets are used in summer for sea trout and bass. Herring can be caught virtually all year round using drift nets and mid-water trawl gear, although they are of best quality in autumn, when sprat are also exploited. Beam trawlers from King's Lynn occasionally fish for shrimp along this coast.

5.3.23 Southwold and Walberswick

Three vessels from the river target bass, mullet and sea trout during the warmer months, mainly using drift nets. Sole is the main target species from spring onwards, with fixed trammel nets being the predominant gear used. A few fishermen set fyke nets for eels in the River Blyth, although the numbers of fishermen are involved in this

fishery has dwindled. Brown shrimp are taken in the estuary and along the coast by several boats using beam trawls. Five stern trawlers <10 m length take sole, plaice, rays, dab and flounder and two charter-angling vessels operate from this port. Both Pacific and native oysters are cultivated further up the river.

5.3.24 Dunwich, Sizewell and Thorpeness

One <10 m vessel operates from Sizewell, using drift nets during the winter for herring and sprat, and fixed and drift nets in the spring and summer for bass, sole or thornback ray (rocker). A small stern trawler works from Dunwich.

5.3.25 Aldeburgh

Three longshore boats operate from this beach, using drift nets for sole, cod and small bass during the winter and drift nets and longlines for sole, skate, bass, and mullet during the summer and autumn. A few eel fyke nets are sometimes set in the Rivers Alde and Ore. Pots are set for brown crabs and lobsters between February and November, with increasing quantities of crab being taken early in the season.

5.3.26 Orford and Hollesley Bay

Three or four vessels work from this port. One full-time fisherman drifts trammel nets during the summer and autumn for sole and thornback ray, with a bycatch of bass. During the winter, longlines are used to catch bass and drift nets take herring. Two or three small single-handed vessels fish part-time, using drift nets for sea trout, bass and mullet on the local banks and setting pots for lobsters and crabs in season. Sole, bass, mullet, crab and lobster are also caught in the river. During the summer, one or two modern GRP boats (known as 'fastworkers') use rod and lines, commercially or for angling charter, on wrecks and banks up to 30 miles offshore for cod and bass, plus smaller amounts of pollack and ling.

Pacific and native oysters and, to a lesser extent, mussels are cultivated in the River Ore and Butley Creek, where holding pits have been constructed for storing molluscs prior to sale.

5.3.27 Felixstowe Ferry

Seven vessels use drift nets during the winter herring fishery. During the summer, these vessels will use fixed and drifted trammel nets for sole, rocker, bass, dogfish and other flatfish. In the past, considerable effort was directed towards shrimp and eels, though landings of both species has steadily fallen over the years and these fisheries now involve few fishermen.

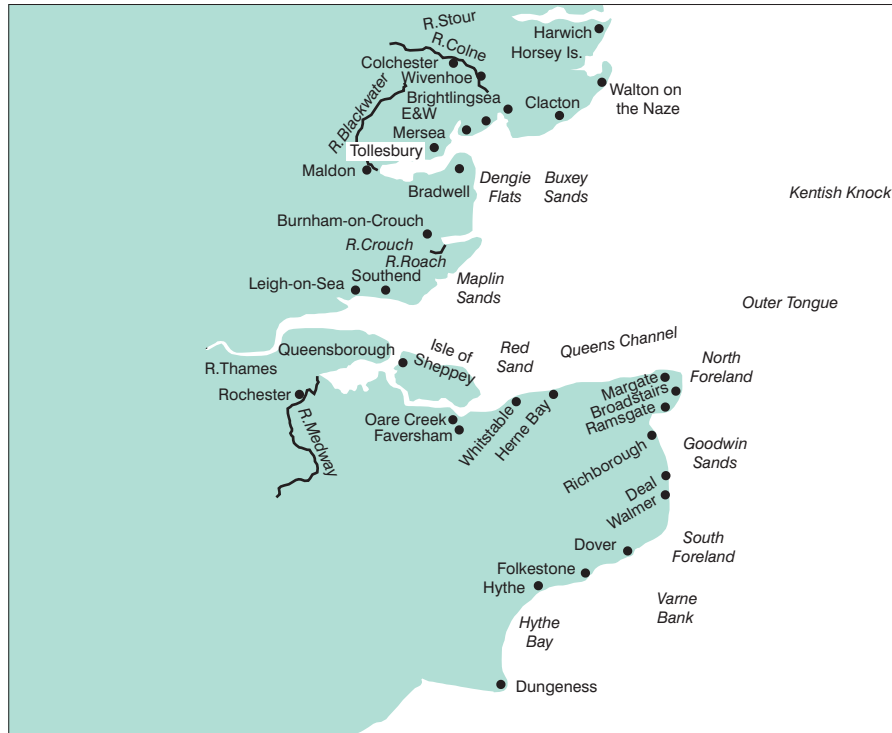
5.3.28 River Stour and Orwell estuaries and Ipswich

At Shotley, there are 4 full-time < 10 m boats who use longlines and trammel nets for cod and whiting in winter (when available) and dogfish, rays, sole and bass in spring and summer, when they also set pots for lobsters. A few part-time boats fish the Stour, eel fyke netting, shrimp trawling, lobster potting and setting stake nets along the shore for flounder, sole, bass and mullet. Six boats <10 m work part-time in the Orwell, netting and trawling for eels, bass and flatfish during the summer and drift netting for herring during the winter. The bass fishery attracts many recreational angling boats that fish both in the estuaries and outside them. In the past, more fishermen were involved in the eel fishery, but catches have fallen over the years.

5.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	50	142
Other gadoids	3	2
Sole	91	653
Turbot & brill	3	14
Other flatfish	16	8
Small pelagics	80	55
Bass	8	53
Other finfish	3	8
Sharks & rays	123	227
Shellfish		
Whelks	2	1
Gastropods		
Scallops		
Cockles	108	59
Other bivalves	2	1
Edible crab	704	1,073
Other crabs	227	254
Lobsters	105	1,022
<i>Nephrops</i>		
Shrimps & prawns	414	699
Cephalopods	0	+
Total	1,938	4,272

6. Essex and Kent: Harwich to Dungeness (Kent and Essex SFC)



6.1 Synopsis of current inshore fisheries

The sheltered waters of the numerous estuaries along the Essex coast and in the Thames Estuary itself allow small boats to fish through most of the year. However, as catches of cod and whiting have declined, there has been a considerable decline in fishing effort during the winter. The larger boats trawl for sole, sprats, herring and thornback ray, whilst trawling for cod, eels and shrimp has declined in recent years. Dredging takes place for whiteweed (see 6.2.5) and cockles. The smaller boats work oyster lays, use fixed and drift nets for sole, cod, bass and mullet, longlines for cod and occasionally bass, handlines for bass, eel fyke nets and whelk and lobster pots. A small number of boats exploit the 'Blackwater' and 'Thames' herring from October to February, but catches have recently been poor. There is considerable angling activity in this region, both from the shore and by private and chartered boats, and it is possible that these catches constitute a significant part of the total landings of some species, particularly cod and bass, from within the 12-mile zone.

From North Foreland southwards along the English Channel coast, most boats >9 m use otter trawls for sole and plaice during the warmer months and for cod and whiting in winter. The smaller (<9 m) static gear fleet uses gill, tangle and trammel nets for the same species and drift nets for bass and herring in season. Some boats set in excess of 50 nets each within 4 miles of the shore. Pots are set for lobsters on rocky grounds close inshore, with brown crab becoming more important on cleaner grounds further offshore. Whelks are also taken in pots at scattered localities.

6.2 Information on species targeted, fishing methods and fishing restrictions inshore

6.2.1 Demersal fish (eg sole, plaice, lemon sole, ray, flounder, dab, cod and whiting)

The number of vessel operating has reduced considerably over recent years to just above half of those active 10 years ago. The majority of inshore trawlers and static gear boats are highly dependent on the sole fishery, which lasts

from spring through to autumn. Drifting and anchored tangle and trammel nets with a mesh of 90–100 mm (inner mesh of a trammel net) are set close inshore, and across offshore sand banks, taking bycatches of bass, rays and other flatfish such as plaice, flounders and dabs. Anchored tangle nets with a mesh of around 260 mm are used for rays – most commonly the thornback ray. The autumn gill and trammel net cod fishery has declined markedly in the last few years. Inshore trawlers tow for flatfish such as sole, plaice, lemon sole and rays.

6.2.2 Pelagic fish (eg bass, mullet, herring and sprat)

Gill nets, either fixed or drifted, and trammel nets are used to catch bass between spring and autumn. Mesh sizes of 90 mm are used inshore where smaller fish predominate and meshes of 95–100 mm are used on more offshore grounds for larger fish. The availability of live sandeels has made rod and line more popular with commercial fishermen and anglers. Fishing for bass is either restricted or prohibited in three bass nursery areas adjacent to power station outfalls; Bradwell, Isle of Grain and Kingsnorth. Grey and, to a lesser extent, golden-grey mullet are caught in beach seines, fixed and drifted nets, often as a bycatch to bass, and sometimes can be caught far up river estuaries. KESFC have specified a MLS of 30 cm for grey mullet.

Herring and sprat are targeted during the colder period of the year. Two herring stocks are found off this coast. The first is a discrete inshore stock that spawns in spring in the northern part of the Thames Estuary, including the Blackwater Estuary, and for which fishermen require a licence from Defra and are restricted to drift net only in the northern half of the Thames Estuary. Cefas carries out an annual survey of this stock and a TAC (usually around 100–200 t) is set. When the TAC is reached the fishery is closed under KESFC byelaws, but this has not happened recently. The North Sea herring stock enters the southern half of the estuary and mixes seasonally with the inshore stock, and is mainly taken by trawling. Sprat are caught in pair trawls from November to February when they appear inshore. Demand for herring and sprat is generally quite low. Herring are usually sold through small local outlets, whereas sprats are mainly sold for fishmeal.

6.2.3 Diadromous fish (eg salmon, eel)

There is no licensed salmon or sea trout fishery in the Thames Estuary. Fyke nets are used to catch eels in many of the Essex rivers and estuaries, including the Thames. Brown/yellow eels are landed in spring and summer, and silver eels during autumn when they embark on their

spawning migration from freshwater to the sea. Live eels are kept in vivier tanks on board and storage tanks on land before being taken to market (usually Billingsgate). There has been little activity in this fishery recently due to poor returns, and the traditional eel pair-trawl fishery has now ceased.

6.2.4 Shellfish (eg cockle, mussel, oyster, lobster, brown crab, shrimp, whelk and periwinkle)

The Thames cockle fishery supports both local and visiting vessels. The local fleet uses an efficient solids handling pump system that has superseded the old jet-pump dredging system. A sieve-like mechanism sifts the sand to separate the cockles, which are pumped onto the boat. Following the collapse of the Dutch cockle fisheries (such as the now-closed Waddensea fishery) in the late-1980s and declines in other UK cockle stocks (eg in the Welsh Dee and the Wash), the Thames cockle fishery expanded rapidly, and is now the most productive in the UK. KESFC monitors stocks and regulates the fishery through seasonal closures, and maximum vessel and dredge size. In 1994, the KESFC was granted the Thames Cockle Fishery Order, which limits the number of vessels that may fish the major beds and imposes restrictions on fishing effort and damage rates. Licence holders are permitted to make between 2 and 4 landings per week, peaking during August and September, when meat yields are at their best. All cockle beds are usually closed from mid November to the end of May, and fishing is not permitted at weekends.

There are wild and cultivated oyster fisheries along the Essex and north Kent coast. The native oyster fishery in most of Essex has been much affected by *Bonamia*. Hatchery-reared juvenile Pacific oysters and half-grown native oysters from the south English coast are re-laid onto on-growing beds during spring. Oyster fishermen also prepare natural beds and encourage the settlement of native oyster spat by cleaning the 'culch' (a mixture of dead shells) prior to spat settlement. The oyster-harvesting season usually begins in late summer and can last until spring. Pacific oysters grow faster than the native species, and can be harvested during the closed season for native oysters in the summer. Large populations of this species have become established in some areas. They are resistant to frost, which allows them to be harvested earlier in the year and cultivated intertidally. KESFC byelaws limit the length of oyster dredges to an aggregate of 4 m per boat, and prohibit the taking of native oysters with a diameter of less than 70 mm. Several orders cover many natural and Pacific oyster beds along the Essex coast.

Lobster, brown crab and whelk pot fisheries are scattered along the coast, the most popular fishing areas being off Harwich and north Kent. In 2002, KESFC introduced a byelaw requiring all lobster and crab pots to be fitted with an escape gap measuring 46 x 84 mm. Lobsters and brown crabs are targeted from March to November, whereas whelks are taken virtually all year round. The shrimp fishery has declined to an extremely low level due to poor catches. Periwinkles are gathered by hand from many estuaries (eg Colne, Blackwater and Thames), although this fishery has also declined due to insufficient earnings to cover labour costs.

6.2.5 Other (eg whiteweed)

Whiteweed is a fern-like hydroid (a colonial animal related to coral) that has been exploited for around 90 years and is sold for decorative purposes. Many inshore trawlers use simple rakes to harvest whiteweed in the Thames Estuary when, for example, sole or cod are scarce or fishing restrictions prevent their exploitation. Local whiteweed processing plants constructed during the 1980s supply a small but steady demand, but this has declined in recent years and currently only a few boats engage in the fishery during autumn and winter.

6.3. Description of coastal fisheries by port

6.3.1 Harwich

Up to 8 full-time and 7 part-time vessels fish from Harwich and landing places along the southern bank of the Stour Estuary. Most boats are <10 m and tend to fish within a 12-mile radius. Catches of cod and whiting have recently been poor and, as a result, only 5 vessels may work during the autumn and winter. From spring to autumn, vessels use set nets and drift nets for sole, rays, bass and mullet. There is a small drift net fishery for sprat and herring during the winter. Otter and pair trawls are used by two boats of 14 m for sprat in January and February, when sole appear inshore. Around 6 <10 m boats use otter and beam trawls for sole within the estuary during the summer and autumn, with plaice and rays forming an important bycatch. Effort then switches to cod and whiting until the end of the year, when some boats opt to use nets and lines rather than trawls. The majority of <10 m boats join the lobster and crab fisheries from the beginning of summer, and several boats set pots virtually year round out to 30 miles offshore. Low catch levels during the colder months are compensated by high market prices. Two boats set whelk pots for part of the year. From spring through to autumn,

around 4 boats use set nets and drift nets for sole, rays, bass and mullet, and cod nets in autumn and winter, and 4 vessels employ longlines for cod, rays or bass. A few eel fyke nets are set, which also take a bycatch of lobsters.

6.3.2 Walton-on-the-Naze and Clacton

The two full-time and two part-time boats set up to 200 pots each for lobsters and crabs in summer. Two full-time vessels and one part-time vessel are engaged in netting, potting and lining out of Walton backwaters, and two full-time and one part-time boats moored off Clacton use nets and longlines. The Horsey Island Several Fishery beds are stocked with native oysters and harvesting usually begins in September.

6.3.3 Brightlingsea and Wivenhoe

The Colne Estuary fleet fish from Brightlingsea and Wivenhoe, comprising two full-time trawlers of 8–10m, one <10 m full-time static gear boat, plus two part-time boats that use mainly towed gear. The trawlers use single and double otter trawls for sole, plaice and rays during the warmer months. Sprat are occasionally taken in the estuaries of the Rivers Blackwater and Colne and nearby creeks in January and February, when vessels from surrounding ports land their catches at Brightlingsea in some years. The sole fishery begins in March with rays forming an important bycatch. Occasionally, one or two boats use small beam trawls for brown shrimp from November to May within the Colne Estuary. During the warmer months, nets are set for sole, rays, bass, mullet and eels and, by autumn, cod and whiting begin to predominate in landings from gill and trammel nets. The licensed herring drift-net fishery commences around October and lasts until February or March, depending on demand or whether the herring quota has been reached. Longlines are set for bass and rays during spring and summer, with cod being taken from autumn onwards.

Bonamia ruined the native oyster fishery in the Colne in the early 1980s, although a slow recovery has been reported since the beginning of the 1990s. One or two boats occasionally dredge for native oysters further offshore. One full-time licensed cockle dredger is based at Brightlingsea and up to 12 cockle-dredging boats from local and distant ports occasionally base themselves in Brightlingsea to fish cockle beds around the mouth of the River Crouch on the Buxey Sands and Dengie Flats. These beds were kept closed in 2004/05 to allow stock to recover. Some boats occasionally set pots for whelks.

6.3.4 West Mersea (including Tollesbury)

Seventeen full-time and 6 part-time vessels fish from the north side of Blackwater Estuary, the majority being based in West Mersea. A variety of fisheries take place within the estuary itself for demersal and pelagic fish, molluscs and, occasionally, crustaceans. Around 13 boats of up to 17 m trawl for sole, plaice and rays (some with twin or triple otter trawls) from spring to autumn. They occasionally trawl singly or in pairs for cod, whiting or sprats in winter. Four boats of 8–12 m use set nets and drift nets for sole, rays, bass and mullet during the summer. Three boats use drift nets for herring and gill and trammel nets for cod and whiting in winter. Fyke-netting activity in the estuary has declined due to a scarcity of eels. A few of the smaller boats join the drift net fishery for herring in the Blackwater, but fishing is inconsistent, demand limited and prices low.

There are wild and cultivated mollusc fisheries in the estuary, where two several orders (Blackwater and Old Hall Creek Oyster Fishery Orders) cover areas in the main channel and some of the creeks. In addition to the cultivation of Pacific and native oysters, there has been a gradual regeneration of natural stocks of native oysters since the outbreak of *Bonamia*, and they are harvested from the end of summer through winter. Mussels and Manila clams are cultivated, mussels are dredged and gathered from natural lays throughout the estuary, and periwinkles gathered by hand. Three shellfish purification plants have been constructed to comply with EC Hygiene Directives. The part-time fleet partakes in all the above-mentioned fisheries, particularly during the warmer months.

6.3.5 Maldon and Bradwell

Two part-time vessels fish from Maldon and Bradwell using static gear. There is occasional drift netting for herring both within and just outside the Blackwater Estuary from October to February, and gill and trammel nets are used for cod and whiting during autumn and winter. Sole and rays are targeted in March, and bass and mullet in summer and autumn. Good bass fishing grounds are found off Bradwell, and the area around the warm effluent discharged from Bradwell power station remains closed to bass fishing despite the facility having ceased operating early in 2002.

From a fleet of around 16 in the 1980s, only two boats now take out charter angling trips from Bradwell, catching mainly rays, smooth-hounds, bass and whiting. There is one large company growing Pacific oysters within the Blackwater, which are harvested throughout the year and marketed around the world. Small quantities of hand-gathered periwinkles are landed from autumn through to spring.

6.3.6 Burnham-on-Crouch

Five full-time trawlers take sole, rays and other flatfish in summer, and may use otter or pair trawls for cod, whiting and sprats or dredge for whiteweed in autumn and winter. Sprat and whiteweed are taken from within the estuary and inshore waters, whereas demersal fish are mainly taken further offshore. The numerous landing places along the Rivers Crouch and Roach collectively support only two part-time vessels, which are mostly inactive. There is some gill and trammel netting for bass and mullet during the summer and drift netting for a herring and sprat in the winter.

Green shore crabs are exploited during their annual moulting period ('peeler' crabs) and sold as angling bait. Charter and private angling boats work from the Crouch, with the bass fishery attracting attention in the summer and whiting or cod in the winter. Four vessels are partially involved in working private oyster beds and in the production of mussels and Pacific and native oysters, the latter also being harvested from offshore beds.

6.3.7 Southend-on-Sea

Trawlers and cockle dredgers dominate the fishing fleet based along the north side of the Thames Estuary. No commercial netting now takes place from this port. Three otter trawlers of <10 m target sole during the summer and use otter or pair trawls for sprat and herring during winter. These vessels do a little harvesting of whiteweed using dredges. During the spring and summer, smelt and whitebait are occasionally caught in pair trawls.

6.3.8 Leigh-on-Sea and Holehaven

One or two trawlers >12 m and around 4 <10 m vessels now target sole for much of the year using mainly twin and triple otter trawls. A further ten <10 m vessels may join the fishery seasonally. Some vessels trawl singly or in pairs for whiting, sprat and herring during the winter, although cod has not been targeted recently due to poor catches. The traditional summer whitebait fishery no longer has a local market. One or two smaller vessels dredge for whiteweed between autumn and spring. There are 4 full-time vessels that use drift and anchored gill and trammel nets for bass, mullet, sole, rays and cod and set eel fyke nets. Quota restrictions have severely restricted landings by non-sector vessels >10 m, and have delayed the start of the sole fishery for <10 m vessels. Some vessels have turned to working from English Channel ports in January and February, dredging for scallops, although the weather has often restricted their success. The part-time fleet trawls for sole, gill nets for bass and mullet, and sets eel fyke nets.

Nine full-time boats are licensed to fish under the Thames Estuary Cockle Fishery Order. The fleet concentrates its efforts on the Shoebury, Maplin and Foulness Sands, where two vessels from Whitstable, two from Queenborough and one from Brightlingsea join them. Two new multifunctional vessels fish for cockles, mussels or sole.

6.3.9 Queenborough

This small harbour, situated on the Isle of Sheppey in the Medway Estuary, supports 9 full-time (8–13 m) and three part-time fishing boats. Effort in the whiteweed fishery has reduced to two vessels working to one local processing plant. Two or three boats dredge for native oysters during the winter if the price is high enough; otherwise there is little fishing from this port between November and March. For the rest of the year, vessels use triple-rigged otter trawls for sole, taking a few rays and mixed flatfish. Two full-time vessels use gill, tangle and trammel nets for cod, bass, mullet, rays and sole in season. Bass fishing is prohibited in two nursery areas in the Medway, adjacent to Kingsnorth and Grain power stations. Beach seining for grey mullet takes place in summer with 90 mm mesh nets, 200–350 m long and 3–4 m deep. Fishing for eels with fyke nets, which supported several local boats in the recent past, has declined considerably due to poor returns.

A small number of lobster pots are set during the summer. At the end of 2001, two cockle boats from Leigh on Sea moved permanently to Queenborough, where they continue to fish for cockles and seed mussels. Historically, there is a so-called 'floating' fishery in the River Medway that is the prerogative of the Free Fishermen of Rochester.

6.3.10 Faversham

Three full-time boats fish from Oare Creek using otter trawls to take cod, whiting, herring and sprats, and dredges for native oysters from autumn until spring. In spring and summer, sole, plaice rays and bass are taken in otter trawls, and shrimp are caught all year round in the Swale using small beam trawls. A limited amount of netting occurs for sole, rays, bass and mullet, and one boat undertakes a small amount of whelk potting.

6.3.11 Whitstable

Out of 13 full-time fishing vessels at Whitstable, 6 of 9–14 m work multi-rigged otter trawls for most of the year, particularly for sole, cod and whiting, with rays and bass targeted for short periods. Two boats regularly dredge for native oysters in autumn and winter. Pair trawling takes place seasonally for bass. Two 12 m vessels dredge for

cockles, mainly on the Maplin Sands off the Essex coast, and only fish local grounds during periods of bad weather. They also use various trawling methods when the cockle beds are closed. Harvesting of seed mussels has taken place in recent years. The remainder of the fleet relies on static gear, mainly whelk pots throughout the year, along with set (and drift) nets for sole, bass and mullet, and pots for lobsters and brown crabs. Landings in the oyster fishery began to recover from *Bonamia* in the 1990s, peaking in 1999 but have since declined to a few tonnes. Up to four boats move to Rye to fish for scallops during the winter when fishing on local grounds has become too poor for them to make a living. Local private grounds may only be fished by arrangement with the owners. Shellfish processors situated around the harbour deal with cockles, lobsters, oysters and whelks.

6.3.12 Herne Bay

Three full-time and around a dozen part-time beach boats use static gear along this exposed coast, where fishing activity is limited during the winter. The majority of boats set pots within a few miles of the coast around Reculver for lobsters and brown crabs from spring through to autumn, and a few boats set whelk pots most of the year. Tangle and trammel nets are set for sole, plaice and rays, and gill nets are used for bass and mullet during the warmer months. Occasionally cod and herring are caught in gill and drift nets in winter. A small fleet of trailer-launched boats use rod and line mainly in summer for bass and rays for recreation or semi-commercially.

6.3.13 Margate

For most of the period between April and late November, one 8 m boat sets trammel nets from the low water mark out to as far as 15–20 miles offshore to take sole, mixed flatfish, rays and bass. Wreck netting in summer yields the occasional good catches of cod, pollack, bass and conger eel. During the winter, gill nets are used to take cod. Herring are occasionally fished with drift nets.

6.3.14 Broadstairs

Two part-time and one registered <10 m boat use pots from spring onwards to take lobsters and brown crabs. The lobster season usually ends around November. As with Margate, several vessels moved from here to work full time at Ramsgate, and only small landings are now made at Broadstairs throughout the year. A few trailed angling and semi-commercial rod and line boats may launch at Broadstairs during the summer.

6.3.15 Ramsgate

A busy port where merchant and ferry interests are on the increase, Ramsgate has the largest fleet of netting boats on the Kent and Essex coast, comprising 25 full-time and 5 part-time boats of <10 m along with two <10 m trawlers (though trawlers from the south coast visit occasionally).

The two trawlers target sole and other flatfish from April until November and rays in spring. During winter, the main fishing is for cod and whiting and for scallops from Rye when the fishing is poor on local grounds. Gill and trammel nets are set close inshore by several boats during the winter for cod and whiting. In spring, most of the full-time static gear boats and many part-time boats turn to sole, using trammel nets and also gill nets which are both fixed and drifted, and landing rays using 220 mm nets until late autumn. During the summer, bass are caught in drift nets, cod nets are used over wrecks, and pots are set off this rocky coast for lobsters, crabs and whelks. Some vessels have also used nets for cuttlefish during the warmer months, though there has recently been less activity in this fishery. There are several specialist charter and private angling vessels that fish wrecks and banks principally for cod and bass.

6.3.16 Deal and Walmer (including Richborough)

Two full-time and several part-time beach-launched boats use nets and pots from spring to autumn. Gill and trammel nets take cod and whiting in autumn and winter and mackerel in spring. Between spring and autumn, tangle and trammel nets are used for sole, plaice, rays, dogfish and, to a lesser extent, turbot and brill, often on Goodwin Sands. Bass are caught in drift nets and provide the main earnings in summer. Pots are set for brown crabs, lobsters and whelks between Walmer and Dover and fishing effort peaks in summer. Some fishermen move to other ports when fishing off this coast is poor, and charter angling trips are becoming a popular alternative to commercial fisheries.

6.3.17 Dover

Only two, mainly part-time, boats have worked here in recent years. Nearshore chalk reefs provide good potting grounds for both brown crabs and lobsters, with up to 300 pots per boat being set for brown crabs from the start of the year and then for both crabs and lobsters during the summer until the weather deteriorates towards the end of the year. Bass and flatfish are caught in drift and fixed nets during the warmer months, and roundfish such as cod, pollack and bass are caught off wrecks throughout the year. Set gill nets and longlines take cod and whiting

in autumn and winter, and drift nets are occasionally used to supply a small local market with herring. One full time angling charter vessel works from this port.

6.3.18 Folkestone

Around 18 boats fish from this sheltered harbour, where the full-time fleet comprises 6 otter trawlers, 6 netting and potting boats (all <10 m) and three part-time static gear boats, which also use pots for shellfish. The trawlers target cod and whiting from late autumn through winter, with a bycatch of lemon sole and plaice. Dover Sole dominate landings from early spring and several boats use multi-rigged trawls. In recent years, the trawl fleet has tended to fish further offshore for better flatfish and roundfish catches and some boats base themselves at Ramsgate.

All three static gear boats work tangle and trammel nets in Hythe Bay for sole, plaice and rays from spring onwards. Nets set around wrecks produce good catches of roundfish including bass, which are also caught in drift nets. Netting takes place over a vast area including the Varne and Bullock bank.

The smaller boats focus on potting between Dover and Hythe Bay from spring to autumn. Brown crabs are landed early in the season, effort switches to lobster by the middle of the summer, and crabs and lobsters are caught in autumn. Whelks are caught in pots set in the Bay, generally from April till October. During the warmer months, one or two of the larger boats act as guard support to Channel swimmers, and some of the full-time fishermen also charter angling trips to supplement their earnings.

6.3.19 Hythe

Three full-time and a similar number of part-time boats all <10 m fish mainly within Hythe Bay (sometimes within 100 m of the shore). Sole nets are used from March through to November, taking bycatches of plaice and crabs. All boats used to switch to cod netting from autumn through the winter, with a bycatch of mixed flatfish and whiting, but poor returns from this fishery in recent years has caused some crews to find land-based work over this period.

6.3.20 Dungeness

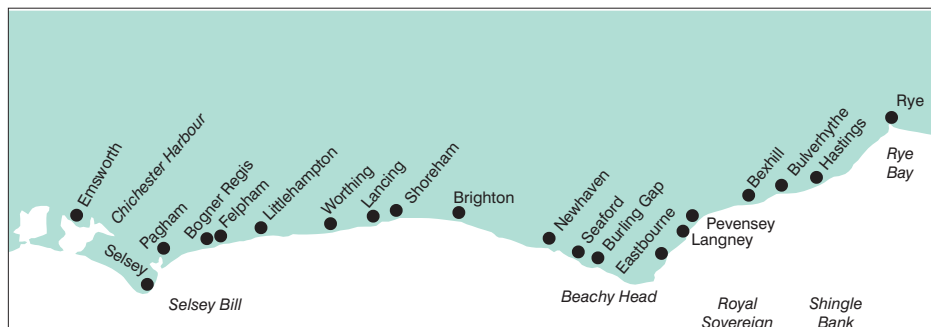
Up to a dozen <10 m beach boats (4 of which are full-time) use gill and trammel nets when conditions are suitable for netting, eg not during strong tides or stormy weather. One trawler works the local scallop grounds. Sole has replaced cod and whiting as the main target species, with bycatches of plaice and lemon sole. Nets are used in winter for cod and whiting, often on Bullock Bank, which is fished in spring for sole. Herring and sprat are caught in drift nets by

one or two small boats. In spring, the larger boats set nets out to the middle of the English Channel for sole, rays and lemon sole, and some gear is also set over wrecks to yield cod, bass, pollack and the occasional lobster. The smaller boats concentrate on the sole fishery closer inshore until autumn, mainly using heavy cross-tide French-styled trammel nets and taking a bycatch of plaice and rays. Bass fishing is prohibited in a nursery area around the warm water discharges from the Dungeness power stations.

6.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	106	207
Other gadoids	8	7
Sole	232	1,487
Turbot & brill	6	30
Other flatfish	42	58
Small pelagics	557	332
Bass	59	317
Other finfish	24	37
Sharks & rays	171	236
Shellfish		
Whelks	238	140
Gastropods		
Scallops	64	76
Cockles	9,819	4,284
Other bivalves	6	8
Edible crab	55	82
Other crabs	2	1
Lobsters	33	367
<i>Nephrops</i>		
Shrimps & prawns	0	+
Cephalopods	4	5
Total	11,426	7,673

7. Sussex: Rye to Selsey (Sussex SFC)



7.1 Synopsis of current inshore fisheries

Fishing activity along this coastline is mainly undertaken by beach boats setting nets from the low water mark out to 6 miles offshore, with larger boats of over 10 m working from a few harbours, eg Rye, Newhaven and Shoreham. The main fishing activity is with trammel and gill nets to take mainly sole and plaice, with some rays, cod and bass.

Lobsters stocks are exploited on sporadic rocky grounds close inshore, particularly at Selsey, Shoreham, Brighton and Newhaven, with brown crab being caught on cleaner grounds further offshore. Whelks have become a very important resource, with seasonal fisheries yielding up to 2 t per hauling for some pot fishermen. Trawlers now target non-quota stocks such as cuttlefish, squid, black bream, bass and red mullet more than ever, as quotas for pressure-stock species have become very restrictive. Some of the larger vessels from Rye and Newhaven use beam trawls and scallop dredges. Native oysters are dredged in the west of the district. Most local boats land daily and catches are sold where landed via fish stalls or taken to Rye, Hastings or Brighton markets.

7.2 Information on species targeted, fishing methods deployed and fishing restrictions inshore

7.2.1 Demersal fish (eg plaice, sole, turbot, ray, cod, whiting, dogfish, red mullet and black bream)

Sole and plaice provide the mainstay for the netting fleet through spring to late autumn, and other species such as rays, turbot and brill are also landed. During the winter rather fewer boats set gill nets for cod and whiting. Less than 20% of the district's inshore fishing fleet rely on trawling, fishing out to 20 miles offshore for flatfish, rays

and cod in season. Sussex SFC byelaws prohibit boats over 14 m from fishing within 6 miles of the coast. The sole fishery attracts visiting beam trawlers that compete for local resources, though national legislation excludes beam trawlers of more than 70 gross registered t or 300 bhp from the 12-mile zone. Otter and pair trawls are used for black bream and red mullet, which appear off this coast during the summer. A Sussex SFC byelaw sets a minimum cod-end mesh size of 90 mm for pair trawlers fishing to the west of Shoreham, though many pairs voluntarily use 120 mm to avoid catching juvenile black bream and bass. Another byelaw (introduced July 1998) prevents trawling within 0.25 nautical miles from baselines between Dungeness and Shoreham (excluding the area between Eastbourne and Cuckmere Haven) in May to October inclusive, in order to protect juvenile flatfish.

7.2.2 Pelagic fish (eg bass, grey and golden-grey mullet, herring, sprat, and sandeel)

There are recreational and commercial bass fisheries off the Sussex coast in most months of the year. The species has gained increasing significance in both sectors, and several gear types are used including drift nets and trammel nets fished close to the shore from spring through to late autumn. Drift nets are very effective when set after periods of unsettled weather. In the past 10 years, a fishery prosecuted by mainly beach and tender craft has developed to a fishery targeted by 10m vessels and, in exceptional circumstances, it can result in individual catches of half a tonne or more for a vessel with 2 or 3 crew. Grey mullet are taken as a bycatch and in directed fisheries using seine, fixed and drifted nets. Both herring and sprat generate little interest these days as market demand is generally low. Other pelagic species such as mackerel, horse mackerel and garfish are occasionally landed.

7.2.3 Shellfish (eg lobster, crab, whelk, prawn, scallop, oyster, cuttlefish, squid and periwinkles)

The principal lobster and crab fisheries occur off Selsey and Eastbourne, and lobsters have provided an improving income for the majority of potters during the summer. Fishing for lobsters requires a permit issued by the Sussex SFC, which restricts the number of lobster pots set within 3 miles of the coast to 100 per crew member up to a maximum of 300 per boat. As a consequence, most boats set pots both within and outside 3 miles. A small number of boats are dependent on brown crabs taken in pots set further than 3 miles offshore and some of the larger boats use in excess of 1000 pots. The vivier trade to the Continent has provided a market for spider, velvet and green crabs. Whelk potting has increased in importance and EU legislation prevents whelks under 45 mm being landed. A small number of boats set pots for prawns.

Scallops are harvested using Newhaven dredges, and rejuvenated beds between Shoreham and Eastbourne have been subject to intense fishing pressure. A byelaw to restrict fishing effort has been proposed in order to regulate this fishery. Pacific and native oysters are cultivated within Chichester Harbour and native oysters are also dredged from natural beds. The Sussex SFC imposes a closed season from the start of May to the end of October, and oysters that can be passed through a circular ring with an internal diameter of 70 mm cannot be retained. However, poor export prices have recently diminished the importance of this fishery. Periwinkles are gathered by hand between 15 May and 15 September (Sussex SFC byelaw) in the west of the district. Shoals of cuttlefish and squid appear close inshore in summer and are caught in trawls, fixed and drift nets and pots. Both species are of particular importance to the trawler fleet, especially during periods when quota regulations severely limit the quantity of white fish landed.

7.2.4 Diadromous fish (eg sea trout and eel)

Although sea trout enter and spawn in some rivers in this district, there are no licences issued to take them in nets.

7.3 Description of coastal fisheries by port

7.3.1 Rye

Rye harbour is tidal and this restricts the number and duration of trips made by the 50 strong fleet, around half of which fish full-time. The trawl fleet comprises 14 otter trawlers of 8–14 m and a few beam trawlers. Most of the trawlers are <12 m and confine their efforts to Rye Bay,

where they target sole, plaice and rays flatfish from spring through to late autumn, and cod and whiting in winter. The larger trawlers fish out to 20 miles offshore, sometimes in pairs, landing a variety of demersal fish throughout the year. Several vessels occasionally use otter or pair trawls for herring or sprats in winter, depending on demand. The sole population in Rye Bay attracts trawlers from Belgium and UK ports such as Portsmouth and Brixham. Scallops are sometimes dredged by two local vessels between November and May, and by occasional visitors.

The netting fleet, of which the majority fish part-time, use gill, tangle and trammel nets for sole, plaice and cod, and to a lesser extent drift nets for herring, sprat and bass. The smaller boats fish within Rye Bay whilst the larger ones set nets out to the middle of the English Channel where turbot and brill are caught. Commercial keddle nets are used to the west of Rye Harbour to catch bass, particularly in the spring and autumn. These nets are permitted under Committee byelaws only where they comply with a set of licence conditions developed with Rother District Council and the Environment Agency, due to the potential bycatch of sea trout. Rye has a number of charter vessels that rely upon the bass angling fishery.

7.3.2 Hastings

The Hastings fleet is increasingly evolving towards steel vessels, and multi-rigged boats are more common than formerly. Traditional clinker built punts are still used, however, particularly in the static gear fishery. There are approximately 20 full-time vessels <10 m operating off Hastings beach, two-thirds of which will fish with trammel nets. Trammel and gill nets are set for cod and whiting during winter. A few boats use drift nets for herring, beginning around October, and for sprat in January and February (this fishery has gained MCS status). From spring onwards, trammel and tangle nets are set for flatfish, particularly sole (again MCS accredited), plaice and rays, taking an important bycatch of turbot, monkfish, brill, dab, dogfish, cuttlefish and crustacea. Cuttlefish are an important spring catch in nets, traps and trawls. Bass and mullet are caught in drift nets. Nets are set over wrecks for cod, pollack, whiting, bass and ling. Fishing grounds out to 6 miles offshore have become saturated with nets as fishermen try to maintain catch levels. Some boats set up to 70 nets in fleets of between 5–10 nets, depending on the length of each net, and this can amount to over 8000 m of netting per boat. Conflicts between fixed net and beam trawler crews have intensified as static gear fishermen set nets further offshore in search of improved catches.

7.3.3 Bulverhythe, Bexhill and Pevensey

Up to 25 boats, the majority of which are open beach boats of 5–8 m, set trammel and tangle nets within 6 miles of the coast for sole, plaice, rays, turbot and brill, and use drift nets for bass and mullet from early spring through to late autumn. Nets set over wrecks yield cod, pollack, ling and bass. Cod and whiting are targeted with gill nets in winter, when 3 or 4 boats use drift nets for herring and sprat. Pots are set specifically for lobsters in summer and brown crabs and lobsters in spring and autumn.

7.3.4 Eastbourne

The majority of vessels operate from the Sovereign Harbour marina, rather than from the beach between Langney and Eastbourne. Most of the 25–30 boats are 6–8 m and set nets and pots, and 12 also use otter trawls. Fishermen sell their catches directly to the public from small market stalls; the greater profits compared to selling through markets (which incurs transport and handling costs) are crucial to their survival. Otter trawls are often used in summer for flatfish and non-quota species such as cuttlefish, squid, black bream and red mullet. Most boats set gill and trammel nets within 6 miles of the coast. New catamarans have expanded the capacity of the fleet to exploit the expanded whelk fishery, but also to access more distant (mid-Channel) grounds and local grounds more quickly. Target fish include cod, whiting and bass in autumn and winter. In spring, sole and plaice are targeted using trammel and tangle nets, and larger mesh tangle nets are set for rays, turbot, and brill (often out to mid Channel) and crustacea such as spider crab. Gill nets are set around wrecks and drifted for bass during the warmer months. There is a limited drift net fishery for herring. Numerous private angling craft are based in Eastbourne, mainly targeting bass.

An important crab and lobster fishery takes place on sand/gravel and rocky reefs off Eastbourne and involves nearly all of the local full-time fishermen. Some boats set over 1000 pots each for brown crabs and lobsters out to 6 miles offshore, with velvet and green shore crabs often taken as a bycatch. The largest operator has a vivier facility. Brown crabs are targeted from spring through to the end of the year, whilst the lobster fishery first peaks in June and July, for hen lobsters predominantly, and then, following a quiet period, picks up again in September when cock lobsters prevail. Inshore fishermen have become increasingly dependent on potting as white fish landings from netting have fallen through a scarcity of fish inshore and quota restrictions. Substantial quantities of whelks have been landed here in recent years.

7.3.5 Birling Gap and Seaford

Up to 6 part-time boats fish from this rocky coastline, one or two setting pots for brown crabs out to 5 miles offshore in spring, and they are joined by the rest of the fleet using pots for lobsters closer inshore during summer. A few boats use nets for cod, whiting and herring in autumn and winter and, from the beginning of spring, tangle and trammel nets are set for sole, plaice, turbot and rays. Many commercial and recreational fishermen exploit bass off Beachy Head from May to November using rod and line with artificial lures or sandeels as bait. High market prices have made the bass fishery a very lucrative one and fishing often takes place at night. The coastline between Beachy Head and Brighton provides a seasonal income for many commercial winkle pickers.

7.3.6 Newhaven

This port has 20 full-time vessels and up to 25 part-time boats. The set-netters are generally between 5 and 10 m in length, and use gill nets during the winter for cod, whiting, lemon sole and plaice, tangle and trammel nets for flatfish, especially plaice and sole, from spring onwards, and gill nets around wrecks for cod, pollack and ling. Bass have become an increasingly important component of their catch as cod catches declined. Upto half of the full-time vessels may use otter trawls to take the same species, in season. A pair-trawl fleet of up to 5 teams is largely based in Newhaven and fishes for bass and bream.

Over 20 potting permits have been issued to both full- and part-time fishermen, and two boats of 12–15 m use up to 1000 pots each to take lobsters and brown and spider crabs south of the Royal Sovereign from mid-June onwards. Some boats take out angling parties at weekends.

7.3.7 Brighton Marina

Some 35 fishing vessels are based in Brighton Marina, over half of which fish full time. All boats from Brighton direct their effort at some time toward the static gear fishery (netting and potting). If spider crabs prevent set netting, effort may switch to drift netting for bass and mullet and to a lesser extent, due to marketing opportunities, herring, mackerel and sprat. Sole is the mainstay of the fleet, and plaice is caught in significant quantities. In spring, cuttlefish caught inshore in nets represents an important component of the fishery's income, particularly as more traditional fisheries such as the winter cod fishery have declined. As with the vessels based in the eastern part of the Sussex District, boats from Brighton fish in the deeper waters for turbot and brill. Skate are caught as predominantly a valued bycatch, though there is some directed tangle net effort.

The expanded whelk fishery has diverted some effort from the static net fishery. Approximately 100 small boats are launched along the beach for pleasure angling, a few of which also set nets and pots.

7.3.8 Shoreham

Shoreham harbour is the most important fishing port within the Sussex District in terms of the value of landings, with 25 boats between 4–12 m (13 full-time). In recent years, there has been an increase in the number of inshore beam trawlers based at Shoreham, fishing for sole and plaice. Inshore craft target whelks with pots. Plaice are caught in trammel nets, followed by sole and then turbot, rays and brill in summer and autumn. Cuttlefish are caught nearshore in fixed nets during May and June, and bass and mullet are taken in drift nets. The crab and lobster fishery has declined considerably since the 1980s, though they are still caught by multipurpose vessels on sporadic rocky outcrops near the shore.

7.3.9 Worthing

Numerous registered vessels use Worthing beach, where the fishery is almost wholly part time and limited to the summer. The full-time fishermen that operate craft from Worthing tend to have larger vessels moored in Shoreham. Nets are set during spring for plaice and sole, and in winter for cod. Black bream and bass are targeted in nets and by the numerous rod and line fishers. Bass represent a large proportion of the value of the landings, and the limited protection afforded by the bay allows drift nets to be set after periods of unsettled weather. There is also a small potting fishery.

7.3.10 Littlehampton

Ten full-time and around a dozen part-time boats use fixed and drift nets on rough and, from May onwards, weedy ground to take bass, mullet and flatfish, with cod and some rays after September. Over a dozen boats set pots for brown crabs and lobsters, taking bycatches of velvet and green crabs. The smaller boats set up to 400 pots each in the Hooe Bank area throughout the year, and a few larger boats of up to 14 m set up to 1000 pots each further offshore for brown crabs. Most boats take out angling parties to wrecks for cod and black bream or for mackerel or turbot.

7.3.11 Bognor Regis (including Pagham and Felpham)

The only commercial fishing activity is from 6 beach boats. All but one pot for lobsters and 4 do some bass gillnetting. Two of these vessels move to Itchenor after the summer. Lobsters and brown crabs are caught among the rocky reefs close inshore. A high proportion of the lobsters is sold directly to local restaurants and hotels, thus ensuring high prices. Pots are also set for whelks and prawns, especially towards the end of the lobster season.

7.3.12 Selsey

Fourteen potters operate from Selsey, chiefly targeting lobster and crabs and, recently, whelk. However, these vessels will use trammel or drift nets for sole, plaice, turbot, skate, mackerel, pollock and mullet to supplement pot catches when the opportunity arises. Four vessels target bass full-time during the season. Baited longlines set for bass are beginning to be used in increasing numbers from this station as well as a number of other ports in the west of the District. Three boats also trawl and net or pot from Selsey. In addition, 20 or so part-time boats occasionally use trammels (for plaice and sole) and beach seines for mackerel.

7.3.13 Chichester Harbour (Itchenor) and Emsworth

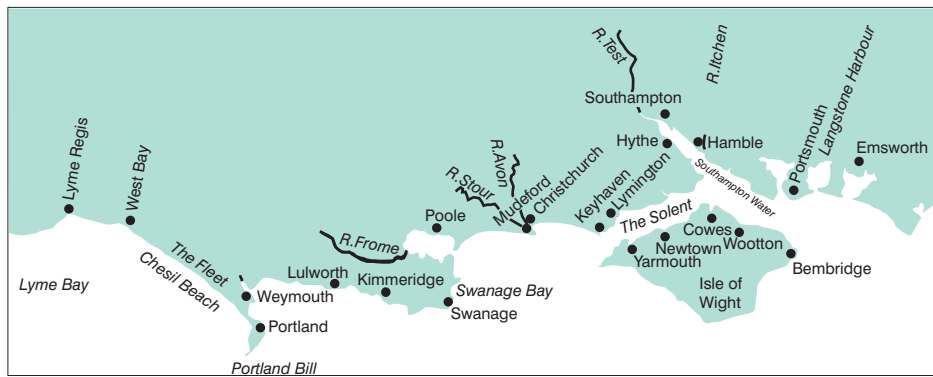
The main mooring facility in Chichester harbour is at Itchenor. Six full-time and 18 part-time boats are based here and are, for the most part, multi-rigged for static and mobile gears. Most of the vessels dredge for oysters, but bass are caught using gill nets and grey mullet are also taken in gill nets and seine nets, often as a bycatch to bass. Light trawl and oyster gears are fished in the Harbour where cuttlefish and mullet are caught, although Chichester Harbour is a bass nursery area. Trawls are fished outside the Harbour for plaice and sole. In addition, the Selsey fleet move to Chichester in extended periods of poor weather.

Commercial anglers use Itchenor in summer and winter along with 4 charter angling boats, two of which specialise in bass trips during the season.

7.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	189	339
Other gadoids	76	54
Sole	430	2,784
Turbot & brill	33	199
Other flatfish	556	749
Small pelagics	54	31
Bass	113	630
Other finfish	169	152
Sharks & rays	229	122
Shellfish		
Whelks	2,432	1,334
Gastropods	0	+
Scallops	926	1,306
Cockles	0	+
Other bivalves	5	7
Edible crab	288	371
Other crabs	53	20
Lobsters	64	618
<i>Nephrops</i>		
Shrimps & prawns	0	2
Cephalopods	265	294
Total	5,883	9,012

8. Hampshire, Isle of Wight and Dorset: Emsworth to Lyme Regis (*Southern SFC*)



8.1 Synopsis of current inshore fisheries

The coast between Selsey Bill and Swanage contains Langstone and Portsmouth Harbours, Southampton Water, the Solent and Poole Harbour, which provide relatively sheltered water in all but extreme weather conditions and enable many smaller boats to work in comfort for such high-value species as sole, oysters, bass and lobsters. Further to the west, the coast is more exposed to the prevailing south-westerlies, and only Portland Bill offers any protection. There are few vessels along this coast which are not day-boats, varying in size from 4–5 m punts, which are characteristic of this coast and worked single-handedly in the harbours, up to 12 m potters operating out to mid-Channel. A stricter legislative regime has seen a marked decline in the number of part-time fishermen, and over 80 % of the boats that are actively fishing are now full-time. Given technical improvements, it is likely that the level of fishing effort has increased in the potting fleet. There has also been an increase in charter (and casual) angling vessels, which is now a year-round industry of considerable importance to the local economy. Catch data are not recorded for anglers and hobby fishermen, but it is probable that they contribute a considerable proportion of some species' landings.

Crab and lobster provide half of the value of all landings in the district, with other shellfish making up a further 25% and finfish the balance. Consequently, the welfare of the shellfish stocks is of major concern for the future of the industry. A large proportion of the shellfish catch is exported directly to the Continent (where better prices are often offered than in Britain) via the local ferry ports, whilst the finfish supply local markets or are transported to Billingsgate.

The wide variety of fish along this coast has encouraged local fishermen to be versatile, and many of the inshore boats are equipped to work a number of fishing methods corresponding to seasonal fisheries. This flexibility has also allowed them to exploit new species and to cope with frequently changing market conditions. Typical examples in recent years have been the expansion of the spider crab market; the whelk boom; increased demand for cuttlefish; a halving of oyster prices and the expansion of the velvet crab fishery.

8.2 Information on species targeted, fishing methods and fishing restrictions inshore

8.2.1 Demersal fish (eg sole, plaice, dab, flounder, turbot, brill, cod, whiting, pollack, ray, red mullet and black bream)

Tangle and trammel nets are used for sole and plaice from spring through to autumn, when landings of plaice are often greatest on spring tides when they are more active. Larger meshed tangle nets are set for turbot and brill during the warmer months, and cuckoo, starry and blonde rays are landed in addition to the thornback ray. Gill nets are used close inshore for cod and whiting during the colder months, though this coast is not renowned for its cod fishery. Gill nets are set around wrecks for cod, ling and pollack. Larger boats use otter and beam trawls for flatfish during the warmer months and, in winter, some trawlers switch to oyster and scallop dredging, whilst others continue to trawl for demersal fish, landing cod, whiting, flatfish and rays. Red mullet and black bream are caught in otter and pair trawls in spring and summer.

8.2.2 Pelagic fish (eg bass, mullet, sandeel, herring and sprat)

The bass fishery involves gill and trammel nets throughout the region and provides income for many part-time and casual fishermen between May and November. This species is also important to the charter angling industry. Problems with weed and the success of using sandeels as bait for bass has prompted many commercial fishermen to switch from netting to rod and lining, which usually takes place at dusk and dawn. A total of 6 harbours, bays and estuaries in this district are bass nursery areas in which fishing for bass from a boat and using sandeels as bait are prohibited between 1 May and 31 October. Bass are taken further offshore by visiting pair trawlers that sometimes land into France. Sandeels are exploited in many of the harbours and bays using light trawls or beach seines to provide bait for the bass fishery. Grey and golden-grey mullet are taken in gill nets set in most harbours. Gill nets are used for herring and mackerel and sprat are taken in otter and pair trawls during the colder months, though these fisheries suffer from low market demand. Mackerel catches are mainly sold for bait.

8.2.3 Diadromous fish (eg salmon, sea trout and eel)

There are licensed salmon and sea trout seine net fisheries in the Beaulieu River, the common estuary of the Avon and Stour (Christchurch Harbour), and in the joint estuary of the Frome and Piddle (Poole Harbour). There are licensed fisheries for eels in many of the estuaries and harbours within this district, taking yellow eels in fyke nets between spring and autumn and silver eels in traps in autumn.

8.2.4 Shellfish (eg oyster, mussel, clams, scallops, cuttlefish, squid, lobster, crab, prawn and whelk)

The Solent and its surrounding Harbours is one of few regions in the UK supporting a healthy self-regenerating native oyster fishery. This fishery is managed through byelaws setting a closed season between 1 April and 31 October; maximum dredge length (1.5 m per dredge and 3.0 m aggregate length per vessel); MLS (oysters that can pass through a circular ring of 70 mm internal diameter cannot be retained); and a ban on night fishing (1600–0800h). In addition, the larger part of the Solent itself is designated as a regulated fishery with access limited to licence holders. Two several orders have been granted

for oyster beds in Stanswood Bay and Calshot, which are administered by fishermen's co-operatives and may be seeded from the wild stock. Most of the catch before Christmas is sold to the Continent, though the recovery of the Continental oyster fisheries has seen a decline in demand and a consequent 50% drop in first-sale prices. There is demand from the east coast for oysters to restock layings in the spring.

The stock of American hard-shelled clams in Southampton Water, the northern part of the Solent and in Portsmouth and Langstone Harbours was subject to a very productive dredge fishery in the late 1970s and early 1980s, but overfishing has left it much reduced and it is now only occasionally exploited. Scallop dredging takes place mainly in the west of the district, but this is an opportunistic fishery, as the beds tend to be rather transient. The one regular scallop fishery that has persisted in recent years is by divers on rough ground in the summer. The Poole Fishery Order covers the whole Harbour and gives both several order and regulating rights for oysters, mussels, clams and cockles. *Bonamia* wiped out the previously extensive oyster fishery in the late 1980s, since when mussel relaying for fattening has become the main activity on layings that extend to over 500 acres. The mussels are mainly acquired from off Portland Bill. Clams, cockles and oysters are also farmed on a smaller scale. Manila clams have recently become established in Poole Harbour, where they provide a good winter fishery for around 30 small vessels.

Catches of cuttlefish and squid taken in otter trawls and traps fluctuate widely, but they have provided a welcome spring fishery in recent years, especially when quota restrictions constrain landings of species such as sole.

Some fishing fleets, particularly those to the west and around the Isle of Wight, are almost entirely dependent on lobsters. This fishery attracts the greatest amount of effort during the summer, when many part-time fishermen participate. In some sheltered areas, lobsters are caught during the winter, when the higher market prices make it viable despite low catch levels. Brown crabs are targeted for much of the year and, since the 1980s, effort has increased towards spider, velvet and green shore crabs. Pots are used to catch prawns in some of the Harbours and bays, especially Poole Bay, where a closed season exists from 1 January to 31 July. The exploitation of periwinkles is only permitted by hand and between 16 September and 14 May. Whelk fishing has been important for some vessels over the last few years.

8.3 Description of coastal fisheries by port

8.3.1 Langstone Harbour

A quarter of the 20 boats fishing from this Harbour do so full time, the main effort being during the oyster season, when they are joined by boats from nearby ports such as Portsmouth and Chichester. It is also busy during the summer where boats run from the Harbour to fish for bass, mullet, sole, plaice, lobster. Many boats offer charter angling trips and set the occasional net or pot. There is a popular rod and line fishery for bass within the Harbour and around its entrance, which has been designated a bass nursery area. Several boats set nets and trawl for a variety of demersal fish in season, and pots are set for both lobsters and crabs during the warmer months.

8.3.2 Portsmouth

The Camber supports a reducing inshore fleet that comprises 30 boats of 6–12 m and two >12m, and there are also 12 boats registered in Gosport. Fishing activities from spring through to autumn include: trawling and netting for flatfish (particularly sole and plaice); gill netting, lining and occasionally lobster and crab potting; longlining for rays, tope and monkfish; and fyke netting for eels; all generally outside the Harbour. In addition, 12 or so vessels regularly use this port for landing. Portsmouth Harbour is a designated bass nursery area. In winter, oysters and clams are dredged, roundfish and flatfish are caught in trawls and fixed nets, and pelagic fish such as sprats are periodically trawled. Local boats work in the regulated oyster fishery and in the public fishery during the open season. The smaller oyster boats often fish the more obscure oyster beds, which would be unprofitable for the larger boats. Whelks are also landed into this port.

8.3.3 Southampton Water (Hamble and Hythe)

There is a new (2006) fisherman's landing jetty in the Hamble, which is the main fishing port in Southampton Water, though a few vessels are also based in Hythe and Marchwood. Several small boats using gill nets take small amounts of cod and whiting, and the others use nets for bass mullet and flatfish. Although a constant stream of marine traffic restricts fishing activities within Southampton Water, molluscs are harvested there, but most local fishing takes place outside. Native oysters are dredged from the Solent by up to 16 vessels and are cultivated around the entrance to Southampton Water (eg Calshot and Stanswood Bay). A mixture of dead shell (known as 'culch') is deposited in these areas to encourage the settlement of oyster spat,

which come from surrounding beds in the Solent. Two or three boats using otter trawls and several smaller boats using gill nets take cod and whiting. Cuttlefish are taken in traps and by trawling from April to June. During the spring and summer, 3 vessels trawl for sole, plaice and bass, and the others use longlines, rod and line and nets for bass, nets for mullet and several boats set nets for flatfish. The inner part of Southampton Water, including the tidal rivers Hamble, Itchen and Test, is a designated bass nursery area. There are salmon and sea trout runs (but no commercial fishery) in the Rivers Test and Itchen. Whelks are also landed into this port.

8.3.4 Lymington

Lymington has a small harbour that supports 19 boats of 7–12 m. Fishing activity centres around trawling and netting for white fish and cuttlefish, dredging for native oysters, netting and lining for bass and potting for lobsters and crabs. Sport angling from private and specialist charter vessels is popular and some commercial fishermen offer charter angling trips during the summer. The level of fishing activity here fluctuates from year to year according to the state of stocks and corresponding fishing restrictions imposed by the Southern SFC.

8.3.5 Keyhaven

The local fleet comprises of 5 boats all <10 m, setting pots for brown crabs, spider crabs, lobsters and velvet crabs. A few vessels may dredge oysters or trawl or net for cod and whiting from December to March. For the remainder of the year, these and other boats use otter and beam trawls and set tangle nets for sole, plaice and rays, gill nets for bass and mullet, and longlines for bass. Several boats offer charter angling trips.

8.3.6 Mudford and Christchurch

A narrow channel enters a large harbour accommodating mainly pleasure boats and around 20 commercial fishing boats. Six boats of 6–8 m set pots for lobsters and crabs, 10 full-time and some seasonal boats take bass on lines along Christchurch Ledge, and two full-time plus 2 or 3 part-timers may trawl or net for sole and bass between the Needles and Poole. There are also 2 or 3 boats targeting whelks for the majority of the year, and a similar number targeting cuttlefish for one to two months in the spring. Four licences are issued for beach seining for sea trout from small rowing boats in the common estuary of the Avon and Stour at the entrance to Christchurch Harbour.

8.3.7 Isle of Wight

All but a few of the 54 registered fishing boats working from the island (the majority being based in the three main ports; Bembridge, Cowes and Yarmouth) use static gear. At Bembridge, around 30 boats of 6–12 m fish regularly: the larger boats set up to 1000 pots whilst the smaller boats set 50–250 pots, effectively saturating local grounds. Lobsters generally provide the mainstay of this fishery, although brown, velvet and even green shore crabs are also landed. Six to 8 boats set gill, tangle and trammel nets for flatfish, rays, cod and bass in season. Eel fyke nets are set in the River Yar, and 5 vessels fish the Solent regulated oyster fishery. Around 8 boats fish from Cowes and Wootten using pots and nets, and two may join the regulated oyster fishery in winter. Eels, mullet, flounders and bass are netted in the tidal reaches of the River Medina. Yarmouth has 13 boats <12 m each using up to 800 pots, netting and lining. A few additional part-time boats use static gear and charter angling trips.

8.3.8 Poole

There are around 90 registered fishing boats operating out of Poole Harbour, of which 30 fish within the Harbour itself. The Poole Fishery Order (1985) allows the Southern SFC to lease areas of seabed within the Harbour for the cultivation of molluscs, and to regulate wild mollusc fisheries through licensing and closed seasons. Most of boats <8 m operating within the Harbour are punts, harvesting clams and cockles, gill and trammel netting for mullet, and potting for prawns, lobsters and brown and spider crabs. Six to eight boats regularly drag commercially for ragworms (for angling bait). The mussel fishery in Poole Harbour has expanded since the late-1980s as demand for this species has increased. Juvenile mussels are taken off Portland Bill and from other fisheries and re-laid into the Harbour. Cockles and various species of clams are also grown on the layings, together with Solent oysters.

Potting is the main activity of the larger boats, which fish between the Isle of Wight and St Albans. There are approximately 6 boats that concentrate on whelks for a large part of the year, some of which land significant quantities. Trawling takes place in Poole Bay, where 4 full-time boats >10 m take sole, rays, plaice and cuttlefish during the warmer months. There is extensive netting along the coast except when weed becomes a problem in summer, and mid-water trawls are sometimes used for sprat west of the Solent in winter. The bass fishery is important to the local fleet, which uses mainly handlines and some longlines and nets, sometimes seaward of the Isle of Wight. During the bass season, up to 30 boats

may fish the Harbour entrance and Christchurch Ledge, some taking out angling parties, and catching sandeels off Hook Bank for bait. Most of Poole Harbour is a designated bass nursery area. These boats turn to oysters, crabs and trawling in the winter. As many as 10 full-time boats of 10–12 m set crab pots in spring and summer out to 10 miles offshore south-east of Swanage. Large (up to 16 m) visiting vivier-equipped crabbers (eg Jersey boats) sometimes work out of Poole and often land in France.

There is one licensed seine netsman operating in the Frome and Piddle estuaries, catching salmon and sea trout from 1 June to 30 September. A few licensed eel fyke nets are set on the Frome in the Wool area, and there are silver eel racks at East Burton and on the Piddle at Trigon.

8.3.9 Swanage

Of 11 registered boats, only 6 work full-time setting lobster pots off St. Alban's Head. A further two boats net for flatfish, use handlines and nets for bass, and pot for lobsters during the summer on a less regularly. Two or three boats offer charter angling trips.

8.3.10 Kimmeridge and Lulworth

One boat from Kimmeridge and three from Lulworth set pots and nets for crabs and lobsters in Swanage Bay. Commercial divers gather scallops from rough ground on Lulworth Bank during the summer, and there are a number of sports divers who gather scallops, crabs and lobsters. This is an area particularly favoured by shore anglers, who target bass, mullet, wrasse and pollack.

8.3.11 Weymouth and Portland

Around 84 registered boats are based in these two ports. The pot fishery provides the principal income and has developed rapidly since the 1970s, now supporting over 40 boats, of which 20–25 are >8 m. These boats set between 400 and 2000 pots each, in strings of 20–100 pots out to 30 miles offshore, principally for lobsters, and brown and spider crabs. Several are equipped with vivier tanks to keep up to 5 t of live crabs on board, enabling them to sell directly to buyers. A number of potters also set nets for marketable fish and pot bait, although netting is restricted by strong tides. The boats of <8 m fish inshore and each set 100–500 pots for lobsters and brown and velvet crabs. There are also approximately four 10–12 m boats fishing for whelks.

One boat of 8–12 m uses otter trawl to target white fish such as cod, along with whiting, rays, sole and plaice. Since the late-1980s, species such as red mullet, cuttlefish and squid have become an increasingly important component

of catches. One 14 m vessel dredges for scallops and for mussel spat off Portland Bill to supply the layings in Poole Harbour, and other boats occasionally target scallops, although most inshore scallop beds have been cleared of marketable-sized scallops and are being left to regenerate. Divers harvest scallops in areas too rough to dredge.

Up to 25 boats of 6–10 m use rod and line or handlines primarily for bass, fishing in the Portland Race/Shambles Bank area between June and August, and 30 smaller open boats use handlines and set the odd net or pot. A few boats also use gill nets and seines for bass and mullet. The Fleet, a lagoon separated from the sea by Chesil Beach, is a designated as a bass nursery area. Charter angling trips are popular and involve up to 30 boats of various sizes all year round.

8.3.12 West Bay

There are 12–18 small (4 m) boats and 6 boats over 4 m setting nets all year round. These boats may target queen scallops after Christmas when, if the weather is bad, they may work from Brixham. Cuttlefish traps are used from April to June. Potting for crabs and lobsters is the main activity and 10 boats of 6–8 m use pots seasonally or take out angling parties to wrecks or rough ground. There are also three boats fishing for whelks and the area is heavily fished for scallops by 18 or more visiting boats of >10 m.

8.3.13 Lyme Regis

Some of the 16 registered boats set nets around wrecks for cod, pollack and ling, and there is a lot of effort on sole between September and May. Three boats use nets to target spider crabs. There are two 10 m boats scallop dredging.

8.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	14	32
Other gadoids	25	19
Sole	96	736
Turbot & brill	12	62
Other flatfish	56	119
Small pelagics	6	4
Bass	103	644
Other finfish	112	113
Sharks & rays	81	141
Shellfish		
Whelks	2,236	1,210
Gastropods	0	+
Scallops	402	712
Cockles	83	110
Other bivalves	3,390	1,252
Edible crab	874	1,158
Other crabs	151	102
Lobsters	137	1,249
<i>Nephrops</i>		
Shrimps & prawns	2	27
Cephalopods	190	196
Total	7,971	7,887

9. Devon, Somerset and Avon: Axmouth to Plymouth along the south coast and Clovelly to the Severn Estuary along the north coast (Devon SFC)



9.1 Synopsis of current inshore fisheries

This district is characterised by a rocky coast, often with deep water over a sandy bottom close inshore, and by many inlets and estuaries. The local fishing fleet can be split into three groups: offshore vessels (the majority of

which are based in Brixham, Kingswear, Salcombe and Plymouth); coastal trawlers, beam trawlers and scallop dredgers; and small inshore day boats that use a variety of mainly static gears. The south coast of Devon is more sheltered than the north coast, most fisheries are very seasonal, and the main fishing gear used inshore are pots,

nets, longlines and handlines. The brown crab fishery attracts a lot of effort, with landings from Salcombe and Kingswear alone accounting for around 18% of total crab landings into England and Wales in 2005. In several of the Devon estuaries there are licensed beach seine fisheries for salmon and sea trout. Though drift netting is popular for mullet and bass, many of the estuaries are bass nursery areas and strict measures governing netting and other methods have been introduced to preserve bass and migratory salmonid stocks.

9.2 Information on species targeted, fishing methods deployed and fishing restrictions inshore

9.2.1 Demersal fish (eg sole, plaice, turbot, brill, cuttlefish, lemon sole, cod, whiting, pollack, ling, conger eel, John dory, flounder, ray, monkfish, red mullet, sea bream, gurnard and dogfish)

Inshore otter and beam trawlers land a wide variety of demersal fish throughout the year, with sole, plaice, rays, turbot and monkfish more common from September to March. Red mullet and black bream have attracted more interest since the late 1980s, following increasing quota restrictions on other more traditional species. The cuttlefish fishery has become important to the South West industry during the late autumn and early winter. Beam trawlers operating inshore sometimes switch between white fish and dredging for scallops, when they are required to retain a minimum of 95% scallops and therefore a maximum bycatch of 5% of other species. Some otter trawlers switch between demersal and pelagic fish according to markets and seasonal abundance. A few boats in this region operate in pairs. A byelaw of Devon SFC (1996) prohibits boats over 15.24 m fishing for sea fish (including scallops) within 6 miles of the coast (although larger boats are exempt providing they were fishing during the year before the date of this byelaw and continue to be registered in the same ownership). The use of trawl gear has also been prohibited in specified areas such as Start Bay and within estuaries to help protect juvenile fish stocks. Lundy Island and adjacent waters is a Marine Nature Reserve and a Special Area of Conservation, within which some fishing activities are prohibited.

Gill and tangle nets are set for sole, plaice, rays, turbot, brill, pollack, cod and spurdogs, though cod nets are more prevalent on the north coast. Nets set around wrecks yield

pollack, ling, cod and monkfish. Fixed nets may be set inside the 6 mile zone only where authorised by the Devon SFC byelaws so they do not impede the passage of salmon or sea trout. Also, within certain areas, nets must be set at least 3 m below the water surface at any state of the tide unless permission has been granted to do otherwise.

9.2.2 Pelagic fish (eg mackerel, herring, pilchards, sprat, bass, grey mullet and sandeel)

There is a traditional mackerel fishery on both the south and north coasts of Devon. Following the development of purse seining and pair trawling in the 1970s, an area around the south-west English coast was designated the 'Mackerel Box' under European legislation and is intended to protect juvenile mackerel and thus conserve stocks by prohibiting trawling and purse seining for mackerel. This regulation also safeguards the handline fishery, which forms an integral part of the inshore fishing industry within the district and would otherwise find it very difficult to compete against the large pelagic boats. The lines are equipped with some 20–30 feathered hooks or similar lures and the fish are landed in prime condition.

Herring and sprats are taken in pair and otter trawls, especially in the south. Bass are caught in drift, gill and seine nets close inshore, but outside the many bass nursery areas where fishing for bass from a boat or with sandeels as bait are prohibited from 1 May to 31 October, or where netting restrictions have been introduced to preserve migratory salmonid stocks. Sandeels are caught in beach seines and light trawl gear and are often sold as bait for bass fishing. Grey mullet are often landed in nets intended for bass.

9.2.3 Diadromous fish (eg salmon, sea trout, eel)

Seine nets are licensed to take salmon and sea trout from the Rivers Exe, Teign, Dart, Taw and Torridge, though most of the nets (13 of 19) on the Teign and Dart were bought out in 2006 and the 23 nets on the Tamar complex were bought out for 10 years in 2004. There are also lave nets and putcher ranks in the Severn Estuary. The annual and weekly closure times for these fisheries tend to vary according to river and fishing method, and some are subject to buy-back schemes due to the depleted state of local salmon stocks.

Many rivers throughout the district support eel fyke net fisheries between spring and autumn. Elver dip nets are used in a few rivers on the north coast when the elvers are migrating into freshwater in winter and early spring.

9.2.4 Shellfish (eg lobster, brown crab, velvet crab, spider crab, crawfish, shrimp, prawn, scallop, oyster, mussel, whelk, cockle, periwinkle, cuttlefish and squid)

The south Devon coastline supports one of the largest brown crab potting fleets in the UK, comprising vivier-equipped offshore boats each setting up to 2000 pots out to the middle of the Channel and often landing their catches into France. On both south and north coasts, there are numerous smaller boats that set up to 800 pots each, usually within a few miles of the coast. The EU MLS for brown crabs taken off this coast is 140 mm carapace width whereas the national MLS for male brown crab is 160 mm. The fishery peaks during the warmer months, although pots are still set during winter in sheltered areas. A Devon SFC byelaw increases the MLS of lobsters to 90 mm carapace length. Velvet, green shore and spider crabs are also landed. Tangle nets are used for crawfish and spider crabs, and prawns and whelks are taken in some areas using pots.

Boats primarily using Newhaven dredges exploit scallops inshore (the use of French dredges is no longer permitted). Scallops are found on loose shingle and dead shell and spawn in the spring and are then of poor quality. Devon SFC byelaws, therefore, set a close season from July to September for scallops, and also limit the type, size and number of dredges allowed. At this time, sole, plaice, rays, turbot and brill appear inshore and some boats switch to beam trawling, when a bycatch of 10 dozen scallops per landing is permitted. Queen scallops are primarily taken as bycatch in trawl fisheries. Cuttlefish are taken in traps and nets by small boats working within one mile of the shore. With squid, they have become an important resource to the inshore otter trawling fleet as scallops are becoming less profitable. Many of the merchants and processors based in the larger ports now deal with these species during the summer when the large beam-trawling fleets work further offshore and land their catches elsewhere.

Oysters are cultivated in many of the larger estuaries, Pacific oysters being preferred to native oysters as they grow faster and are not affected by *Bonamia*. Periwinkles and cockles, and to a lesser extent mussels, are gathered by hand.

9.3 Description of coastal fisheries by port

9.3.1 Axmouth (Seaton) and Branscombe)

Axmouth harbour shelters small yachts and a few fishing vessels, and one boat operates from Branscombe beach.

Three boats <10 m are involved in the brown crab and lobster pot fishery from spring through autumn, with spider and velvet crabs taken mainly as a bycatch. A few boats use fixed nets for demersal fish such as sole, plaice, rays, turbot, dogfish and whiting, and to supply bait for pots. The bass fishery attracts many anglers in season and commercial boats take out charter angling trips.

9.3.2 Beer

The 5 beach boats (all <10 m) set up to 100 pots each for brown crabs and lobsters and take bycatches of velvet and spider crabs. Some set nets for cod and whiting in winter, flatfish in the spring and herring in the autumn, and nets are also set over wrecks for a variety of fish including cod, pollack, bass, ling and conger. One otter trawler primarily lands flatfish, rays and dogfish from spring onwards, and cod, whiting and sprats in autumn and winter. The fishermen will often haul their gear early in the morning before they depart for daily charter angling trips, upon which the fleet is becoming more dependent throughout the summer.

9.3.3 Sidmouth

Two full-time boats of 6–8 m operate a whelk fishery, when the market dictates, setting over 400 pots each. Landings peak during the summer, when they can expect to land between 5–6 t per week, most of which is exported. These boats and a few part-time ones also set pots for crustacea from spring through autumn.

9.3.4 Budleigh Salterton

The predominantly part-time beach fleet consists of 4–5 m boats that set pots and a few nets.

9.3.5 Exmouth

This large, well-sheltered harbour accommodates 6 >10 m vessels and most of the local fleet of 28 <10 m boats that work from the estuary of the River Exe. Five boats of up to 15 m use otter and beam trawls, set pots and may also dredge for scallops. In addition to white fish, non-quota species such as squid and cuttlefish are landed, especially during the summer. Eleven licences were issued in 2006 for the use of beach seines to catch salmon and a few sea trout between Lympstone and Topsham in the Exe Estuary from 1 June to 18 August. Some licensees turn to bass and mullet or herring netting at the end of the summer. Both commercial and recreational rod and line fishermen target bass, though the Exe Estuary is a designated bass nursery area.

Mussels are cultivated by several people within the Exe Estuary, where high water temperatures towards the end of the summer can trigger a second spawning, rendering the quality of the meat poor until the following year. Pacific oysters are also re-laid for on-growing in the estuary. A few boats set pots for crustacea and whelks.

9.3.6 Teignmouth

The Teign Estuary contains a large bay that supports numerous industries including dredging and merchant shipping companies, as well as containing many yacht moorings. The 5 trawlers (2 over 10 m) that are registered here spend most of their time fishing from Brixham using beam and otter trawls for demersal fish, pair trawls for sprats and scallop dredges. There are 12 open boats of 4–6 m that use a variety of fishing methods such as netting for bass, mullet and sandeels, potting for crustacea and whelks, handlining for bass and gathering periwinkles by hand. This estuary is a designated bass nursery area. Three licensees used seine nets for salmon and sea trout from 15 March to 31 August in 2006, following a buy-out of three of the six nets.

Mussels are farmed on 385 acres of beds that are covered by the Teign mussel fishery order, and seed mussels are obtained from the River Exe. Pacific oysters began to be cultivated here in the late-1970s using seed oysters from hatcheries. One of the main problems facing mollusc cultivation in the Teign Estuary used to be the poor water quality caused by sewage effluents and agricultural run-off. However, the river has undergone an extensive cleaning operation and a new sewage outfall pipe-line that extends out to sea has been laid, and this is now one of the most important oyster growing areas in England and Wales.

9.3.7 Torquay

This large harbour is mainly used by pleasure craft with only three local trawlers (1 >10 m) based here. In autumn, two Scottish boats sometimes use the harbour, from where pair-trawling for sprats, mackerel and horse mackerel. There are a few open boats <10 m that are involved in netting and potting seasonally. A few charter angling boats work from this popular tourist resort, and the larger boats also offer pleasure cruises along the coastline.

9.3.8 Paignton

A small tidal harbour accommodates up to 15 boats, all <10 m and mostly fishing part-time. The majority set pots for brown crabs and lobsters from spring through to

autumn. A few set nets for demersal and pelagic fish, and charter angling trips have become increasingly important for commercial fishermen since the 1980s.

9.3.9 Brixham

This is one of the largest ports in the south-west and has a traditional trawling background supplying a large daily fish market. During the early 1980s, many fishermen bought new boats and engaged in beam trawling, which is a more effective gear than otter trawls for catching flatfish and can be worked on much rougher ground. Twelve of the 25 beam trawlers of between 15 and 35 m operating out of this port periodically fish inshore, while the majority of more powerful beam trawlers are prohibited from fishing inside 12 nautical miles. Some of the beam trawlers switch to scallop dredging during the summer in order to preserve sole quota and effort allocation. Most of the 40 otter trawlers registered in Brixham, Teignmouth and Exmouth land and refuel at Brixham. They work within Lyme Bay and west towards the Eddystone, the majority on day trips, often within 12 miles of the shore. In addition to white fish, non-quota species including cuttlefish, squid, red mullet and sea bream are landed. Several of the Brixham boats use mid-water trawls for sprats in winter. There are also over 40 <10 m vessels fishing from Brixham using a variety of gears. Several set nets for species such as cod, pollack and ling, often around wrecks, and some concentrate on the pot fishery, setting up to 10,000 pots mainly for brown crabs out to 6 miles offshore. Ten boats use gill nets, tangle nets, handlines and, in some cases, trawls, in addition to pots. Between April and June, a number of vessels set cuttlefish traps.

9.3.10 Kingswear and Dartmouth

Kingswear is mainly a brown crab port with around 30 boats setting pots. Together with the potting fleet in Salcombe, this area is one of the main brown crab fisheries in the UK. Around 7 boats of >10 m set between 800 and 1500 pots each in the mid-Channel area, often hauling on alternate days in order to save fuel. Some of these boats are equipped with live storage facilities and often land directly to the Continent. The smaller boats fish fewer than 600 pots out to Start Point, and a handful of open boats set 50–100 pots near the mouth of the River Dart. In addition to brown crabs, spider and velvet crabs are also retained, and the smaller boats set pots for lobsters. Competition for ground off Start Point between pot and trawl fishermen has led to agreements designating potting and trawling zones. These agreements are regulated through statutory MFA licence conditions and are enforced jointly by the MFA and SFC.

Pacific oysters are cultivated within the river and nets are used both in the Dart Estuary and outside it for bass, mullet and sandeels. The estuary is a designated bass nursery area. Three licensed seine nets took salmon and sea trout in the Dart Estuary between 15 March and 14 August, with a weekend closure between 0600h Saturday and 0600h Monday, following a buy-out of 10 licences in 2005.

9.3.11 Torcross and Beesands

There are a few beach boats, all <8 m, which work from the shore, setting pots for crabs and lobsters and nets for demersal and pelagic fish, and using handlines for mackerel. Nets set around wrecks yield cod, pollack, ling, and conger.

9.3.12 Salcombe

Situated at the mouth of Kingsbridge Estuary, Salcombe supports a fleet of around 12 potting boats, 6 of which are >10 m. Some of the larger boats land in France, whilst the rest of the fleet lands to live storage facilities in the port. Numbers of pots fished vary greatly depending on the size and capability of each vessel, but the larger boats usually set over 1,200 each, and inshore boats set 200–800 pots. The traditional inkwell pot is most commonly used, although parlour pots are used inshore. Brown crabs provide the main income, although lobsters, spider and velvet crabs are also important to the inshore fleet. Like the Kingswear potters, the Salcombe fleet also has problems with trawlers, despite the designated potting/trawling areas, especially when visiting boats dredge the areas for scallops. Four or five inshore boats set tangle nets for flatfish, fyke nets for eels, and gill nets for cod, whiting and pelagic fish. The estuary is a designated bass nursery area, and is used for the cultivation of Pacific oysters, native oysters and mussels. Natural stocks of native oysters, mussels, cockles and periwinkles are harvested by hand. There is a small scallop fishery within the estuary, licensed and restricted by Devon SFC from mid December to mid March.

9.3.13 Hope Cove and the River Avon

The small cove at Hope gives shelter for a few fishing boats, and today only two boats of 6–7 m operate a full-time pot and net fishery. In the Avon Estuary, a few people grow mussels and oysters, and there is a licensed salmon trap fishery, although the rights have been purchased by EA South Western Region and are not currently exercised. The estuaries of the Rivers Avon and Yealm are both designated bass nursery areas.

9.3.14 Plymouth

Over 50 fishing vessels regularly land into Plymouth (including boats registered elsewhere) and fishing activity can be split into offshore and inshore. The offshore fleet is made up of 25 boats using otter trawls, beam trawls, scallop dredges and mid-water trawls and include 2 mid-water freezer trawlers. In winter and spring, Scots vessels target bass using pair trawls, and other visitors occasionally target anchovy, pilchard and herring.

In summer, a number of the local trawlers change to scalloping, and are joined by visiting scallopers from around the UK. Around 10–15 boats set pots for crabs and lobsters from April to the end of December. During late summer to spring 8–10 vessels sporadically handline for mackerel. The port has 8 local beam trawlers that may be joined by others from Brixham. During autumn, these vessels land good quantities of quota species, supplemented by cuttlefish.

The inshore fleet uses a variety of methods including trawls, dredges, gill nets, tangle nets, handlines, longlines and pots. Around 10 boats of 9–14 m use trawls and dredges upto 20 miles offshore. The majority land their catches into the daily fish market. Inshore otter trawlers take white fish such as plaice, whiting, lemon sole, turbot, and monkfish for most of the year, and species such as red mullet and cuttlefish have recently become important. Pilchards are occasionally targeted in winter and several trawlers also use nets and lines at times.

Around 12 boats dredge for scallops within 14 miles of the coast, and some switch to beam trawling/otter trawling for flatfish during the spring, the Eddystone area being very productive. Scallop dredging has become more popular since the 1980s as quota restrictions have reduced the amount of white fish that can be landed. Some boats are totally dependant on scallops, landing white fish as a bycatch.

Around 10–15 boats set pots for crabs and lobsters inshore of the Eddystone, most in association with other static fishing gear, such as nets and longlines. Three boats may engage in the handline fishery for mackerel, and handlines are also used for bass, although the Plymouth river estuaries are a designated bass nursery area that is closed to bass fishing from a boat and for netting all year round to protect salmon and sea trout.

9.3.15 Clovelly

One <10 m trawler and a small number of netters and potters operate from this North Devon port. Fishing activity outside the shelter of Bideford Bay is limited during the winter, when poor weather and big tides result in many

boats being hauled ashore for an annual refit. Each boat fishes between 100 and 200 pots from May to October, and lobsters provide the main catch, although brown and velvet crabs are also important. A high proportion of the crustacea landed is sold to local hotels and restaurants. Pot bait such as gurnard, mackerel or dogfish is usually obtained from trawlers landing elsewhere. Conger eels are sometimes caught in the pots and are subsequently sold.

9.3.16 Appledore and Bideford

Appledore is situated at the joint mouth of the Torridge and Taw Estuaries and Bideford lies a few miles up the Torridge Estuary. A total of 4 <10 m and 4 >10 m trawlers, one potter and 2 or 3 netters use both quays. All vessels fish in the Bristol Channel, landing a mixed demersal catch. Rays feature in the greatest quantities all year round, and bass form an important bycatch in trawl landings. The smaller boats set nets and lines to take demersal fish including cod, whiting, plaice, sole, turbot, rays, pollack, and conger eel, with crustacea sometimes providing an important bycatch in net fisheries. Drift netting for herring occurs during autumn and for bass during spring and autumn. Pots are set for lobsters and crabs, and handlines are used for bass and mackerel during the summer, when some of the boats take out charter angling trips. Parts of the Torridge and Taw Estuaries are designated bass nursery areas.

Natural stocks of mussels, oysters and cockles are exploited in the estuaries on a small scale, and mussels and Pacific oysters are cultivated. There has recently been interest in this area as a source of seed mussels for other fisheries.

In 2006, 3 seine net licences were issued for salmon and sea trout in the Taw and Torridge.

9.3.17 Ilfracombe

A sheltered harbour subject to large tides supports two trawlers and 5 potters of 6–15 m. Pots are set for brown crabs and lobsters to over 20 miles offshore, often around Lundy Island, and most are brought ashore in October or November.

9.3.18 Combe Martin and Watermouth

Up to 6 boats fish seasonally with a small number of pots for lobsters when the weather is favourable.

9.3.19 Lynmouth

This sheltered tidal harbour accommodates two boats of 6–8 m that set pots, principally for lobsters close to the shore, the odd net for herring or pot bait, and handline for bass and mackerel. Catches are sometimes sold to local hotels and restaurants.

9.3.20 Minehead and Bridgwater

Two small part-time boats work out of Minehead setting pots and taking out angling parties. On Stert Flats, to the east of Hinkley Point, two fishermen maintain ranks of fixed stowe or stake-nets to catch shrimps, mullet, rays and sole from July to October. Several part-time boats set pots and nets close inshore, between Highbridge and Burnham-on-Sea, and molluscs are gathered by hand. Just below Bridgwater, dip nets are used to catch elvers when they move upriver during the winter and early spring.

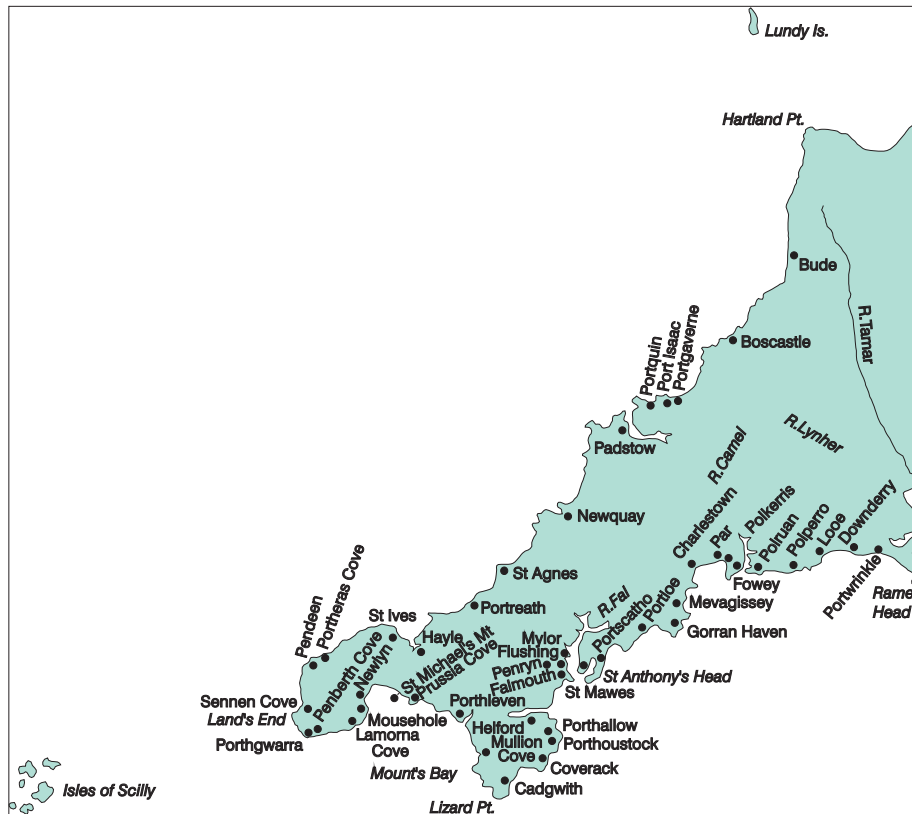
9.3.21 Severn Estuary (Weston-super-Mare to Sharpness, Sharpness to Chepstow)

A lot of angling activity takes place off Weston-super-Mare, particularly for cod in winter and bass in summer, and ragworms are taken along the low water mark for use as angling bait. The licensed salmon and sea trout fishery in the Severn Estuary comprised 3 seine nets, 21 lave nets and 5 fixed engines (eg putchers) in 2006. There are salmon putchers at the south-west and north-east ends of the Severn Bridge, at Aust and Beachley, and at Alvington below Lydney Lock (opposite Berkeley). More than 500 licensed dip nets are used to catch elvers from around November to March, principally in the upper Severn Estuary, above Sharpness.

9.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	61	157
Other gadoids	805	481
Sole	579	5,403
Turbot & brill	194	1,611
Other flatfish	1,289	3,033
Small pelagics	10,348	3,464
Bass	97	618
Other finfish	1,031	2,866
Sharks & rays	575	931
Shellfish		
Whelks	1,230	678
Gastropods	1	2
Scallops	2,847	5,866
Cockles		
Other bivalves	1	1
Edible crab	1,891	2,358
Other crabs	144	127
Lobsters	69	793
<i>Nephrops</i>	0	1
Shrimps & prawns	0	3
Cephalopods	3,062	5,357
Total	24,225	33,749

10. Cornwall: Rame Head to Bude (*Cornwall SFC and Isles of Scilly SFC*)



10.1 Synopsis of current inshore fisheries

This coast is subject to varying degrees of exposure, from the Atlantic Ocean in the west to the more sheltered English Channel in the south, and provides a wide range of fisheries resources that tend to be very seasonal. This area is included in the distribution of southerly species such as pilchard and John Dory and also northerly species such as cod. Small day-boats proliferate on both coasts, with the majority setting pots for crabs and lobsters and using handlines for pollack, mackerel and bass. Gill and tangle nets are used to catch cod, ling, pollack, rays, turbot, brill, red mullet and spider crabs. Bass and grey mullet are taken in estuaries. Oysters and mussels are hand-gathered or dredged from natural and cultivated beds.

Scallop dredging along the south coast has intensified in recent years, with vessels visiting from Brixham and as far afield as Scotland. Twin and multi-rig trawlers are being increasingly used around the entire Cornish coast. A Cornwall SFC byelaw prohibits boats >18.28 m using trawls, purse seines or ring nets within 6 miles of the coast. Most of the inshore trawlers are based in Newlyn and Looe and, since the late-1980s, dwindling catches of traditional species such as plaice, cod and sole have resulted in more effort being directed towards non-quota species such as cuttlefish and squid. Exposure and shallow estuaries limit ports and anchorages on the north coast where the fleet consists mainly of boats <12 m. Potting activity is highest during the warmer months with pots set out to 30 miles from the shore. A Cornwall SFC byelaw

increases the MLS of lobsters to 90 mm carapace length, and to 150 mm and 160 mm carapace width for female and brown crab respectively.

10.2 Information on species targeted, fishing methods deployed and fishing restrictions inshore

10.2.1 Demersal fish (eg sole, plaice, turbot, brill, lemon sole, ray, cod, whiting, pollack, ling, dogfish, conger eel and red mullet)

Beam trawling for monkfish, megrim, lemon sole and sole became popular during the early-1980s and has been responsible for the increase in landings since then. Otter trawlers exploit more seasonal fisheries, with cod and whiting landed in autumn and winter and flatfish and rays landed all year round. Non-quota species such as squid and lemon sole are very important at certain times of the year.

Gill nets, with a mesh size of 120–160 mm are set over rough ground and wrecks for cod, pollack, ling and rays. Some of the larger netting boats work out as far as 70 miles offshore, fishing gill nets in the deep-water grounds to the south-west and south of Ireland for hake and rarely operating inside 12 miles. Small-meshed (<120 mm) tangle nets are set for sole and plaice on smooth grounds, whereas larger ones (>200 mm) are set for rays, turbot, monkfish and brill. Trammel nets are rarely used. Boats of 6–8 m can set over 16,000 m of net, although the average is probably in the region of 3000 m.

10.2.2 Pelagic species (eg mackerel, bass, herring, pilchards, sprat, mullet and sandeel)

Many small boats handline for mackerel when shoals appear inshore along the south coast between autumn and spring, and during the spring and summer off the north coast. Daily landings can amount to 1200 kg per man when using between 20–40 hooks on each line. Trawlers and small boats using drift nets take herring and sprats. Sardines and horse mackerel are taken within the Mackerel Box by industrial trawlers, most of which are from Scotland or Denmark. Small purpose-built ring-net vessels are increasingly targeting pilchards (marketed as Cornish sardines).

Bass and mullet are caught in fixed and drifted gill nets inshore and in estuaries, although netting restrictions issued to protect salmonids and bass in designated bass nursery areas effectively preclude this fishery in many estuaries, where bass fishing from a boat or using sandeels as bait are prohibited between 1 May and 31 December. Small

handlining boats use lures or live sandeels or mackerel as bait to catch bass. A Cornwall SFC byelaw, and a similar Environment Agency byelaw, stipulates a MLS for bass as 37.5 cm, which applies in Cornish estuaries and out to 6 miles offshore.

10.2.3 Diadromous fish (eg salmon, sea trout and eel)

Along the south coast, the River Fowey supports a licensed salmon and sea trout seine net fishery, and licensed drift nets are used in the River Camel on the north coast. In order to protect salmon and sea trout, the EA and Cornwall SFC have introduced netting restrictions such that in many coastal areas (usually around estuaries) nets can only be used providing they are set at least 3 m below the surface of the water at any state of the tide. Fyke nets are set for eels in most of the larger rivers and estuaries, from spring through to autumn.

10.2.4 Shellfish (eg lobster, brown crab, velvet crab, spider crab, crawfish, cuttlefish, squid, scallop, oyster, mussel, whelk, mussel, cockle and periwinkle)

Pots are set along the entire coastline, for lobsters close to the shore and for brown crabs generally further offshore. Local tourism provides a good market during the summer and this attracts many part-timers into the pot fishery. A limited lobster fishery continues through winter, when pots are set in sheltered areas. An important pot fishery for velvet crabs destined for export operates all year round. Spider crabs are caught for the export market using pots and tangle nets, with peak landings made during spring and summer, when they appear to form dense spawning aggregations inshore, particularly on the north coast. Tangle nets also catch the much sought after (and now rare) crawfish. Boats fishing for lobsters, crawfish and crabs require a permit issued by Cornwall SFC, and fishermen are required to submit catch and effort data.

Scallops are harvested from inshore grounds using Newhaven dredges. All of the locally-based vessels are <16.46 m overall length (a Cornwall SFC byelaw prohibits larger boats fishing for shellfish inside 6 miles) and are therefore allowed to dredge up to the shoreline. A few of the boats which use dredges may also be involved in other fisheries, but periodically switch to scalloping when white fish are either scarce or quota limits restrict landings, or in winter when the weather prevents them

from trawling further offshore. Larger vessels dredge scallop beds outside the 6-mile limit. Increasing quota restrictions on white fish, the expansion of markets abroad, and the delay in introducing licence for scallops until 1999, have all helped the development of the scallop fishery. The Cornwall SFC has introduced byelaws restricting the number and construction of dredges a vessel can use inside 6 miles, and banning the practice of 'cutting out' scallops at sea. Queen scallops are occasionally taken as a bycatch in demersal trawls.

Beam trawlers land cuttlefish and squid and, as these species are not restricted by quotas, their importance to the inshore fleet and local merchants and processors has increased.

Oysters and mussels are cultivated in a few estuaries. Though native oyster fisheries were devastated by *Bonamia* during the 1980s, the small fishery using sailing dredgers and hand dredging in Carrick Roads (Fal Estuary) is showing signs of recovery. Cockles and periwinkles are hand-gathered sporadically along the coast.

10.3 Description of coastal fisheries by port

10.3.1 Portwrinkle and Downderry

Four boats of 4–5 m set pots for lobsters and crabs in spring and summer and fishing activity in winter is minimal.

10.3.2 Looe

Fourteen otter trawlers of 9–15 m operate mainly on day trips, the larger boats fishing out to 40 miles offshore, but the majority fish within 12 miles of the coast between Eddystone and Lizard Point. Cod, whiting and lemon sole make up the bulk of catches during the colder months, and flatfish, cuttlefish and squid become more important in spring and summer. Many vessels may pair-trawl in the area, taking good catches of mainly whiting, with a few prime fish (eg lemon sole, bass, monkfish). Four trawlers switch to dredging for scallops from spring through to autumn.

Twenty smaller boats use nets and handlines or longlines, a few use pots, and an additional 10 or so part-timers use handlines for mackerel in autumn and winter when the shoals appear inshore. Handline jigs are also used for squid during the summer. Gill nets are set close inshore for cod in the winter and for flatfish such as sole, turbot and brill as well as rays from spring through summer. Netting for sandeels and eels takes place in the Looe Estuary. Angling tourism is important to this port, and several vessels offer specialised charter trips for mackerel or blue shark and on wrecks.

10.3.3 Polperro

Three boats of 6–11 m set gill and tangle nets for roundfish and flatfish in winter and spring, switching to handlines at other times of the year. Handlines are used for mackerel by an additional four boats. Four boats of 10–12 m trawl for whiting, plaice, lemon sole, sole, rays and cod within 12 miles of the coast, one of these periodically dredges for scallops, and one uses nets.

10.3.4 Fowey/Polruan

These two ports either side of the Fowey Estuary harbour one >10 m boat that dredges for scallops and trawls and one full-time trawler. Inshore white fish landings have fallen (as a result of a scarcity of fish), and new markets have been found abroad for scallops, which have been found in high densities off this coast. These vessels also land a small whitefish bycatch.

Five smaller boats from both ports use nets for cod, conger eels and ling, and pots for lobsters and brown crabs. Visiting scallop-dredging boats are sometimes blamed for towing away static gear.

Two licensees use seine nets to catch salmon and sea trout in the Fowey Estuary, which is a designated bass nursery area. The fishing season for sea trout on the River Fowey starts on 2 March and for salmon on 1 June, both ending on 31 August.

10.3.5 Charlestown and Par

Two full-time 6 m vessels work pots for crabs and lobsters, and one boat uses nets seasonally for monkfish and rays.

10.3.6 Mevagissey

Seven otter trawlers of 9–14 m land demersal fish virtually all year round, though all may move to Newlyn at times. Cod, whiting, squid and lemon sole make up the bulk of landings in winter, and lemon sole, squid, whiting, plaice, turbot, brill and rays are taken in spring. During the summer, the boats that carry on trawling are more dependent on non-quota species such as cuttlefish, lemon sole and squid. Around 46 boats of 5–17 m use nets, lines and pots full-time. Four or five of the larger netting boats work out as far as 70 miles offshore, the rest of the fleet work within 30 miles of the coast. Gill and tangle nets are set for various white fish species in season, and one of the larger boats fishes for hake to the south of Ireland, and also for tuna off the shelf edge south-west of the Celtic Sea. Nets set inshore also take a significant bycatch of crustacea. Pots are set for brown crabs and lobsters, with some of the larger boats using over 500 pots each. Apart from all but one of the trawlers, the majority of boats use

handlines for mackerel during the autumn and winter in an area south-east of Eddystone to Lizard Point. Three scallop dredgers also operate from this port. Many boats charter angling trips, especially during the summer when the harbour is popular with tourists.

10.3.7 Gorran Haven

Six boats of 3–4 m use nets and pots from spring through to autumn and one may also handline for mackerel.

10.3.8 Portloe

Four boats fish regularly from this small cove, setting between 250 and 400 pots each within a few miles of the shore for brown crabs and lobsters and taking a bycatch of velvet and spider crabs. Gill and tangle nets and, sometimes, longlines are set for turbot, sole, rays, monkfish, pollack, ling, cod and spurdogs, and handlines are occasionally used for bass and mackerel in season.

10.3.9 Portscatho

Three part-time boats of <5 m work pots and nets.

10.3.10 St Mawes

Two boats of <15 m dredge for scallops within 12 miles of the coast, between Looe and Lizard Point. One of these boats may also use a beam or otter trawl for demersal fish, depending on profitability, and two other boats use trawls all year round. Four vessels use static gear. The Percuil River is a designated bass nursery area, and native oysters are cultivated there, but stocks have remained low since the outbreak of *Bonamia* during the 1980s.

10.3.11 Mylor

Three boats use nets and three set pots, the largest netter (of >12 m) fishing the deep-water grounds to the south-west for hake and rarely operating inside 12 miles. The rest of the fleet are <10 m and use gill nets for cod, pollack and ling, tangle nets for rays, turbot and monkfish, or set between 250 and 300 pots each for lobsters and brown and velvet crabs. Two scallop dredgers also operate from this port.

10.3.12 Flushing

There are two boats of 12–15 m, one dredging for scallops and the other using nets or longlines for ling and conger eel.

10.3.13 Penryn

Three boats set nets for demersal fish.

10.3.14 Falmouth

Out of the twelve or so boats working from this port, two of >10 m dredge for scallops. There are three netters and one potter of >10m. The 6 remaining <10 m boats use nets, longlines, pots and handlines. The majority of static gear boats set nets part-time for a variety of species, and also use rod and line or handlines for bass and mackerel in season. Some boats charter angling trips.

The upper reaches of the Fal Estuary are a designated bass nursery area. There is a native oyster fishery in the River Fal, which employs up to 70 men (12 smacks and 11 punts in 2005) who harvest the oysters by hand or using sail-powered boats. The fishery is managed through the Truro Port Fishery Order (1936). In addition to the local fleet, Anglo-Spanish netters and trawlers make frequent landings at Falmouth.

10.3.15 Helford

Out of 14 boats landing into this fishing village, 5 full-time vessels of 8–10 m and one >10 m set gill nets and two <10 m boats use pots and nets. The larger gill-netters target hake and monkfish well offshore in summer and spend the rest of the year fishing for a variety of demersal fish within 30 miles of the coast. The smaller operators use nets within 12 miles of the coast all year round. Two potting boats catch mainly brown crabs, spider crabs and some lobsters. One vessel also uses handlines for bass from spring onwards and for mackerel in the autumn. Native oysters and mussels are cultivated in the Helford Estuary, which is a designated bass nursery area.

10.3.16 Porthallow and Porthoustock

Three boats <10 m from Porthallow and up to 9 from Porthoustock, all of 4.5–7 m, predominantly use handlines for bass and mackerel and also set pots for brown crabs, lobsters and velvet crabs in spring and summer. Several boats also set tangle nets for turbot, rays and brill. Bass are caught on lines around the Manacles Reef – a rocky outcrop less than a mile offshore, from spring through to autumn.

10.3.17 Coverack

Seven full-time boats of 5–7 m fish pots and nets from spring through to autumn, and may be joined by three part-timers that work similar gear, plus mackerel handlines. Fishing activity is minimal during the winter as gear is brought ashore to avoid damage.

10.3.18 Cadgwith

Nine boats of 5–7 m fish static gear along this rocky coastline out to a few miles offshore. The main fishery is with pots, each boat setting 200–500 and landing lobsters, brown, spider and velvet crabs. The lobster fishery peaks during May and again in August, and brown crabs are targeted from spring through autumn. Nets are set in winter for cod, pollack and whiting and for flatfish and monkfish in spring.

10.3.19 Lizard Point

Four part-time boats of 4–5 m set a few pots and nets.

10.3.20 Mullion Cove

Two full-time beach boats principally pot for lobsters and brown crabs, one setting 375 pots whilst the other sets between 150 and 250 pots between May and October.

10.3.21 Porthleven

Four full-time potters and 14 part-time boats all <10 m use pots, nets and lines. From spring through to autumn, gill and tangle nets are set for demersal fish and pots mainly for brown crabs.

10.3.22 Prussia Cove and St Michael's Mount

One boat of 4–5 m works pots, nets and handlines seasonally.

10.3.23 Newlyn

This is one of the largest fishing ports in England and Wales, where the majority of offshore boats in Cornwall are based. A regular fleet of around 40 trawlers and 50 static gear boats land their catches into the daily fish market, along with visiting boats from Brixham, Looe, Mevagissey, Ireland and the Channel Islands. A further 25 part-time vessels work mainly nets and handlines. Most of the 23 local beam trawlers are 25–29 m in length and operate exclusively offshore for monkfish, megrim, lemon sole and sole. Around 16 otter trawlers of 9–25 m land a variety of species, the boats <16 m regularly fishing within 12 miles of the coast. Cod, whiting, plaice, megrim, rays and lemon sole make up the bulk of landings during winter, with sole, megrim, plaice, rays and whiting predominating during the warmer months. Since the late 1980s, non-quota species such as cuttlefish, squid and lemon sole have become increasingly important to both the inshore fishing fleet and local merchants and processors as white fish landings have fallen.

Up to 60 boats, between 5 and 25 m, set enmeshing nets from this port, the larger boats fishing hake gill

nets and tangle nets for monkfish, turbot and rays well offshore and often take an important bycatch of lobsters and crawfish. The inshore fleet set gill nets for demersal fish, sometimes around wrecks, and for pelagic fish such as herring, bass and grey mullet. Boats of between 8–12 m are capable of setting up to 15,000 m of net each. Some boats also use longlines. About 18 boats, 6 of which are over 12 m, set pots for brown crabs both inshore and offshore. The remaining boats fish inshore, netting and using handlines if mackerel or bass appear. Mackerel are exploited by local and visiting boats in Mount's Bay whenever they are available. A few boats may use drift lines for blue shark.

10.3.24 Mousehole

Nine boats of 5–7 m use nets for demersal fish, pots for lobsters and crabs and handlines for bass, mackerel and pollack. Due to the weather, this small harbour is closed from the first week in November to the third week in March, when some boats move to work out of Newlyn.

10.3.25 Lamorna Cove

One beach boat sets handlines for bass and mackerel during the warmer months.

10.3.26 Penberth Cove

Six boats of 4–5 m set pots for lobsters, crawfish and crabs (brown, spider and velvet), one also sets gill nets for cod, rays, pollack and dogfish, and they may all use handlines for mackerel and bass. One vessel uses handlines only.

10.3.27 Isles of Scilly

There are three full-time and around 25 small, inshore vessels working from the Isles of Scilly. The majority of vessels fish part-time for shellfish, which are transported to buyers in Newlyn and then by vivier lorry to either France or Spain. All five inhabited islands have boats working from them. St Agnes has two part-time boats and Bryher has one full-time and one part-time boat, all setting parlour pots for crab and lobster and tangle nets for crawfish. On St Martin's, one part-time boat sets parlour and inkwell pots for crab and lobster and tangle nets for crawfish, two boats use tangle nets for crawfish, turbot and monkfish, and two pot for lobsters and net for grey mullet. Two full-time stern trawlers and one full-time crab potter, and a single tangle netter over 10 m, are based at St Mary's, together with 8 part-time boats mainly working inkwell and parlour pots for lobster and crabs and a few nets. Tresco has two part-time lobster boats and one part-timer setting nets for crawfish and flatfish during the warmer months. The Isles of Scilly

SFC has byelaws that prohibit vessels greater than 11 m and 10 tonnes (except those with historic rights) from fishing within 6 miles of baselines, set a minimum landing size for lobsters of 90 mm; and prevent vessels using more than 4 scallop dredges within 4 nautical miles of the baselines.

10.3.28 Porthgwarra

One small part-time beach boat uses pots and handlines.

10.3.29 Sennen Cove

A small slip supports three full-time and up to 8 part-time/hobby boats of 4–6 m that use nets, pots and handlines from spring through to autumn. There is little fishing activity in winter due to the lack of protection from the weather. Gill nets are set over rough ground and wrecks for cod, pollack, ling and conger eels. Tangle nets are used to catch turbot, rays and crustacea. Pots are set for lobsters, crabs and crawfish and handlines used for mackerel when they appear.

10.3.30 Portheras Cove (near Pendeen)

Two beach boats work pots, nets and handlines.

10.3.31 St Ives

A fleet of 30 boats use handlines for mackerel during the summer, when 18 part-time vessels may join them. Gill netting for bass has been restricted in the Bay in order to protect salmon and sea trout that were taken as a bycatch and auks that sometimes winter there. There are charter-angling boats that are heavily dependent on the mackerel.

10.3.32 Hayle

Around 20 boats tie up on both sides of the River Hayle, of which two trawl, a dozen set pots and the rest use nets and handlines. There are shellfish storage facilities on the quay from which and vivier-equipped lorries transport shellfish to the Continent. The larger boats, including two of >10 m, set pots out to 15 miles offshore, principally for brown crab, whereas the smaller boats working closer inshore take lobsters, crabs (brown, spider and velvet) and crawfish. Tangle nets are also used to catch crawfish and spider crabs. Pots are kept inshore during the spring sole beam-trawl fishery in order to prevent them being trawled away. A dozen boats <10 m may work up to 10,000 m of nets each, some the entire year round. The nets are set on rough ground where trawl gear cannot be used, for pollack, ling, turbot, monkfish, rays and cod, together with a valuable catch of spider crab in spring and some bass in summer.

10.3.33 Portreath

Three boats of 5 m use handlines for mackerel during the summer, and for pot bait.

10.3.34 St Agnes

Three boats of <6 m work pots during the summer.

10.3.35 Newquay

Twenty-one boats work from this port that, though partially sheltered by the headland, is subject to strong tides, which restrict activity on the fishing grounds. Most boats of 7–11 m set gill nets for pollack and turbot, and may also set pots for lobsters and crabs or whelk. Fishing effort inshore is intense and boats are continually setting gear further offshore thereby increasing the risk of gear being towed away by trawlers. Finfish landings go to Newlyn and Looe markets whilst most shellfish are collected by lorry for export to France and Spain. The spider crab fishery is very important in spring and summer.

10.3.36 Padstow

Thirty vessels operate from this important port on the north coast of Cornwall, the majority using static gear such as nets or pots. Some of these boats were originally built for trawling, but dwindling catches of sole, cod, hake and mackerel have resulted in fishermen switching to netting in areas of rough ground not fished by trawlers. The netters take turbot, monkfish, cod and pollack, and the larger boats fish offshore for hake. Between Christmas and the end of March, up to 20 visiting beam trawlers participate in the local sole fishery. Fourteen boats are involved with the pot fishery during the summer, the smaller ones working perhaps 250 pots each on the inshore grounds and the larger and faster vessels work anything up to 1000 pots each as far away as Lundy Island. Nearly all the boats bring their pots ashore between Christmas and March to avoid the worst of the weather and also to avoid damage from the visiting beam-trawl fleet. Most of the shellfish are exported weekly by vivier truck to Europe direct from the quay. Five boats handline for mackerel and bass.

The Camel Estuary is a bass nursery area, and the cockle bed within the estuary is currently closed pending the making of byelaws to control its exploitation. There is a small sandeel seine-net fishery on the river and 7 drift net licences are issued for salmon fishing. The salmon fishery begins 1 June and ends 31 August, and it is closed between 0600h Saturday and 0600h Monday during the season.

10.3.37 Portquin

One part-time beach boat sets pots.

10.3.38 Port Isaac

Thirteen boats, mainly <10 m, work pots for lobster, brown crab and spider crab between Port Isaac and Lundy. The smaller vessels set between 250 to 400 pots each, while the two larger vessels each work 1200 pots, hauling approximately 400 pots per day. There is also a small amount of netting for rays, plaice, cod and herring in season, as well as crawfish. Five vessels may also handline for mackerel and bass during the summer.

10.3.39 Portgaverne

Four small beach boats work pots.

10.3.40 Boscastle

One full-time vessel of nearly 10 m is involved in chartering angling trips during the summer and, with two part-time boats of 4.5–7 m, setting mainly pots and, to a lesser extent, nets within a few miles of the coast.

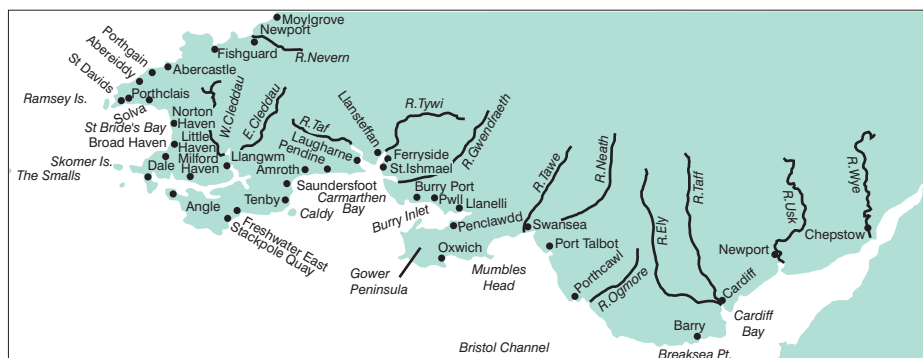
10.3.41 Bude

Six boats of <9 m set pots primarily for lobster, nets for cod, turbot, rays, bass and herring, and use handlines to catch mackerel, pollack and bass during the warmer months. Due to the exposed nature of the harbour entrance, fishing opportunities are limited by poor weather conditions, which makes it very difficult to sustain employment solely from fishing out of this port.

10.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	213	597
Other gadoids	1,916	3,577
Sole	284	2,561
Turbot & brill	139	1,212
Other flatfish	1,298	4,674
Small pelagics	1,800	1,354
Bass	49	371
Other finfish	855	4,509
Sharks & rays	452	565
Shellfish		
Whelks	34	21
Gastropods	0	0
Scallops	772	1,375
Cockles	0	0
Other bivalves	0	+
Edible crab	1,967	3,587
Other crabs	750	732
Lobsters	217	2,446
<i>Nephrops</i>	4	9
Shrimps & prawns	8	9
Cephalopods	415	725
Total	11,173	28,325

11. South Wales: Chepstow to Moylgrove (South Wales SFC)



11.1 Synopsis of current inshore fisheries

Strong tides within the Severn Estuary limit fishing opportunities, but there are valuable potting grounds around the rugged Gower Peninsula and Pembrokeshire coast, and mollusc fisheries take place in some estuaries and bays. Except from Milford Haven, most fishing takes place close inshore with very few boats working outside 6 miles. Even then, inshore fishing activity is often curtailed during the winter due to the prevailing westerly weather. Part-time effort is particularly high in areas suffering from high unemployment and where fisheries cannot support full-time involvement. An increase in demand from Continental markets (particularly France and Spain) and the demise of Milford Haven's distant-water fleet have contributed to the expansion of the shellfish industry in South Wales, which is now considered to be the fishery of greatest local economic importance. Various types of nets are used throughout the district to take bass, rays, cod, flatfish and crustacea. However, netting restrictions have been introduced along much of the coast, particularly within and around estuaries, to protect salmonids and juvenile bass. Since the late 1980s, the bass rod and line fishery has proved extremely popular amongst commercial and recreational fishermen, and a small sandeel seine-net fishery has been developed to supply bait.

11.2 Information on species targeted, fishing methods deployed and fishing restrictions inshore

11.2.1 Demersal fish (eg plaice, rays, turbot, sole, flounder, dab, cod, whiting, pollack and dogfish)

Flatfish and rays (principally thornback) are taken in fixed nets (eg tangle, trammel and stake nets) and otter and

beam trawls from spring through to the end of the year. Boats using gill nets and otter trawls take cod and whiting during the colder months. Large-meshed tangle nets are used for rays and large flatfish such as turbot. The ray fishery has expanded since the mid-1980s and is mostly prosecuted by three larger trawlers that work between 3–6 miles from shore. Stake nets set along sandy shores are tended to at low tide and commonly take flatfish such as flounders, dabs and plaice. In many areas, South Wales SFC byelaws prohibit netting between April and October, and a MMS of 100 mm is in place for all nets, except trawls and purse seines. Herring and sandeel nets are subject to additional byelaw restrictions. In Carmarthen Bay, the <10 m fleet uses longlines with up to 400 hooks per line for ray.

The trawler fleet concentrates its efforts in the Bristol Channel and Cardigan Bay and lands a mixed catch throughout the year. These trawlers (mostly <10 m) fish mainly inshore, and competition outside 6 miles from the coast can be intense, especially when the sole fishery attracts visiting beam trawlers from the south coast of Devon and Cornwall and Belgium. South Wales SFC prohibit boats over 15.9 m overall m length fishing within 3 miles of the coast, and beam trawls with an aggregate length of over 4 m and vessels exceeding 150 VCUs within 6 miles in the SFC District, unless by historical usage.

The majority of otter trawling effort is by Devon and Cornish vessels operating twin rig gear. There is also increasing Belgian activity in the 6–12 mile zone, as some Belgian beam trawlers have changed to towing otter trawls (one from each beam), thereby circumventing the requirement to be outside the 12 mile limit when beam trawling.

11.2.2 Pelagic fish (eg bass, grey mullet, herring, sprat, mackerel and sandeel)

Bass are caught in fixed and drift nets, by rod and line, on longlines and, more recently, in high lift trawls, increasingly throughout the year. Mullet are sometimes taken as a bycatch in nets. There are numerous netting restrictions specifying the type of net permitted in certain areas (especially in and around estuaries to protect juvenile bass and salmon and sea trout), length and distance between nets and marking requirements. The bass rod and line fishery has expanded since the late-1980s due to these restrictions, and low cost of fishing gear and high demand for this species. The Burry Inlet, Three Rivers and several other estuaries are designated as bass nursery areas by national legislation, augmented by South Wales SFC byelaw, where fishing for bass from a boat or with sandeels as bait is prohibited during May to October inclusive. The popularity of bass angling has increased demand for sandeels as bait. Enforcement effort has reduced previously high numbers of unlicensed fishermen taking and selling significant quantities of bass.

Herring attract a small amount of effort, usually in the form of drift netting in Swansea Bay and drift and fixed netting in Milford Haven, but demand is low. Mackerel are caught in drift nets and by hand-lining and the chartered angling sector is highly dependent on mackerel during the summer. Sprats are occasionally taken in mid-water trawls and inshore in gill nets.

11.2.3 Diadromous fish (eg salmon, sea trout and eel)

A variety of licensed salmon fishing methods, such as coracles, seines and hand-held (lave) nets, are employed in South Wales estuaries and reflect local culture. Commercial salmon fisheries now take place only on the Rivers Tywi, Wye, Taf, and Cleddau.

Fyke nets are set in the Port Talbot area for eels.

11.2.4 Shellfish (eg lobster, crab, prawn, cockle, whelk, mussel, oyster, scallop and squid)

Most fishermen working from the Pembrokeshire coast rely heavily on potting for crabs and lobsters, with activity peaking during the warmer months. Lobsters and velvet crabs tend to be caught inshore and around the islands, whereas brown crabs are caught both inshore and offshore. Pots and nets are used for crawfish around the rocky Pembrokeshire coast and for spider crabs both inshore and offshore. Pots are also set for prawns in N. Pembrokeshire and in Swansea Bay, and there is some potting for green crab in Milford Haven. South Wales SFC stipulate a MLS

of 90 mm carapace length for lobsters and, for the last 5 years, has run a subsidised lobster V-notching scheme.

A regulatory order in the Burry Inlet supports 50–55 licence holders who hand gather cockles, though not on Sundays. Hand gathering of cockle is allowed elsewhere in the district, subject to seasonal and night closures. As market opportunities have improved, cockles have attracted more interest and, since 1993, cockle beds at Ferryside, Llansteffan and Laugharne have been increasingly exploited. Under the EC Shellfish Hygiene Directive, bivalves taken from areas of poor water quality have to undergo a purification process, eg heat treatment ('Torry Process'), or have to be re-laid into areas of approved water quality. Cultivated and wild stocks of mussels and oysters are harvested from a few estuaries, where water quality improvements have seen beds re-opened in recent years. South Wales SFC byelaws set MLS for native oysters, mussels and cockles, and the Committee can temporarily close a shellfish bed if they consider it to be severely depleted or in need of management.

Since 1995, a whelk fishery has developed in Carmarthen Bay and offshore off the Gower, Fishguard and Milford Haven. Larger vessels prosecute the latter fisheries during the winter and set up to 2000 pots each. Up to 1000 pots per boat are used on inshore grounds. Effort is dependent upon price, which at £600/tonne attracted up to 12 vessels in 2006, though peak catches of around 2000 t were recorded in 1996.

Several local and (mainly) Scottish visiting boats dredge for scallops in Cardigan Bay, particularly in winter, landing into Fishguard and Milford Haven. Dredging was far more extensive during the early to mid 1980s when a large number of visiting vessels were involved. Byelaws prohibit the landing of scallops between 1 July and 31 October throughout the SFC district, and the landings of scallops and queen scallops and the use of beam trawls and dredges are prohibited around Skomer Marine Nature Reserve. There are also restrictions on scallop dredging in Welsh waters through the imposition of a Wales Scalloping Order which restricts both dredge numbers and tow bar length within the territorial sea area. Scallop dredging within Milford Haven has been restricted in the area of the new LNG terminal sites as they are located on Maerl and Zostera beds.

Recent interest in the development of hydraulic and towed dredge fisheries for various clam species, including razorshell to supply European markets with live produce was curtailed in SACs through the imposition of a Stop Order by the Welsh Assembly Government. Fisheries regulators and environmental interests are actively looking at alternative harvesting methods, which would have to be

sustainable and in keeping with environmental obligations. Trawlers target native oysters in winter in Swansea Bay and Milford Haven.

Cuttlefish are caught in pots in spring from Milford to St Brides Bay. Squid are taken on lines with jigs and in pelagic trawls between June and August off the Gower coast and around Lundy.

11.3 Description of coastal fisheries by port

11.3.1 Chepstow to Newport

Gill nets for bass, mullet and flounders have almost disappeared in this area due to enforcement of EA byelaws, though the tidal regime (strong currents and great amplitude) near the mouth of the Severn and its tributaries was always a limiting factor in this fishery. Three <10 m vessels work part time from the Usk at Newport, using small beam trawls for flatfish and brown shrimps. They also take out charter angling trips, especially for cod that have remained relatively abundant in the area.

Salmon and sea trout are taken in 7 licensed lave nets in the Wye Estuary between 1 June and 31 August. From 2000, local interests bought out drift netting in the mouth of the Usk and in Newport Bay and the putcher rank just upstream of Uskmouth. Elver fishing with dip nets is very popular on the tidal reaches of the Wye between Bigsweir and Tintern during March - May. Fyke nets are also fished on the Wye to take yellow eels in spring and summer and silver eels in autumn

11.3.2 Cardiff, Barry, Porthcawl and Port Talbot

This industrialised area supports around 25 licensed boats, the majority of which are <10 m and fish with static gear and otter trawls. Nets are set for plaice, rays, dabs, flounders and bass in summer and cod and whiting in winter. There are netting restrictions to protect salmonids seaward of the Taff, Ely and Ogmore estuaries and along the coast between Port Talbot and Porthcawl. Also, national bass nursery area legislation prohibits bass fishing at any time within one nautical mile radius of Breaksea Point (where warm water effluent is discharged from Aberthaw power station) to protect juvenile bass that congregate there. The 5 trawlers principally take plaice, rays, cod and whiting and occasionally switch to dredging for oysters off Porthcawl and in Swansea Bay, and may trawl for shrimp in Cardiff Bay during spring and autumn. Several boats derive a large part of their income from chartering angling parties, and recreational angling is popular along sandbanks off Porthcawl.

11.3.3 Swansea and Gower Peninsula

The Swansea fleet comprises 11 otter trawlers of 8–12 m, which are confined to fishing grounds within 3–4 miles of the coast, targeting plaice, sole, turbot, whiting and rays along the sandbanks from spring through autumn, with monkfish and lemon sole taken over rougher ground. In winter, cod, whiting, plaice, rays and dogfish predominate in landings. A few trawlers periodically switch to herring and sprats during the colder months, although demand for these species is low, and one or two occasionally dredge for oysters off Mumbles Head, in Swansea Bay and off Porthcawl. A number of vessels catch squid between June and August and there is also a small cuttlefish fishery.

Two or three boats <10 m work a variety of enmeshing gear. Gill nets and drift nets are used for cod, bass and herring in season and tangle nets are set from spring onwards for turbot, rays and brill, although there are netting restrictions around the mouths of the Rivers Neath and Tawe. Stake nets of up to 200 m in length are set along the shore, usually within bays, taking flatfish, bass and mullet. Bass are also caught on rod and line between spring and autumn both by commercial and recreational boats from Swansea, Oxwich and Burry Port, fishing off the Gower Peninsula. This fishery has expanded since the late 1980s following the success and availability of live sandeels as bait. Floating lines are also set for shark in summer offshore in the Bristol Channel.

Up to 15 boats set pots around Gower Peninsula, three of which base themselves at Oxwich throughout the potting season. Lobsters provide the mainstay for the smaller boats, and brown, velvet and green shore crabs are also taken. A significant pot fishery for shrimp has recently developed with catches sold locally and as bait for bass.

Since 1993, cockles and mussels have been harvested around south Gower and in Swansea Bay, and bait, particularly lugworms, is dug from the foreshore. Four private several orders for mussel cultivation have been established in Swansea Bay since 1994. Mussel seed is taken under SWSFC authorisation from intertidal and sub-littoral areas.

11.3.4 Llanelli and Burry Port

Trawlers of 8–12 m occasionally use Burry Port, where there are up to 25 vessels of 6–10m moored in the recently constructed marina and up to 50 smaller, trailer-launched boats use rod and line or nets for bass, grey mullet and pollack. Fishing activity is mainly part-time from spring through to autumn, when otter trawls are used in Carmarthen Bay for flatfish and rays, plus the occasional

landing of bass. Cod and whiting are frequently taken in winter. Nets are used for flatfish, rays, bass and mullet (only stake nets are permitted in Burry Inlet under South Wales SFC byelaw). Drift nets are often employed for bass and mullet outside the estuaries, along with a significant long line fishery for bass and rays. The Burry Inlet is a designated bass nursery area and sea fishing from a boat is prohibited between 1 May and 31 October in the inshore part by SFC byelaw. Sandeels are taken in beach seines from exposed beaches and sold for angling bait, especially for bass. The fishery for bass in this area has been somewhat reduced following the introduction of the Registration of Buyers and Sellers legislation.

There are between 50 and 55 licensed cockle gatherers in the Burry Inlet working mainly from Penclawdd. Cockles are gathered by hand using rakes and processed by the fishermen themselves and by local processors. The South Wales SFC regulates the fishery through annual licences under the Burry Inlet Cockle Fishery Order (1965) and, with Cefas, carries out a survey of cockle stocks twice each year in order to recommend an appropriate annual catch. In an average year, a TAC of around 2500 t (30% of the standing biomass) is recommended, which may be increased during the year if stocks are abundant. Daily quotas are used to limit fishing effort and are adjusted during the season to help stocks last. Mussels are gathered off Pwll and at Whiteford Point, according to availability. If heavy settlement of mussel causes loss of cockles, this is addressed by SFC-authorized hand gathering and dredging from vessels, with the seed mussel frequently being sold for on-growing. Bait digging for lugworm and ragworm within Burry Inlet has increased since the 1980s and the SFC has had to allocate areas for bait digging in order to minimise disturbance on cockle beds.

11.3.5 Ferryside (Three Rivers including Laugharne), Pendine and Amroth Sands

Up to 6 small boats are regularly launched from this coast and use nets from spring through to autumn. South Wales SFC permit only stake nets within the estuaries of the Rivers Taf, Tywi and Gwendraeth, and along Pendine Sands. These nets take flatfish, bass and mullet. The Three Rivers joint estuary is a designated bass nursery area where sea fishing from a boat is prohibited by SFC byelaw between 1 May and 31 October. Nets are set in Carmarthen Bay for plaice, turbot and rays, and drift nets are used for bass particularly at the entrance to the estuary.

Licensed salmon fisheries in the Tywi Estuary involve up to 9 seine nets and 6 coracles, and one wade net and

one coracle in the Taf Estuary. The sea trout season begins on 1 March and salmon on 1 June, and both close on 31 July.

When available, mussels are gathered off St Ishmael and there is an occasional, often substantial, cockle fishery in the Taf and Gwendraeth Estuaries, Ferryside and Lansteffan. Since 1994, the annual average harvest has been around 1000 t (with a peak in 2005 of 8000 t).

11.3.6 Saundersfoot

One of the 12 full-time boats of 5–10 m uses an otter trawl out to 12 miles offshore, taking plaice, turbot, rays, whiting and dogfish in summer, whilst cod and whiting are landed during winter. Several small trawlers use this harbour rather than Milford Haven, for its convenience when fishing in Carmarthen Bay or because of the weather. All local boats set nets and whelk and lobster pots and are joined by several part-timers during the summer. Tangle nets are set during the warmer months for plaice, turbot and rays, and gill nets for spurdog, bass and mullet. Herring are occasionally targeted during autumn. Bass are also taken by rod and line around Drift Rock and Offing Patches off Caldey. Sandeels are caught using beach seines authorised by the South Wales SFC. Some of the fleet takes out angling parties in summer, mostly targeting mackerel. Six boats focus on bass using multiple long lines of 20–25 hooks with live bait (small mackerel).

11.3.7 Tenby, Freshwater East and Stackpole Quay

Three full-time and around 6 part-time boats all <10 m use static gear (pots, nets and lines) and two occasionally use otter trawls or set whelk pots. From spring through to autumn, nets are set in Carmarthen Bay for flatfish, rays and bass and pots for lobster and crabs, and rod and line is used for bass around Caldey Island. This area is a popular tourist location providing demand for these species in restaurants and hotels, as well as for chartered angling and pleasure trips on which most boats depend during the summer. Small boats are launched from Lydstep and Freshwater East for bass angling around Govan Shoals. Sandeels are taken in seine nets from local beaches for bait.

11.3.8 Milford Haven (including Dale and Angle)

An offshore fleet of around 43 British-registered vessels of Spanish ownership or origin are based in this port. These boats fish in the Irish Sea, west of Scotland, in the Bristol Channel and south of Ireland, often entering the 12-mile zone in the last two areas, and may land their catches at

Milford but more often in Spain. Three or four local inshore trawlers between 8–12 m fish within Carmarthen Bay, Swansea Bay and the Bristol Channel for a mixed catch of white fish. One or two dredge for scallops during the winter and set longlines for spurdogs, rays, cod, conger eel and ling.

Forty boats are involved in the pot fishery, only 2 which are >10 m. The larger vessels set up to 1200 pots each out to 30 miles offshore around the Smalls. The smaller boats set pots within a few miles of the coast for lobsters, brown crab and, recently, velvet crabs. A few tangle nets are set in rocky areas for crawfish, but netting for spider crab is far more widespread. Many of the <10 m fleet are involved in netting. The Milford Haven herring fishery uses gill nets and is centred around Llangwm from February until April, although supply often exceeds demand. Gill netting for bass and mullet also takes place, but it is not permitted upstream of the Cleddau Bridge to protect salmon and sea trout. An area in Pembroke Bay around the power station outfall is a designated bass nursery area where fishing for sea fish from a boat is prohibited between 1 May and 31 October. Seven compass nets are licensed to take salmon and sea trout in the upper regions of the Haven from 1 June to 31 August and have a weekly closure from 0600 on Saturday to 1200 on Monday. Native oyster beds in the Haven support a small autumn fishery.

11.3.9 Little Haven, Broad Haven and Norton Haven

These small coves support 3 or 4 full-time 8–10 m vessels and up to a 12 part-time beach boats of 4–6 m that regularly use pots, nets and handlines. Various types of set and drift nets are used in St Brides Bay and along the shore for cod and herring during the winter and bass and flatfish from spring through autumn. Bass and mackerel are taken on rod and line, and lobsters and crabs in pots. Set nets are used around Skomer Island for crawfish and spider crabs, and also for bass and pollack.

11.3.10 Solva, Porth Clais and St Davids

Six full-time and up to 20 part-time boats of 5–14 m set pots for lobsters, spider and brown crabs, and also land smaller quantities of velvet crabs. Tangle nets are set for crawfish, spider crabs and lobsters, especially around Ramsey Island. The inshore grounds here are too rough to trawl, except in St Brides Bay, and set nets are occasionally used for flatfish, rays and bass. A few boats may use drift nets for herring in autumn.

11.3.11 Abereidid and Porthgain

Four seasonal full-time and up to 10 part-time boats mainly set pots for lobsters and crabs, although a small number also use nets for rays, crawfish, pollack and bass, and drift nets are occasionally used for herring in autumn. Fishing virtually ceases here in winter.

11.3.12 Abercastle

Three full-time boats set up to 500 pots each for lobsters, brown, spider and velvet crabs. The cove is exposed to north and north-westerly winds, and the boats relocate to Fishguard in winter. Handlines are used for bass, pollack and mackerel. A dozen or so small part-time boats may base themselves here during the summer.

11.3.13 Fishguard

There are 2 vessels of around 15 m that use beam trawls for sole, plaice and rays from March to November, and switch to scallop dredging during the winter. Visiting beam trawlers often base themselves in this port during the spring sole fishery and the winter scallop fishery. Three or 4 boats of up to 10 m use otter trawls as well as tangle nets and longlines, the latter being used for spurdogs and rays during the warmer months. Out of 21 potting boats, two are >10 m and principally target brown crabs, setting up to 1,000 pots each out to 30 miles offshore around the Smalls area. More than half of the smaller boats work full-time and potting continues through winter either in sheltered areas or further offshore. These boats set up to 600 pots each and take lobsters, brown crabs and velvet crabs. Pots are set for prawns in the autumn when they command a high price on Continental markets and are despatched in vivier lorries along with crabs and lobsters. Tangle nets are used for spider crabs and crawfish, a method that has become increasingly popular since the late-1980s. A variety of nets are used for cod, flatfish, rays, bass and herring in season.

11.3.14 Newport and Moylgrove

One seasonal full-time lobster potting boat works out of Moylgrove and there are approximately 6 other full-time or part-time vessels that fish seasonally for crabs and lobsters. Other beach boats occasionally put to sea during the summer and use nets or rod and line for bass, mackerel and pollack. The single licence available to seine net for salmon and sea trout in the River Nevern has not been taken up in recent years.

11.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	28	48
Other gadoids	247	472
Sole	40	348
Turbot & brill	13	89
Other flatfish	491	1,048
Small pelagics	6	3
Bass	32	183
Other finfish	365	992
Sharks & rays	210	332
Shellfish		
Whelks	432	280
Gastropods	0	+
Scallops	51	445
Cockles	925	375
Other bivalves	898	140
Edible crab	294	568
Other crabs	369	446
Lobsters	97	1,712
<i>Nephrops</i>	49	350
Shrimps & prawns	3	50
Cephalopods	30	41
Total	4,579	7,921

12.1 Synopsis of current inshore fisheries

The coastline along Cardigan Bay and Caernarfon Bay is generally very rugged, with extensive sandy beaches only near estuaries and in sheltered bays. As a consequence, fishing activity is restricted by prevailing westerly weather during the winter. The majority of boats fish within 6 miles of the coast, potting for lobsters, crabs and whelks and netting for flatfish, cod, bass, mullet, herring, salmon and sea trout. Some boats >10 m use otter trawls for white fish. Between Cardigan and Barmouth, around ten commercial rod and line vessels take tope, black bream, mackerel, huss, bass and flatfish.

Cockles are gathered by hand from many estuaries and mussels are taken from wild and cultivated beds, both species having received greater attention as marketing opportunities improved. A few local boats participate in the Cardigan Bay scallop fishery, which generally takes place outside the 12-mile limit and involves vessels from other parts of the UK.

A shallow bay stretches from Anglesey to Cumbria, with estuarine sandbanks and mudflats being a major feature supporting traditional fisheries in which boats and vehicles use beam trawls for shrimps, whilst cockles and mussels are principally gathered by hand and sometimes by dredge. Nets are used throughout the area for flatfish, rays, bass, mullet, salmon and sea trout. Fleetwood harbours a declining fleet of boats that use otter trawls and seine nets to take white fish and *Nephrops* throughout the eastern Irish Sea. Large visiting beam trawlers fish the same grounds, often landing into Holyhead and Liverpool to their own transport. Smaller otter and beam trawlers take white fish on inshore grounds, sometimes as an alternative to shrimp.

12.2 Information on species targeted, fishing methods deployed and fishing restrictions inshore

12.2.1 Demersal fish (eg cod, whiting, sole, plaice, turbot, brill, flounder, dab, lemon sole, rays, pollack and dogfish)

Throughout the district, otter trawlers land plaice, sole and rays from spring to autumn, and cod and whiting during winter. Some shrimp beamers periodically switch to flatfish when shrimp are less available. Visiting beam and otter trawlers may fish within the 12-mile zone, for example during the spring sole and autumn plaice fisheries, and take cod, whiting and rays as a bycatch. North Western and North Wales (NWNW) SFC Byelaw 9 prevents vessels

fishing within 3 miles of the coast between Rhyl and Haverigg Point (northern area) if they exceed 13.7 m, and between Cemaes Head and Rhyl (southern area) if they exceed 15.2 m.

Tangle and trammel nets (inner section) with a mesh size of between 100–120 mm are used to catch flatfish such as sole, plaice and flounder, whereas larger mesh nets of 200–300 mm are set for rays, turbot and brill. Gill nets within a mesh of between 120–160 mm are set along the shore for cod, pollack and dogfish, and sometimes attached to stakes. Longlines are used in a few areas for cod, rays and, especially, spurdog, although this fishery has declined considerably since the 1980s. Rays are no longer targeted between Cardigan and Barmouth, but are taken only as a bycatch.

In 2000, a Recovery Programme was implemented for the cod stock in the Irish Sea, which was considered by ICES to be on the verge of collapse. European Commission regulations introduced in 2002 prohibited the use of demersal trawls, enmeshing nets or lines in the main cod-spawning area in the north-west Irish Sea between 14 February and 30 April, although otter trawls can be used to take *Nephrops* provided they are fitted with an appropriate selective device (80 mm square mesh, 140 mm diamond mesh or a separator panel), or if the catch is at least 85% queen scallops and no more than 5% cod. Flatfish beam trawls are also permitted in this area, providing the entire top sheet is made with diamond mesh of at least 180 mm.

12.2.2 Pelagic fish (eg bass, mullet, herring, sprat and mackerel)

Bass are taken in gill nets (anchored and drifted) from spring through to autumn, with mullet taken as a by-catch. A number of estuaries have been designated as bass nursery areas, in which fishing for bass from a boat or using sandeel as bait is prohibited between 1 May and 31 October. Drift netting for herring occurs in autumn and winter, although effort is generally low as only small local markets are supplied. Mackerel provide an important resource for the charter angling sector.

12.2.3 Diadromous fish (eg salmon, sea trout and eel)

A variety of nets (eg seine, coracle, drift and lave) are licensed to take salmon and sea trout from rivers and estuaries throughout the district between 1 June and 31 August (unless otherwise indicated, when they are subject to the requirement under the national Byelaw introduced in 1999 to release alive any salmon caught prior to 1 June).

The NWNW SFC has introduced byelaws that allow people to use fixed nets for sea fish in areas where they do not pose a threat to salmon or sea trout, under the Salmon Act 1986. Fyke nets are used in some rivers and estuaries from spring to autumn to catch adult eels, and elvers are taken in dip nets in winter and spring.

12.2.4 Shellfish (eg lobster, brown crab, velvet crab, spider crab, crawfish, shrimp, prawn, *Nephrops*, cockle, mussel, scallop, oyster, whelk and clam)

Lobsters provide the main resource for many fishermen operating in Cardigan Bay, around the Lley Peninsula and off Anglesey. Pots are generally set between April and November, although pots set in sheltered areas in winter take an important bycatch of velvet crabs. The NWNW SFC has introduced a 90 mm MLS for lobsters and a permit scheme for lobster, crawfish and crab fisheries (Byelaws 29 and 30). Brown crabs provide an important resource off the Lley Peninsula, where boats of 5–8 m set pots out to 6 miles from the coast and larger boats, some equipped with vivier tanks, target brown crabs further offshore. Crawfish are caught in tangle nets in a few rocky areas (eg off Bardsey Island), as are spider crabs in the south of Cardigan Bay. Whelks are taken in pots set off Anglesey, the Lley Peninsula, and further south in Cardigan Bay. Since the late-1980s, potting for prawns in Cardigan Bay has become increasingly popular, particularly between autumn and spring, when the lobster fishery is at a seasonal low. The increasing number of pots fished in the lobster/prawn fisheries is of concern. Some Fleetwood otter trawlers target *Nephrops* in deep waters off Cumbria between May and September, often landing into Whitehaven.

The shrimp fishery is pursued mainly between the Dee and Duddon Estuaries from April to December, being restricted in winter by onshore winds and surf and by an offshore migration of shrimp in frosty weather. Brown shrimps are taken in beam trawls (towed by boats and vehicles) and push nets (hand nets). NWNW SFC byelaws restrict the aggregate length of shrimp beam trawls to 9.14 m and require the use of a riddle to separate undersized shrimps and flatfish (mainly dabs, plaice, sole and flounders) which are returned to the sea alive. The catch is then normally cooked on board the fishing vessel.

Cockles are harvested from estuaries along the coast of Cardigan Bay, Conwy Bay (on Lavan Sands) and between the Dee and Duddon Estuaries, using a spade or rake, and by mechanical dredging methods. Dredging can only be authorised by the SFC and, since 1992, tractor dredging has not been permitted in the District whilst hydraulic

suction dredging has only been allowed on Lavan Sands. NWNW SFC byelaws prohibit the removal of cockles that can pass through a gauge having a square opening of 20 mm and allow the Committee to temporarily close any shellfish bed they consider seriously depleted.

Wild and cultivated mussels are harvested in many estuaries and bays throughout the District by hand and dredge. Cultivated sites are stocked with juvenile mussels from beds that are considered unstable, overstocked or are in areas of poor water quality. Since 1992, Morecambe Bay has become one of the major sources of seed mussels within the UK. Pacific oysters, native oysters and Manila clams are cultivated within the Menai Strait, off the north Anglesey coast and in Morecambe Bay.

Scallops beds between Anglesey and the Isle of Man and in Cardigan Bay are predominantly exploited by boats from the Isle of Man, Scotland and south-west England. A small number of local trawlers occasionally target scallops using dredges, particularly during the winter, whilst a greater number take scallops and queen scallops as a bycatch in white fish trawls. The scallop fishery in Cardigan Bay is closed between 1 July and 31 December, and only scallops greater than 110 mm across the broadest part of the shell can be taken.

12.3 Description of coastal fisheries by port

12.3.1 Cardigan

A seasonal fleet of up to 12 boats of 5–10 m moors in the Teifi Estuary, setting pots for lobsters, brown crabs and spider crabs from spring through to autumn, with lobsters and velvet crabs targeted towards the end of the year in sheltered areas close to the shore. The number of pots set per boat continues to increase as catch rates fall, and some boats now set up to 400 each. Pots are also set for whelks during the warmer months and for prawns from autumn. Several boats use tangle nets for rays, turbot, brill, monkfish and spider crabs, often all year round and out to 15 miles offshore, weather permitting. Two commercial rod and line vessels are based at this port.

Up to three seine nets and 12 coracle nets are licensed for salmon and sea trout in the River Teifi; seine nets are permitted downstream of Cardigan Bridge and generally take a greater proportion of sea trout, whilst coracle nets are used above the bridge and take mainly salmon. The season begins on 1 April and ends 31 August, with a weekly closure between 0600h Saturday and 1200h Monday. Netting for sea fish in this estuary is restricted to reduce the illegal capture of salmon and sea trout and because it is a designated bass nursery area.

12.3.2 Aberporth and Llangranog

Several beach boats set pots for crabs and lobsters from spring to autumn, use anchored and drift nets for rays, flatfish, bass and herring in season, and handline for bass and mackerel. The weather severely limits fishing during the winter.

12.3.3 New Quay

Five 7–10 m boats each use up to 700 pots each for lobsters, crabs, spider crabs and prawns, nets for rays, flatfish, cod and bass, and lines for mackerel and bass. Prawns and velvet crabs have received greater attention since the late-1980s as marketing opportunities have improved. Several part-time boats use pots and lines, and two boats offer charter angling trips during the summer.

12.3.4 Aberaeron

Two full-time boats of 7–9 m use pots for lobsters and crabs, drift nets for herring, set nets for rays, cod and bass, and handlines for mackerel and bass. Herring and mackerel are often caught for pot bait. Up to half a dozen part-time fishermen work from this port during the summer, often selling their catches locally.

12.3.5 Aberystwyth

Six full-time and 6 part-time boats, all <11 m, use pots, although many also set nets and trawl. Four boats offer charter angling trips. Fishing is limited by poor communications with major markets, though landings from pots and large-meshed tangle nets are predictable and a local market can be adequately supplied. Pots are set virtually all year for lobsters, with the larger boats each using up to 700 pots out to 16 miles offshore, whereas the smaller boats are often worked single-handedly to set up to 300 pots out to 6 miles. Brown crabs, spider crabs, velvet crabs, prawns and whelks are also taken in pots. Interest in prawns and velvet crabs has risen since the late-1980s and both provide a useful income, particularly during the winter. Tangle netting begins in spring for spider crabs, taking by-catches of turbot, brill and other crustacea. Drift nets are used for bass between spring and autumn and then for herring until the end of the year. Gill nets are set for cod and bass. Bass and mackerel are taken on rod and line and by handlining during summer. Commercial salmon fishing is prohibited in both the Rivers Ystwyth and Rheidol.

12.3.6 Borth

Two beach boats work pots for lobsters and crabs during the summer, when netting is prohibited within the bay (to protect salmon and sea trout migrating to the River Dyfi).

However, herring nets are permitted from November through to April and are used by several boats.

12.3.7 Aberdyfi and Tywyn

The Dyfi Estuary supports 4 commercial rod and line vessels, and 4 full-time and 6 part-time boats are launched from Tywyn and the adjacent coastline. The majority of boats set pots for virtually the whole year, chiefly for lobsters, though an increasing number of fishermen have used pots for prawns since the early 1990s. Brown and velvet crabs are also landed. A large proportion of the shellfish landed during the summer is sold to local restaurants and hotels. Nets are used for bass, generally outside the Dyfi Estuary, as this is a designated bass nursery area.

Three licensed draft nets (seine nets) are used for salmon and sea trout in the Dyfi Estuary (season begins 1 April) and one in the Dysynni Estuary.

Cockles and mussels are harvested by hand from the Dyfi Estuary. At the beginning of the 1990s, the number of fishermen operating here increased because of an abundance of cockles, high demand and the poor state of cockle fisheries elsewhere in the UK. However, there has recently been little commercial activity on mussels or cockles.

12.3.8 Barmouth

The fleet that formerly concentrated on lobsters has been run down and now comprises only two full-time boats plus several part-timers. Marketing remains the limiting factor for the industry. The majority of boats still set pots for lobsters as well as for prawns and velvet crabs. Tangle nets are set for rays, turbot and other flatfish from spring onwards and species of little or no commercial value, eg dogfish and gurnard, are retained for pot bait. Bass are taken in nets and on rod and line along the sand bar, though the Mawddach Estuary is a designated bass nursery area. Two commercial rod and line vessels may operate from this port, but they have been relatively inactive since 2002. Drift nets are used close inshore for herring and sometimes sprat in autumn and winter. Nets set along the shore from Barmouth up to Porthmadog take a variety of species including bass, mullet, turbot, rays and flounders. Mussels and cockles are gathered from beds in the Mawddach Estuary by hand.

Two licences are issued for seine netting for salmon and sea trout in the Mawddach Estuary.

12.3.9 Porthmadog

The Dwyryd and Glaslyn Estuaries are designated bass nursery areas. No licences have been issued to use seine nets for salmon and sea trout there since 2003.

12.3.10 Criccieth

Three beach boats pot for lobsters, net for bass, mullet, herring, rays and flatfish, and handline for bass, mackerel and pollack.

12.3.11 Pwllheli

One trawler/scallop of 10–12 m fishes in Cardigan Bay for a catch of mixed white fish. It also dredges for scallops mainly off Cardigan, along with a purpose-built scalloper based at Pwllheli during the winter. Six smaller boats (7–10m) use nets and pots and are joined by several part-time boats in the summer. Gill nets are used for cod, whiting and herring in winter and for bass, mullet and pollack in summer, and tangle nets are set for rays and flatfish from spring to autumn.

Lobsters provide the main income for potters, with brown and some velvet crabs being landed direct to merchants. Fishing effort increases during the summer when part-time fishermen join the fishery. Although spider crabs are abundant in spring/early summer, there is a poor market for the species. Several fishermen may try for prawns in winter, but they are unpredictable and effort is hindered by bad weather. Two boats offer charter angling trips.

12.3.12 Abersoch

Part-time fishing involving beach boats of 4–6 m prevails from this small community and further round the tip of the Llyn Peninsula. Some boats set up to 200 pots each for lobsters, crabs and whelks from spring through to the end of the year whilst the weather holds. Some fishermen process their own catches of lobsters and brown crabs for a local market that is highly dependent on tourists. Fixed nets are set from the beach out to a few miles offshore, from spring to the end of the year (weather permitting) for rays, plaice, turbot, sole, flounders, bass, mullet, pollack, cod and whiting. Beach nets are set overnight and tended during the next low tide. Two boats offer charter angling trips.

12.3.13 Aberdaron

Several beach boats of 4–6 m set pots and nets from spring to December, depending on the weather. Lobsters and brown crabs are taken in pots, and tangle nets are sometimes set for crawfish on rocky ground particularly around Bardsey Island. Nets are set in Aberdaron Bay, Porth Neigwl and along nearby beaches for bass, rays and flatfish, and for pollack in rocky areas close to the shore. Mackerel are caught on handlines for local sale during the summer. There has been a little prawn and whelk potting

during the winter, but the exposed nature of the area does not favour the lighter prawn pots.

12.3.14 Porth Colmon to Porth Ysgaden

One full-time boat from Port Colmon sets pots for lobsters and crabs and also targets bass using nets and rod and line. Small coves along this stretch of coast offer a little shelter, and are used by a up to a dozen part-time beach boats setting pots for lobsters and crabs and nets for bass, pollack and flatfish during the warmer months.

12.3.15 Nefyn and Trefor

From Nefyn, one 11 m boat pots for whelk, occasionally trawls and sometimes dredges for scallops. Ten or more part-time boats use anchored nets for bass, pollack, rays, turbot and plaice and set a few pots in summer, and beach nets are set for bass and mullet. From Trefor, two full-time (5–8 m) and up to 5 part-time boats set lobster pots between March and late October. Some handlining for mackerel also takes place.

12.3.16 Porthdinllaen

Eight boats of 7–11 m regularly fish from early spring until the end of the year. Each boat sets 500+ pots out to beyond 6 miles for whelks between September and June/July and for lobsters during the summer, when whelk and lobster pots are emptied on alternate days. Some of the brown crab caught is dressed and sold locally to tourists, whilst any spider crab is retained for whelk bait. Gill nets are sometimes set for dogfish to be used as whelk bait, and tangle nets are occasionally set for rays. Prawns are taken during the winter, but this is an unpredictable fishery. Over 20 part-time boats may fish in summer using a few lobster pots or setting nets.

12.3.17 Caernarfon

There is one part-time trawler, two boats (8–10 m) pot for whelks, and a 10 m boat scallops mainly off the north coast of Llyn and in Caernarfon Bay. One charter angling boat operates from this port, along with another two at Portdinorwic. Beach nets are set for bass and mullet between 1 December and 31 March. Approximately 10 boats use drift nets for bass between Dinas Dinlle and Caernarfon Bar.

Mussels, Pacific oysters and Manila clams are cultivated in lays near Brynsiencyn under the Menai Strait (West) Oyster, Mussel and Clam Order 1978. The several order also covers a natural mussel bed, and juvenile mussels are often obtained from Caernarfon Bar. Up to 50 people may gather cockles from Traeth Melynog. Shellfish such as

periwinkles and mussels provide short-term employment. In the summer, especially on bank holidays, large numbers of anglers trail boats to this area, often to fish for bass off the Caernarfon Bar.

12.3.18 Rhosneigr and Aberffraw

Up to 12 beach boats use pots and nets off the west coast of Anglesey north to Holyhead, principally during the warmer months as strong westerly winds severely restrict fishing activity during winter on this exposed coast. Pots are set for lobsters, brown and velvet crabs in the more sheltered rocky areas, and further offshore for whelks. Gill and tangle nets are set for cod, whiting, pollack, bass, rays, flounder and herring in season. Commercial and recreational fishermen use handlines for bass and mackerel. Cockles and mussels are gathered from Malltraeth Sands by hand.

12.3.19 Borth Wen

Two full-time lobster/crab potters and 4 beach-launched vessels operate from here.

12.3.20 Trearddur Bay

Three full-time and 8 part-time lobster/crab potters operate from here.

12.3.21 Holyhead

Visiting Belgian beam trawlers land sole and plaice to their own transport at Holyhead (the largest port in North Wales). Two vessels >10 m otter trawl for white fish, dredge for scallops north-east of Anglesey and set nets. Up to 4 boats of <10 m tend to concentrate on potting and netting. Local merchants and processors deal with shellfish such as lobsters, crabs, scallops, whelks, cockles and periwinkles. Most of the lobsters and crabs are obtained from the Llyn Peninsula, Holyhead and the coast of Anglesey.

Pots are set for lobsters and crabs around Holy Island and the 'Inland Sea', an area of water that splits the mainland and Holy Island. Nets are used to take bass, mullet and herring from Holyhead harbour and the Inland Sea, where they are only permitted between 1 December and 31 March. Mussels and cockles are gathered from the outer Inland Sea.

12.3.22 Cemaes Bay

This small harbour is used by 3 or 4 boats of 5–10 m that fish mainly from spring to autumn. Pots are set for lobsters and crabs (brown and velvet), nets are used for pollack, bass, rays, flatfish and sometimes cod, and handlines are used for mackerel and bass.

12.3.23 Amlwch

Up to 10 boats of 8–12 m (5 or 6 full-time) use this partly tidal harbour that remains accessible at all states of the tide. The <10 m fleet pots for lobsters, brown and velvet crabs, uses gill nets for bass, cod and herring, and sets tangle nets for flatfish and rays. Two full-time 7–9 m boats use whelk pots in the deeper waters off Amlwch and supply merchants at Holyhead or Bangor. Several of these vessels will also occasionally take out angling parties.

12.3.24 Red Wharf Bay

Two small vessels fish for crab, lobster and whiting. Cockles are taken from Red Wharf Bay by hand and mussels are gathered from Moelfre. Commercial and recreational bass fishing from boats is very popular around Puffin Island and off Beaumaris, from which two or three angling-charter boats operate.

12.3.25 Port Penryn (Bangor)

Fishing activity from this port is dominated by mussel cultivation. There are extensive mussel growing grounds leased under the Menai Strait Oyster and Mussel Fishery Orders 1962 and 1963. Juvenile mussels from Morecambe Bay and occasionally Caernarfon Bay (when available) are relaid here and left to grow for 2 to 4 years before being dredged. Small natural mussel beds are found just outside the several order site at Mountfield and Friars Bay, Beaumaris. Mussels are also provided for on-growing in the UK and in France and the Channel Islands. Cockles are regularly collected by hand further east along Lavan Sands in Conwy Bay.

Six small vessels operate out of this port, trawling for plaice, rays, bass and mullet in good weather, although netting in the north end of the Menai Strait is prohibited from 1 April to 30 November. Two vessels pot for lobster, brown crab, velvet crab and shore crab.

12.3.26 Conwy

One otter trawler <10 m fishes out to 20 miles north of Great Ormes Head taking plaice, sole and rays, the occasional turbot and brill, and some queen scallops and scallops. One netter uses ray and plaice/sole nets. Fishing during the winter is more sporadic and landings generally comprise rays, plaice, cod and whiting. The SFC prohibits trawling inside 6-miles between Amlwch and Rhyl, other than for shrimps, prawns and sprat, between 1 April and 31 December unless a net with a cod-end mesh >99 mm is used.

The Conwy Estuary supports an important mussel fishery involving 22 licensed fishermen, which is regulated by the NWNWSFC. Hand rakes are used to harvest mussels between September and the end of March. Two fishermen operate a purification plant and market their own catches, whilst the remainder supply them and merchants in Bangor. During the summer, three boats take out angling parties. One full-time and a few part-time boats set pots for lobsters and crabs, and a further two vessels are involved in netting full-time. Netting within the estuary and further along the coast is restricted to protect salmonids, and the estuary is a designated bass nursery area. There are two licences for salmon and sea trout seines in the Conwy Estuary, and two fixed traps subject to ancient rights, only one of which, a basket trap, is currently used. A small commercial eel fishery uses baited traps in the estuary.

12.3.27 Rhos-on-Sea

Two part-time <10 m boats use otter trawls and handlines, and several boats charter angling trips during the summer. Sole, plaice, rays, turbot, bass, flounder and mackerel are landed during the warmer months, with some effort towards cod and whiting, plus bycatches of plaice and rays in winter.

12.3.28 Rhyl

The main fishing activity is by chartered angling trips undertaken by 6 boats, some of which also set nets. Shrimps may be taken in trawls and push nets.

12.3.29 Llannerch-y-mor to Connah's Quay

Following the introduction of netting restrictions in the early-1990s to prevent the illegal capture of salmon and sea trout (the EA acts as a SFC within the Dee Estuary), fewer than 30 boats (most 4–6 m) remain on the Welsh side of the Dee Estuary. Most of the shrimp boats work from Connah's Quay, Flint and Greenfield and trawl the low-water channels beyond a line from West Kirby to Mostyn, from March to May and from August to November. Shrimps are also caught in push nets in Hilbre Swash.

During summer and winter, most boats fish further offshore for plaice, sole, flounders, turbot and whiting. Weighted or unweighted drifted trammel nets are used to catch flounder at the mouth of the estuary, with bass and mullet being taken in small numbers off Hilbre Island during the summer. The Dee Estuary is a designated bass nursery area in which bass fishing from a boat or use of sandeels as bait are prohibited between June and September inclusive. In 2006, 4 licences were issued for trammel nets fish for salmon and sea trout in the tidal reaches of the Dee, and 9 licences for draft (seine) nets in the canalised section of

the river between Connah's Quay and Chester. This fishery is subject to a weekly closure from 2400h on Thursday to 2400h on Sunday.

12.3.30 Hoylake/North Wirral

Two regular part-time/leisure fishing boats are rigged for bottom trawling, and a few pleasure craft operate from here. There are occasional bursts of activity when cockles are abundant and groups of up to 40 opportunist/migratory fishermen have worked the north Wirral beds in recent years. On low ebb tides, razor clams are gathered from the beds off Leasowe.

Around 10 local people participate in the intertidal net and shrimp fisheries, and while some of this effort is commercial, most is for personal consumption. There are small numbers of shore and boat anglers along the north Wirral shore.

12.3.31 Birkenhead and Merseyside

One full-time vessel (<10 m) trawls for sole or shrimps, uses a mid-water trawl for sprat in winter, and occasionally sets static gear. Approximately 10 part-time leisure craft fish from moorings in the Mersey. A small number of boats from the upper Mersey come down the river to work semi-commercially in the seasonal shrimp fishery. New Brighton is popular for beach-launched angling boats. Considerable numbers of anglers fish from the river walls from New Brighton to Wallasey.

12.3.32 Liverpool

The docks are used as a base and transshipment point for visiting Belgian and UK beam trawlers. Occasionally, visiting shellfish boats land here. Several charter angling boats fish out of the local marina, and the docks and river walls are a popular angling venue.

12.3.33 Blundellsands and Formby

One beach-launched boat and two tractors work this stretch of shore semi-commercially, fishing for shrimps and setting nets for bass and cod. They occasionally work lobster pots near the training walls. Fishermen from Southport will also work this area, which is popular with anglers fishing for bass, cod and flounder.

Some push netting for shrimps and handlining for domestic consumption takes place in the area.

12.3.34 Southport

Around 20 men work in the intertidal shrimp and net fisheries using a variety of makeshift tractors, wagons and other off-road vehicles. Beach-launched boats are occasionally used to drift net for bass or trawl for shrimps.

In times of abundance, the cockle fishery has been worked by local men using tractor dredges under permit, or by gangs of up to 60 immigrant workers gathering cockles by hand.

Southport beach is a popular place for anglers to gather bait. Beach-launched angling boats fish from Ainsdale and there is some angling activity along the shore to Formby Point.

12.3.35 Ribble Estuary, Preston

The only significant commercial fishing activity in this area is the 6 licences issued for drift netting for salmon and sea trout. Various part-time/leisure craft are moored in creeks around the estuary.

12.3.36 Lytham and St Annes

Only 3 full-time shrimp boats remain working from Lytham. Up to 10 boats are used to drift net for bass seasonally, boat and shore anglers fish for flounder and bass, and nets are occasionally set from the shore.

There has been occasional interest in the mussel fishery, but the cockle beds off St. Annes are currently sanded over.

12.3.37 Blackpool and the Fylde Coast

In excess of 100 beach-launched angling boats may be used along the Fylde coast and there are large numbers of shore anglers. Bait collecting on intertidal areas is a significant part-time commercial and leisure activity. Lines and nets are occasionally set for bass and cod.

Approximately 20 men push net for shrimps and prawns, some for sale but the majority for domestic consumption.

12.3.38 Fleetwood

The trawling fleet is now greatly reduced and finds it difficult to compete with visiting south coast and Belgian beam trawlers or the Northern Irish *Nephrops* fleet. One purpose-built inshore beam trawler and up to five inshore trawlers from this port fish for a variety of species including sole, plaice, turbot, brill, rays, dab and flounder.

Two charter boats and a few beach-launched angling boats operate from here. Three commercial fishermen with small craft and occasional part-timers take part in seasonal bass and lobster fisheries.

Two visiting whelk potters are currently fishing from the port. The local cockle and mussel beds are exploited commercially by itinerant hand-raking gangs and by the local population for domestic consumption.

Rossall Point is a popular venue for shore anglers fishing for bass, cod, whiting and flounder at high water, and for

push netters after shrimps and prawns at low water.

12.3.39 Glasson Dock

Three or 4 part-time boats of <10 m use lines, otter and shrimp trawls and set nets. Visiting beam trawlers sometimes land catches here to their own transport, particularly during the spring sole fishery. Large visiting mussel dredgers, some >30 m, occasionally base themselves here when contracted to dredge mussels from Morecambe Bay, under the authorisation of the NWNW SFC. The Lune Estuary supports a cultivated mussel fishery and cockles are taken from beds around the mouth of the estuary and further south, when available.

12.3.40 Lancaster

A few boats trawl seasonally for shrimps and flatfish.

12.3.41 Overton and Sunderland Point

One full-time boat plus a few part-time boats trawl the Lune Estuary for shrimps, and whitebait and sprat are caught in filter nets. The estuary also supports a hand-raking cockle fishery, for which over 1000 permits have been issued by the SFC, mainly to immigrant gatherers from outside the District.

Two full-time and around 11 part-time boats trawl for shrimps for most of the year. Gill nets and lines are used for bass and mullet, although bass fishing by boat is prohibited between 1 June and 30 September around the outfall from Heysham Power Station, a designated bass nursery area. Whitebait nets are also fished within the Bay. Local fishermen hand-rake for cockles and mussels from the end of the summer until spring using boats and tractors to take them to beds inaccessible by foot as well as to transport the catch ashore. The Morecambe Bay Mussel Fishery Order (1978) covers an area of mussel beds around the mouth of the Bay, where only licensed fishermen can remove mussels. With NWNW SFC authorisation, juvenile mussels are taken from unstable outlying beds, and either re-laid into sheltered areas in Morecambe Bay or sold to other mussel fisheries, eg those in the Menai Strait and the Conwy Estuary.

12.3.42 Morecambe

Four full-time and around 11 part-time boats concentrate on shrimps for most of the year, with some also taking rays, flounder, cod and whiting in otter trawls and set nets. Gill nets and lines are used for bass and mullet. Local fishermen hand-rake for mussels from the end of summer until spring, using boats to take them to inaccessible mussel beds and to transport the mussels ashore.

Licensed netsmen use haaf nets (12), drift nets (7) and one seine net to take salmon and sea trout in the estuary of the River Lune, and 8 lave nets are licensed in the estuary of the River Kent.

12.3.43 Flookburgh and Roosebeck landing

Shrimping remains the main fishing activity here, though effort has reduced to 7–10 tractors using beam trawls between April and November. These same fishermen operate in flounder, whitebait, bass and salmonid fisheries seasonally using traditional methods. There are probably fewer than 40 people working part-time in this area, following the decline of the cockle stocks and respective closures, which have resulted in fishermen taking up land-based employment. Three to five people work the same seasonal fisheries from Baycliff and Newbiggin.

The mussel fishery at Foulney has succumbed to a period of high activity from mainly itinerant workers and there is currently no activity here, other than the harvesting of seed mussel for transplantation to the Menai Strait. Pacific and native oysters are cultivated off Roosebeck.

Up to 4 licensed lave nets are used to catch salmon and sea trout in the River Leven.

12.3.44 Barrow-in-Furness

There are now 4 full-time inshore trawlers working out of Barrow, of which one is known to target the Isle of Man scallop fishery at times. A further 4 full-time potting boats work around 1350 pots between them, west and south of Walney Island. About 20 part-time boats trawl or gill net for cod in winter and bass, plaice and rays in the summer.

Up to 30 fast angling boats may operate in the area during summer weekends, with up to 15 on weekdays. The majority carry two fishermen and up to 4 rods to fish mainly for cod and bass. Two local angling charter boats operate sporadically, targeting bass and cod.

12.3.45 Duddon Estuary

Around 15 part-time boats operate from the small anchorages around the Duddon, mainly targeting bass. Up to 4 fishermen use stake or lift nets and/or bank lines in this estuary for bass. Mussel gathering is almost non-existent today, the cockle beds are currently subject to a closure order, and shrimping is at a very low level. Two of the 4 potting boats operating from Walney Channel at Barrow were previously based at Askam-in-Furness on the Duddon Estuary.

12.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	14	31
Other gadoids	15	29
Sole	40	312
Turbot & brill	9	40
Other flatfish	213	186
Small pelagics	1	1
Bass	13	70
Other finfish	29	29
Sharks & rays	268	340
Shellfish		
Whelks	3,397	2,125
Gastropods		
Scallops	269	435
Cockles		
Other bivalves	5,170	92
Edible crab	224	332
Other crabs	259	279
Lobsters	104	1,785
<i>Nephrops</i>	26	81
Shrimps & prawns	23	389
Cephalopods	0	1
Total	10,074	6,556

13. Cumbria: Millom to Silloth (*Cumbria SFC*)



13.1 Synopsis of current inshore fisheries

A variety of resources are taken along the sand, shingle and rocky shoreline that culminates in the Solway Firth in the north. Vessels >10 m use otter trawls for *Nephrops* and white fish, beam trawls and seine nets for white fish, and dredges for scallops and queen scallops. The majority of these vessels are based in Whitehaven and Maryport. At times they can find themselves in competition with a large visiting fleet from elsewhere in the UK, usually during periods of heavy fishing for *Nephrops* on grounds to the southwest of St Bees Head. Out to 3 miles offshore, boats <10 m use nets for cod, rays and flatfish, lines for cod and rays, and pots for lobsters and crabs. Shrimps are taken in beam trawls in the Solway Firth and cockles, mussels and periwinkles are gathered intertidally.

13.2 Information on species targeted, fishing methods deployed and fishing restrictions inshore

13.2.1 Demersal fish (eg cod, whiting, plaice, sole, brill, dab, turbot, rays and dogfish)

Demersal fish are taken in otter and beam trawls and seine nets throughout the year. Cod and whiting have traditionally predominated in otter trawl and seine net catches during the colder months. Though the cod fishery off Whitehaven and southwest of St Bees Head has gone into sharp decline, haddock catches in these areas have increased considerably since 1996. White fish, particularly cod, whiting, haddock and plaice, can provide an important bycatch in the *Nephrops* fishery, and the statutory inclusion of an 80 mm square-mesh section in nets with a minimum

mesh size of 70 mm gives juvenile whiting a better chance of escaping. The sole fishery begins in spring and attracts a visiting fleet of beam trawlers from Brixham, which work the Scallop bank area, and the occasional Belgium beam trawler outside the 12 mile zone. A Cumbria SFC byelaw prohibits boats >13.7 m from fishing within 3 miles of the coast, other than when using handlines. Flatfish (eg sole, plaice, turbot and brill) continue to be important on inshore grounds, together with rays during the warmer months and especially within the Solway Firth. The larger vessels tend to fish further offshore during this period when otter trawlers engage in the seasonal *Nephrops* fishery.

All fixed net fishing takes place on rocky or hard substrates within 3 miles of the shore. Boats of <10 m take cod in gill and trammel nets and, in spring, tangle and trammel nets are set for flatfish and rays. Nets set in intertidal areas are sometimes supported by stakes and take cod, rays and flatfish. In order to protect salmon and sea trout, Cumbria SFC byelaws restrict netting activity around rivers, prohibit nets exceeding 240 m in length, stipulate a minimum distance of 300 m between two nets, and require that all static gear is marked. It is also illegal under SFC byelaws to set fixed nets in the district that do not have at least 3 m of water over the headline at all states of the tide between 1 June and 30 November.

13.2.2 Pelagic fish (eg bass, mullet, mackerel and herring)

The commercial bass and mullet fisheries in Cumbria tend to be less regular than further south, but both species are taken in nets during the summer and bass are caught on longlines and handlines. A small quantity of mackerel and herring are taken in trawls and nets and mackerel are taken on lines.

13.2.3 Diadromous fish (eg salmon and sea trout)

The main salmon fisheries within this district occur in the Solway Firth, where hand-held haaf nets are used to take fish destined mainly for the Rivers Eden and Border Esk.

13.2.4 Shellfish (eg *Nephrops*, shrimp, lobster, brown crab, cockle, mussel, scallop and whelk)

Nephrops are caught in otter trawls in deep water to the west of Whitehaven, between May and August. Peak landings are made on neap tides when *Nephrops* are more likely to be out of their burrows foraging for food and therefore more vulnerable to capture. *Nephrops* can be caught in winter, but only on those few occasions when the tides are at their slackest and the weather

settled. When the fishery is at its peak, between May and September, vessels from Scotland, Ireland, Wales, the Isle of Man and other English ports such as Fleetwood fish the same grounds as the local fleet and occasionally land their catches into Whitehaven.

The Solway Firth shrimp fishery involves local boats <10 m towing beam trawls and occasionally attracts boats from other UK ports. Cumbria SFC byelaws limit the size of beams to an aggregate length of 6 m and state that catches must be sifted through a riddle and immature fish returned to the sea as soon as possible. Lobsters, brown and velvet crabs are caught in pots set by boats <8 m in rocky areas from March to November. Whelks are also taken in pots and shore crabs are gathered by hand and sold as bait. Cumbria SFC operate a permit scheme covering lobster, crab and whelk potting in a season which extends from March to September.

Cockles are harvested from the Solway Firth using hydraulic suction dredges, tractor-drawn dredges and by hand. Most of the effort occurs along the Scottish coast, where 9 tractors and the majority of the 14 boats working hydraulic suction dredges are based. The Cumbria SFC undertake regular surveys of both cockle and mussel stocks within its district, and operate permit schemes (60 permits for mussels were issued in 2006) to assist the management of both species. There has recently been increased fishing effort for mussels from beds in the upper Solway between Dubmill Point and Skinburness. Trawlers from Maryport and Silloth dredge for mussels, and they are hand gathered in the Ravenglass Estuary (MLS of 45 mm) by fishermen using boats to reach outlying beds that are inaccessible by foot. Scallops and queen scallops are taken in trawls (as a bycatch to white fish) and dredges, and some of the beam trawlers based in Maryport switch to scallop dredging when flatfish are scarce inshore, some of the larger boats fishing out to the Isle of Man.

13.3 Description of coastal fisheries by port

13.3.1 Silecroft to St Bees Head

Three full-timeboats <10 m fish static gear from the Ravenglass Estuary and Seascale beaches, and up to 4 boats from Askham and Barrow-in-Furness may use static nets between Haverigg Point and Eskmeals, to the south of Ravenglass. Between December and June, nets are set on the beaches taking Dover sole, plaice, thornback rays, turbot, brill, cod, bass and grey mullet. Drift nets are occasionally used to take bass during the warmer months. In addition to nets, some boats set longlines for cod, rays

and dogfish. Lobster pots are set on the rocky outcrops and take a bycatch of brown and velvet crabs, and some boats set up to 500 whelk pots each. A licensed fish trap (crib) is used in Ravenglass estuary for salmon and sea trout, and the estuary also supports mussel and cockle beds, which are exploited by hand. Over 50 pleasure angling boats launched along this stretch of coast can take considerable quantities of cod, pollack, bass, rays and flatfish, particularly when fishing around wrecks off St Bees Head. A small number may set nets or a few pots.

13.3.2 Whitehaven

Whitehaven supports 8 full-time vessels, two of which are >13.7 m and are therefore not permitted to fish within the SFC district (inside 6 miles). The majority work otter trawls for *Nephrops* and white fish. In addition, one vessel will also deploy seine nets from time to time. Since the late-1980s, *Nephrops* has provided the main value in landings at Whitehaven. Effort on *Nephrops* is concentrated west of St Bees Head south to Selker, between 5 and 12 miles offshore, with white fish such as cod, whiting, haddock and plaice providing an important bycatch.

Whitefish are usually targeted when *Nephrops* are scarce, with plaice, rays, sole, turbot, brill, whiting and cod being landed in season, the seiners taking mainly flatfish. The smaller trawlers are particularly dependent on the plaice fishery during the summer, fishing in to the coast, and also taking sole, turbot and rays. A fleet of up to 20 visiting scallop dredgers works out of Whitehaven fishing throughout the northeast Irish Sea during the winter.

13.3.3 Parton and Harrington

There are 4 part-time boats of <10 m based in Harrington harbour using nets and trawls all year round for cod, rays, plaice and sole, and two boats set pots for lobsters and brown crabs and also take velvet crabs. In recent years, 3 or 4 part-time boats have been launched from Parton beach to set nets for demersal fish, use drift nets for bass, and rod-and-line for bass, cod and rays, mainly during the warmer months. Crustacea are often taken as a bycatch in nets and periwinkles are gathered by hand.

13.3.4 Workington

A fleet of around 20 small boats uses gill and trammel nets for cod, rays, sole and plaice in season, some occasionally trawl for shrimps and flatfish, and many pot for lobsters and crabs, which are also taken in nets. Since 1996, 3 or 4 boats have fished up to 200 whelk pots each during the autumn and winter. Only one of these boats fishes full time. During the winter scallop season there are occasional

landings from visiting scallop dredgers working in the northeast Irish Sea.

13.3.5 Flimby

Three or four beach boats are used to set trammel, gill and tangle nets, principally for plaice, rays, sole and cod, with bass often being taken.

13.3.6 Maryport

Most of the 6 full-time otter and beam trawlers generally fish within the 12-mile zone, landing sole, plaice, rays, turbot and brill from the Solway Firth. The larger boats fish further offshore during the summer, and some otter trawlers participate in the *Nephrops* fishery off Whitehaven. In winter, 4 vessels dredge for scallops and queen scallops, whilst the rest land whiting, cod, rays and flatfish. Visiting boats occasionally land into Maryport, where a Fishermen's co-operative operates from purpose-built premises alongside the harbour. Around 9 smaller mainly part-time boats set nets (and sometimes longlines) for flatfish, rays, cod and bass, and 3 shrimping boats work the shallower grounds in the Solway Firth. Four or 5 boats set pots for lobsters and crabs and one sets whelk pots.

13.3.7 Allonby

There are currently no boats fishing from Allonby, although boats from Maryport fish up to 2 miles off shore in this area, mainly for rays between March and June. A small number of nets are occasionally set on the beach between December and June, mostly to catch cod.

13.3.8 Silloth

The most northerly port in north-west England, Silloth has 8 shrimping boats, of which one is capable of hydraulic dredging for cockles. Most of these boats have also dredged for mussels since the early 1990s. Shrimps are caught year round in beam trawls from low-water channels in the Solway Firth, except during very cold spells and stormy weather in winter when shrimps migrate offshore. The Solway Firth is an important flatfish nursery ground and juvenile flatfish taken as a bycatch have to be separated using a riddle before being returned to the sea together with under-size shrimps. The remaining shrimps are then boiled and chilled at sea. In 1993, a Dutch-owned company established a shrimp holding facility at Silloth, thus encouraging additional boats to land there.

There are salmon and sea trout fisheries in the rivers Esk and Eden and, in 2006, 96 licences were issued for haaf netting in the Upper Solway from 1 June to 9 September and 3 licences for traps (coops) were issued for the River Eden.

13.4 Summary of landings in 2006

	Landed weight (t)	Landed value (£1,000s)
Finfish		
Cod	12	25
Other gadoids	6	10
Sole	7	33
Turbot & brill	18	59
Other flatfish	120	120
Small pelagics	0	+
Bass	1	6
Other finfish	8	11
Sharks & rays	69	66
Shellfish		
Whelks	638	396
Gastropods		
Scallops	118	291
Cockles	67	97
Other bivalves	809	321
Edible crab	11	38
Other crabs	0	+
Lobsters	8	138
<i>Nephrops</i>	276	902
Shrimps & prawns	25	38
Cephalopods	0	1
Total	2,193	2,552

14. Conclusions

Inshore fisheries are the backbone of many fishing communities, playing an important socio-economic role in coastal areas. This is particularly important where; (i) remoteness presents few economic alternatives, eg in parts of north-west England, south-west England and west Wales, (ii) the nature of the coastline and coastal waters favours small inshore boats, eg in many bays and estuaries, and (iii) where there is a high rate of unemployment, eg parts of south Wales and north-east England where heavy industry has declined substantially. In addition, for areas where tourism is a vital part of the local economy, inshore fisheries supply the restaurant and hotel trade with a range of fresh, locally-caught fish and shellfish.

As can be seen in this review, the coastal fisheries of England and Wales continue to be extremely diverse and dynamic, with many types of fishermen (full-time, part-time or hobby and recreational) utilising and competing for many resources. Commercial fishermen remain highly versatile, being able to adapt their fishing patterns with the seasonal availability of target species, longer-term fluctuations in abundance of natural finfish and shellfish populations, marketing opportunities and management controls.

However, the trend in inshore fishing since the late 1980s has been of falling catches, especially in areas that had been dependent on cod and whiting, which have shown a marked decline. Fishermen responded to rising operational costs and, for species such as plaice, low first sale prices, by increasing fishing effort, usually in terms of quantity of static fishing gear, in many cases moving to smaller, more efficient vessels and away from towed gears that involve greater fuel costs. Where possible, they have re-directed effort towards non-quota species, such as bass, cuttlefish, prawns, rays and red mullet, as a valuable alternative to traditional fisheries provided new markets can be found for them. Opportunistic effort may be intense, and this may reduce the length of time a fishery remains profitable. In their attempts to sustain local resources, many SFCs have introduced 'fishery orders' covering major mollusc fisheries, allowing them to regulate the numbers of fishing boats exploiting a particular resource, the time spent fishing and the scale of landings.

Over the last 5 years, inshore fisheries have fared differently around the coast. For example, along the east and north-east coast, netting activity has decreased, whilst in Kent and Essex, demersal trawling activity has

declined. However, new markets have developed, and the importance of velvet crabs and catches of bass by trawlers have increased on the north-east coast, for example.

The importance of part-time fishermen in many coastal fisheries should not be underestimated. Part-time fishermen are defined as those who do not derive the larger part of their income from fishing - a definition that covers traditional farmer-fishermen in more remote coastal communities, as well as more recent participants in the industry. There are no accurate figures on the number of part-time fishermen, though estimates are available from various licence and permit schemes for particular fisheries operated by several SFCs. They represent a latent level of exploitation that responds quickly to fluctuations in resource species' availability and, therefore, may pose less of an overfishing threat than committed full-time fishermen.

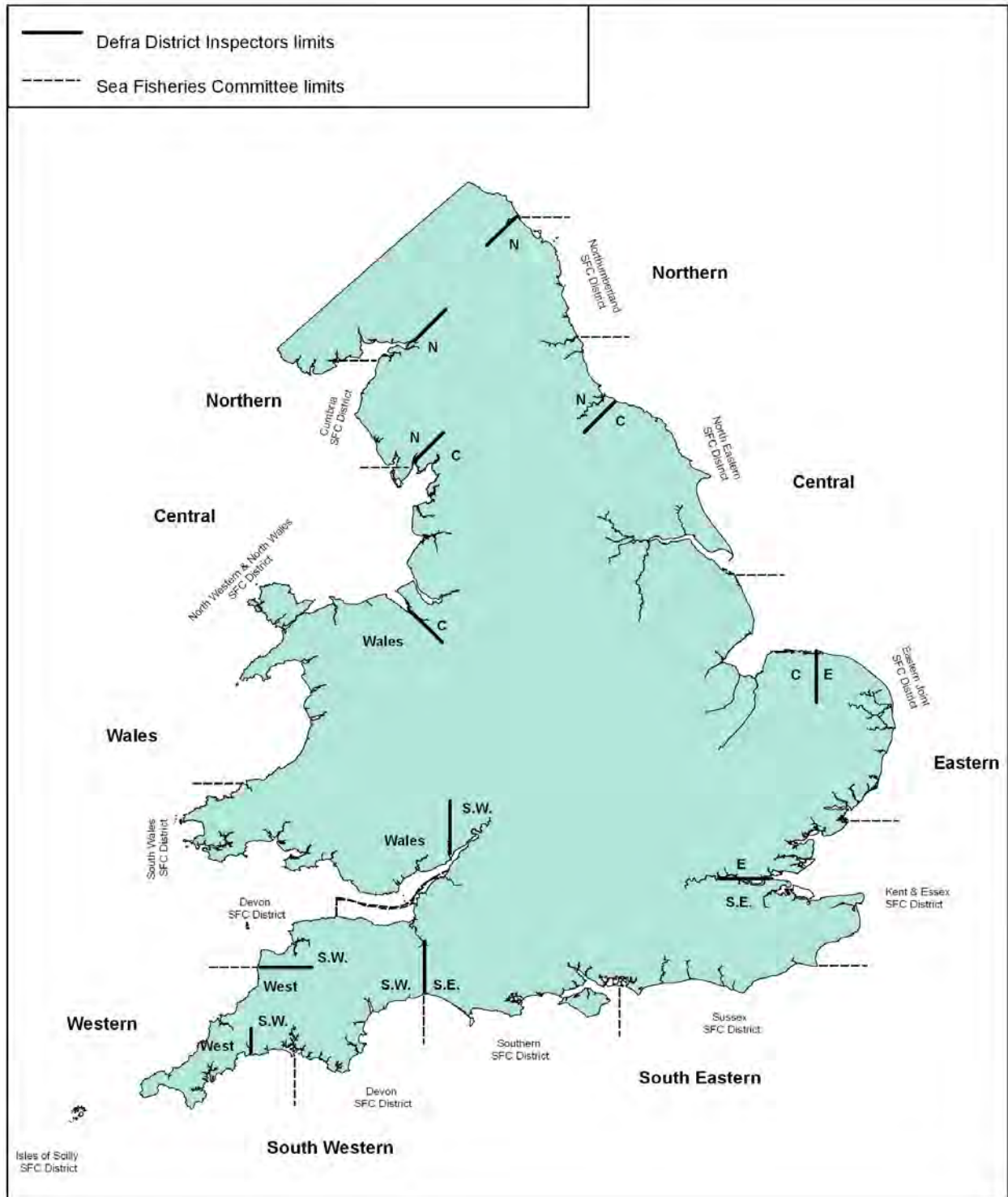
Although not quantified in this report, recreational angling continues to grow around the coast, and recreational angling groups have an increasingly vocal say in local fisheries management issues. Several SFCs now have at least one member with a background in the angling sector, the socio-economic importance of which is gaining recognition. For many commercial skippers, taking out charter angling parties represents a welcome and increasingly important seasonal income. Anglers also support the local bait and tackle trades and are just as dependent on sustainable resources as are commercial fisheries.

As the nature of inshore fisheries is constantly changing, so does fisheries management. We are increasingly made aware of the conservation needs of marine resources and of more general environmental issues as our knowledge of marine ecosystems and the interactions with man's activities improves. As a result, fisheries are no longer viewed in isolation and we are moving towards a more integrated management in the coastal zone, in which considerations of the impact of anthropogenic activity on ecosystems play an increasingly important part. In addition, there is an increasing trend of stakeholder inclusion, where all interested parties are able to have a say in management decisions. Finally, the last 5 years has seen the development of new tools such as GIS that enable us to model the effects of natural and anthropogenic processes on the marine environment. In this way the impacts and risks of management scenarios on ecosystems can be assessed.

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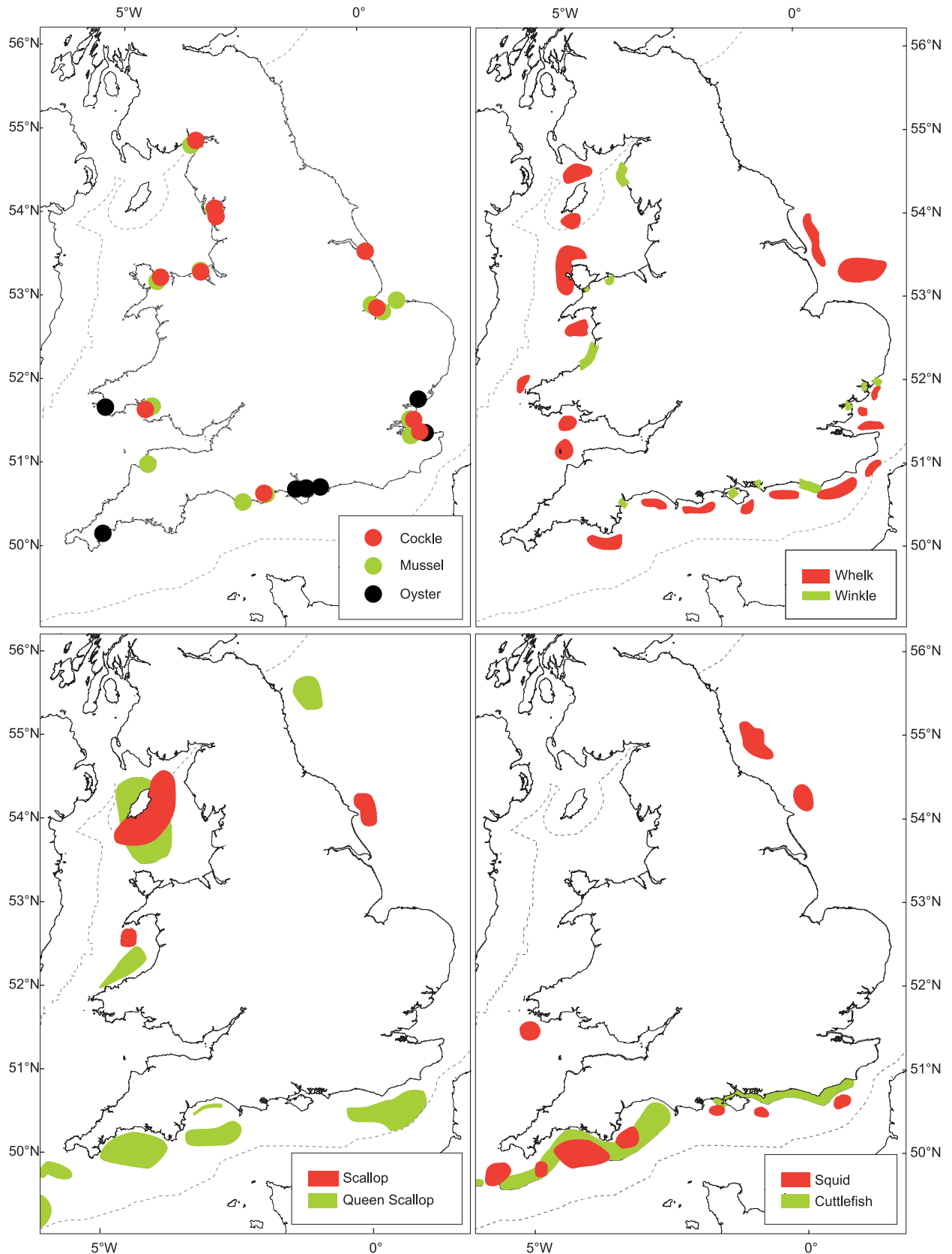
Appendix 1. Defra, SFC and EA districts of England and Wales



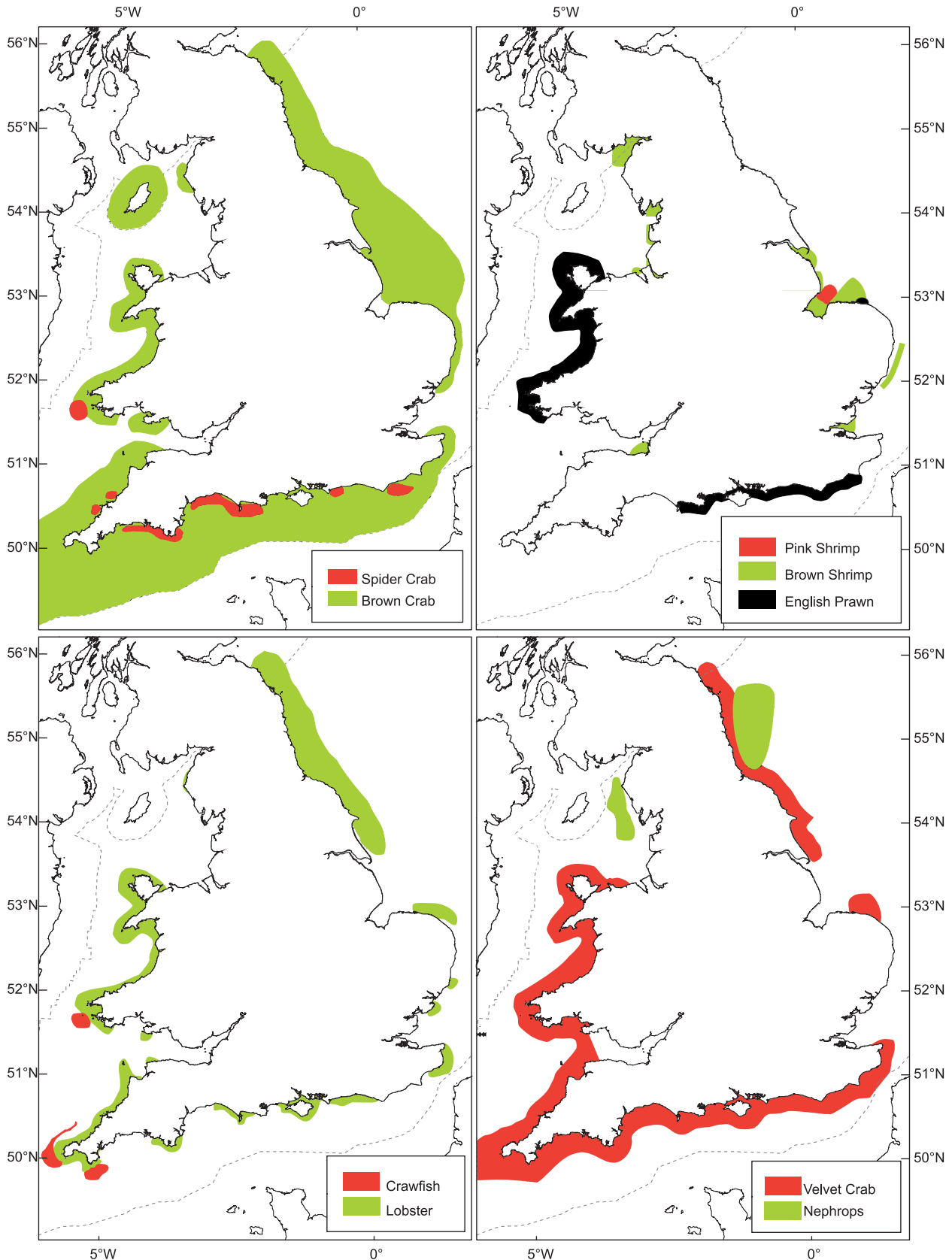
Appendix 2. The common and scientific names of fish and shellfish species mentioned in this report

Bass	(<i>Dicentrarchus labrax</i>)	Scallop, queen	(<i>Chlamys opercularis</i>)
Bream	(<i>Pagellus</i> spp.)	Sea trout	(<i>Salmo trutta</i>)
Brill	(<i>Scophthalmus rhombus</i>)	Shrimp, brown	(<i>Crangon vulgaris</i>)
Clam, American	(<i>Mercenaria mercenaria</i>)	Shrimp, pink	(<i>Pandalus montagu</i>)
Clam, Manila	(<i>Tapes philippinarum</i>)	Shrimp, unspecified	Shrimps, unspecified
Cockle	(<i>Cerastoderma edule</i>)	Silver smelt	(<i>Osmerus eperlanus</i>)
Cod	(<i>Gadus morhua</i>)	Skate/ray	(<i>Raja</i> spp.)
Conger eel	(<i>Conger conger</i>)	Sole, Dover	(<i>Solea solea</i>)
Crab, brown	(<i>Cancer pagurus</i>)	Sprat	(<i>Sprattus sprattus</i>)
Crab, spider	(<i>Maia squinado</i>)	Squid	(<i>Loligo</i> spp.)
Crab, velvet	(<i>Liocarcinus puber</i>)	Tope	(<i>Galeorhinus galeus</i>)
Crab, shore	(<i>Carcinus maenas</i>)	Turbot	(<i>Scophthalmus maximus</i>)
Crawfish	(<i>Palinurus elephas</i>)	Whelk	(<i>Buccinum undatum</i>)
Cuttlefish	(<i>Sepia officinalis</i>)	Whitebait	(<i>Sprattus sprattus</i> and <i>Clupea harengus</i>)
Dab	(<i>Limanda limanda</i>)	Whiting	(<i>Merlangius merlangus</i>)
Dogfish, nurse/huss	(<i>Scyliorhinus stellaris</i>)		
Dogfish, spurdog	(<i>Squalus acanthias</i>)		
Dory	(<i>Zeus faber</i>)		
Eel	(<i>Anguilla anguilla</i>)		
Flounders/fluke	(<i>Platichthys flesus</i>)		
Gurnard	(Triglidae spp.)		
Haddock	(<i>Melanogrammus aeglefinus</i>)		
Hake	(<i>Merluccius merluccius</i>)		
Herring	(<i>Clupea harengus</i>)		
Horse mackerel	(<i>Trachurus trachurus</i>)		
Lemon sole	(<i>Microstomus kitt</i>)		
Ling	(<i>Molva molva</i>)		
Lobster	(<i>Homarus gammarus</i>)		
Mackerel	(<i>Scomber scombrus</i>)		
Monkfish/angler	(<i>Lophius piscatorius</i>)		
Mullet, grey	(<i>Liza ramada</i> , <i>Liza aurata</i> and <i>Chelon labrosus</i>)		
Mullet, red	(<i>Mullus surmuletus</i>)		
Mussel	(<i>Mytilus edulis</i>)		
<i>Nephrops</i> (Dublin Bay prawn or Norwegian lobster)	(<i>Nephrops norvegicus</i>)		
Oysters, native	(<i>Ostrea edulis</i>)		
Oysters, Pacific	(<i>Crassostrea gigas</i>)		
Periwinkle	(<i>Littorina littorea</i>)		
Pilchard	(<i>Sardina pilchardus</i>)		
Plaice	(<i>Pleuronectes platessa</i>)		
Pollack	(<i>Pollachius pollachius</i>)		
Prawns, deep sea	(<i>Pandulus borealis</i>)		
Prawn, English	(<i>Palaemon (leander) serratus</i>)		
Razorshell	(<i>Ensis</i> spp.)		
Saithe/coalfish	(<i>Pollachius virens</i>)		
Salmon	(<i>Salmo salar</i>)		
Sandeel	(<i>Ammodytes</i> spp.)		
Scallop	(<i>Pecten maximus</i>)		

Appendix 3. The major crustacean fisheries of England and Wales



Appendix 4. The major molluscan fisheries of England and Wales





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