

## 8 USERS OF THE SEA 6 MARINE & COASTAL ENVIRONMENT

### 8.1 Regional overview

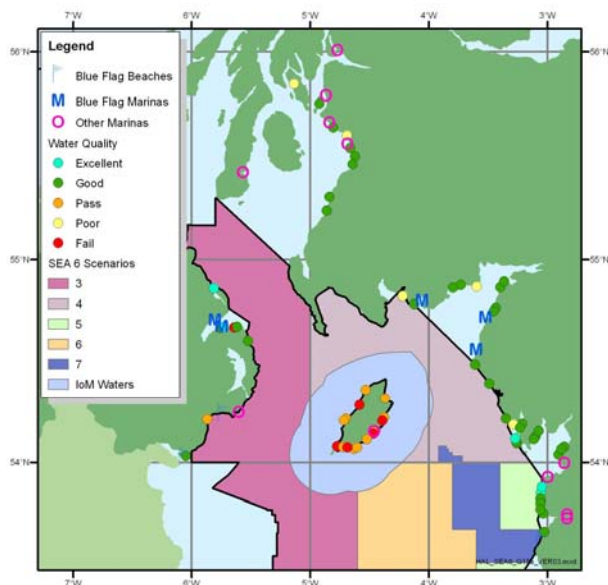
The SEA 6 area is a mixture of sparsely populated rural areas and highly developed centres of population such as Blackpool, Liverpool and Belfast. Fishing, tourism and leisure, oil and gas, ports and shipping and naval defence are the primary maritime contributors to the regional economy, while the renewable energy sector is increasing and may provide significant local opportunities for the region in the future. In general, significant coastal development is centred upon the north-western coast and the large river/estuaries in the region including the River Mersey, River Dee and Milford Haven.

### 8.2 Data sources

The main source for this section is the underpinning ‘Other Users’ report prepared by Luddington and Moore (2005) for SEA 6. Information regarding fisheries comes mainly from a report commissioned from CEFAS (2005) together with Pawson *et al.* (2002), ICES (2004) and Luddington & Moore (2005).

### 8.3 Tourism and leisure

The Irish Sea region has some of the best and most attractive resources in the UK for coastal tourism and leisure. In general, there has been a decline in the numbers of visitors to traditional seaside resorts and growth in the number of people partaking in a wide range of land- and water-based leisure activities including walking, golf, bird watching, yachting, sailboarding, angling, surfing and diving. Available statistics indicate that tourism and leisure contributes in the order of £2.5 billion per annum to the regional economy, with between 100,000-200,000 people directly employed in the sector (Vincent *et al.* 2004).

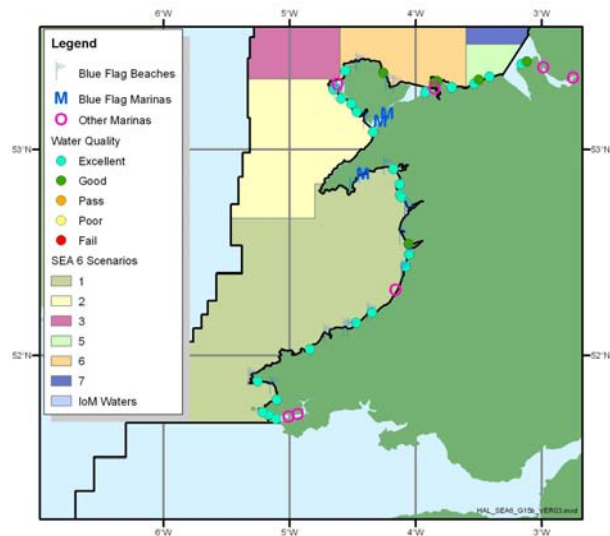


*Figure 8.1 - Designated beaches and marinas in the SEA 6 area – north*

Source: Seaside Award website  
<http://seasideawards.org.uk>

The European Blue Flag Campaign covers resort bathing beaches and to qualify, bathing beaches have to meet standards of the EC Bathing Water Directive, as well as other criteria on facilities, cleanliness and safety. In 2004 there were 28 Blue Flag beaches in the SEA 6 area, most of which were in Wales (Figures 8.1 and 8.2) In the north of the region there were also two Blue Flag beaches in Scenario area 3 (coast of Northern Ireland) and one in Scenario area 7 (north east coast of England).

The Blue Flag campaign also includes marinas which fulfil certain requirements for environmental education and management, water quality and safety and in 2004 there were 8 Blue Flag marinas in the SEA 6 area.



**Figure 8.2 - Designated beaches and marinas in the SEA 6 area –south**

Source: Seaside Award website  
<http://seasideawards.org.uk>

The object of the 1976 Bathing Water Directive (76/160/EEC) is to protect public health and the environment from faecal pollution in bathing waters. Member States are required to identify popular bathing areas and monitor the bathing waters for indicators of microbial pollution throughout the bathing season (May to September). Within the SEA 6 area in 2004 there were 96 designated coastal bathing water areas.

Resorts along the eastern coasts of the SEA 6 area are important to the tourism sector, for example Blackpool, the largest coastal resort in the UK, attracts 17 million visitors a year with an annual expenditure of £545 million (Vincent *et al.* 2004), while in Ireland, interest in coastal and marine based activities is growing. Recreational angling is an increasingly important part of the rural economy and CEFAS calculated that the recreational fishery generated almost £19 million of expenditure in England and Wales, while in Ireland local and long-distance sea angling tourism is valued at £17 million per annum (Vincent *et al.* 2004).

## Recreational boating

In response to the lack of information highlighted by the Round 2 Windfarm SEA, the Royal Yachting Association (RYA), supported by the Cruising Association, began identifying cruising routes, general sailing and racing areas. This initial work, published in *Sharing the wind*, was based on extensive consultation and qualitative data collection from RYA and Cruising Association members. The RYA was then commissioned by the DTI as part of the SEA process, to produce a report describing the recreational boating use within the SEA 6 area (RYA 2005).

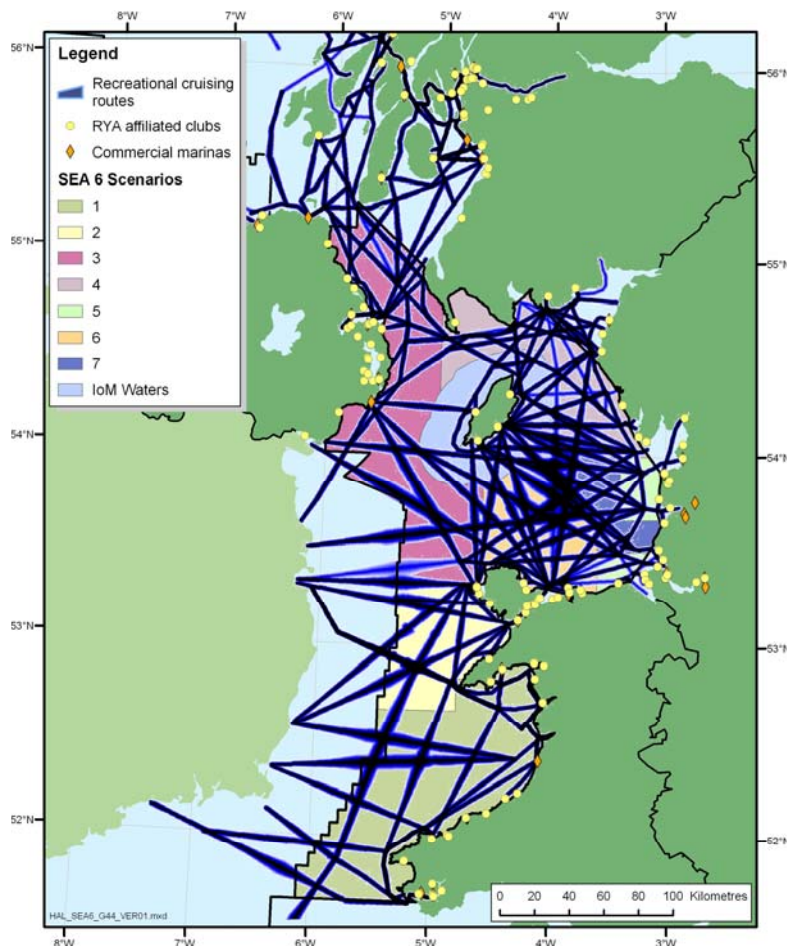
Recreational sailing in the area includes:

- canoeing, sail-boarding and personal watercraft limited to a few places inshore
- dinghy sailing in most estuaries in suitable weather and tide conditions
- day-sailing and racing around the coast approximately out to 15 miles
- cruiser passage making between most combinations of yachting base

The most popular activity of the yacht clubs in the SEA 6 area is yacht cruising and yacht racing (RYA 2005). The SEA 6 area is popular for recreational boating with routes from and to the Scottish, English, Welsh, and Northern Irish coasts as well as to and from the Isle of Man. Unlike surveys of commercial use, there is currently little available survey data to assess intensity of use of these routes. The level of facilities available can be taken as a proxy for comparable levels of intensity (RYA 2005). Within the SEA 6 area, the majority of recreational activity (as measured by the extent of coastal facilities) is seen in the area from Aberdovey to Liverpool, followed by the area from the Solway Firth to Oban, part of which

lies outwith the SEA 6 boundary. It has been assumed that much of the recreational boating activity, stemming from these coastal facilities, will utilise the waters in the SEA 6 area (RYA 2005).

Seven of the 36 RYA listed commercial marinas within SEA 6 are found between Aberdyfi and Liverpool, with the area holding the largest number of moorings within SEA 6. The area between Milford Haven and Aberdovey has only 3 RYA marinas.



*Figure 8.3 - Recreational cruising routes in the SEA 6 area*

Source: RYA (2005)

The assumed dispersion of recreational craft along the identified routes have been generated using GIS (Figure 8.3) and this is the first step towards modelling recreational boating use. “Hot spots” where routes overlap were identified and these could be seen as “essential” areas for recreational craft (RYA 2005).

There is a heavily used recreational route running between Fishguard and Milford Haven, which then continues as a medium used route up the coast to Aberdovey to Aberystwyth. Routes within the area between Aberdovey to Liverpool tend to follow the coastline and there tends to

be direct navigation between points of origin and destination within the area, avoiding the shallow waters off the north coast of Wales, where only light recreational routes are recorded.

The area off the east and north east coast of Northern Ireland shares a narrow offshore cruising ground with Scotland, recreational craft pass between the Scottish Islands and Wales or the south west coast of Scotland, looking to the east coast of Ireland for refuge or shelter.

## 8.4 Oil and gas

Historically, oil and gas activity within SEA 6 has primarily been centred in the Liverpool Bay area and off the coast of Cumbria within Scenario areas 4, 5, 6 and 7 (see Figure 8.5). Producing facilities in the Liverpool Bay area include the Douglas platform, producing oil and gas, three smaller production platforms (Hamilton, Hamilton North and Lennox), a major oil

storage and offloading installation and an onshore gas processing terminal at Point of Ayr. During 2000 a subsea installation (Hamilton East) was also developed inshore of Hamilton. The South Morecambe field consists of a central processing complex and four drilling/wellhead platforms which produce gas and gas condensate. The North Morecambe platform produces gas and was commissioned in 1994.

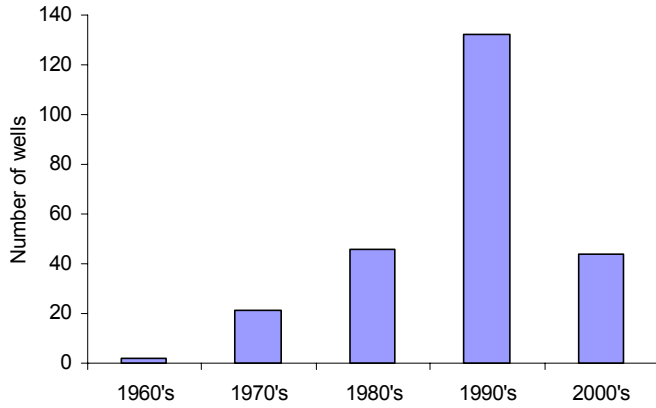


Figure 8.4 – Wells drilled in the SEA 6 area

Source: UK DEAL (Digital Energy Atlas and Library) website - [www.ukdeal.co.uk](http://www.ukdeal.co.uk)

Around 250 exploration, appraisal and development wells have been drilled in the SEA 6 area. The majority of these were drilled in the 1990s (Figures 8.4 and 8.5).

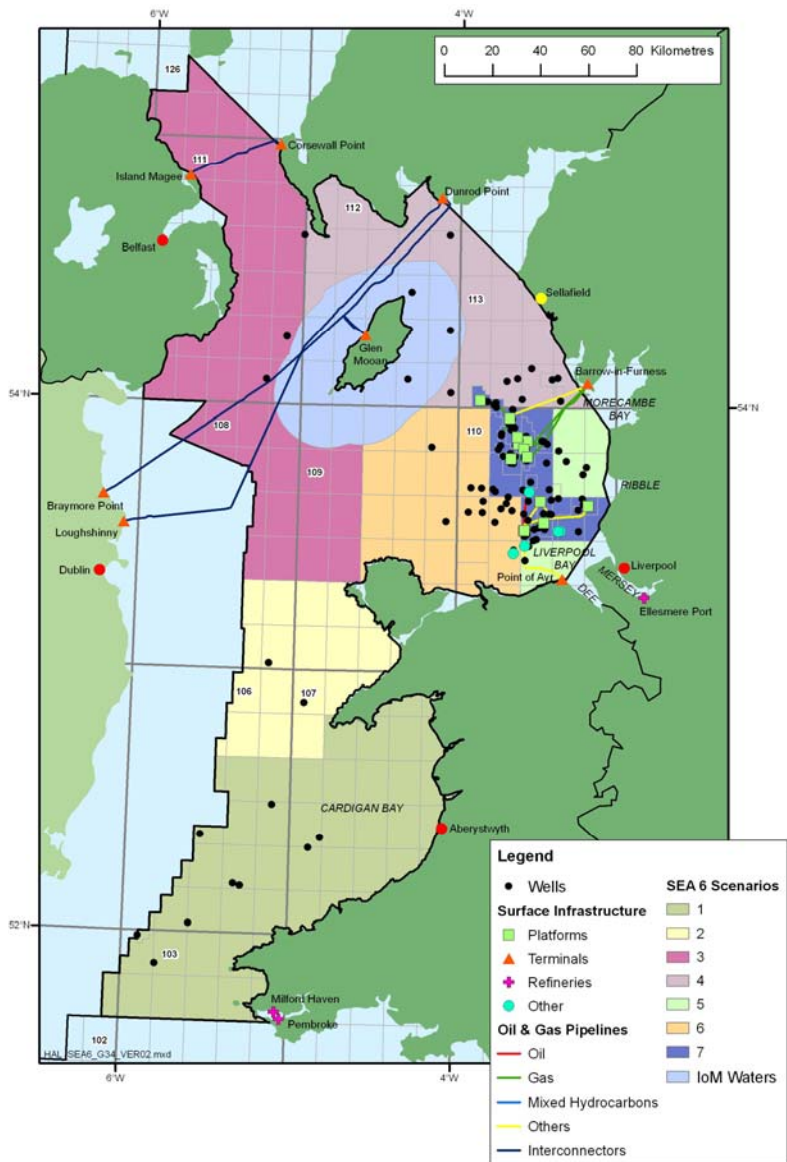
Figure 8.5 - Oil and gas infrastructure in the SEA 6 area

Source: UK DEAL website - [www.ukdeal.co.uk](http://www.ukdeal.co.uk)

Two gas receiving terminals are located on the SEA 6 coastline, the Barrow-in-Furness terminal in Cumbria which receives gas from the Liverpool Bay Development via a pipeline from the three-platform Douglas complex and the Point of Ayr terminal in North Wales which receives gas from the Morecambe North and South fields.

In addition, there are a number of gas interconnector pipelines which link mainland Britain to Ireland and several associated interconnector terminals - see Figure 8.5.

Three of the nine UK major oil refineries are located on the SEA 6 coastline at Ellesmere Port, and two in Milford Haven (Figure 8.5).





## 8.5 Fisheries

### Overview

Despite only 8% of the UK sea fish and shellfish total weight being landed into ports in the SEA 6 area, fishing remains an important industry in the region in terms of employment and the local economy. The major fleets in the Irish Sea are otter trawlers, beam trawlers, scallop dredgers and potters, with the majority of vessels sighted in the area from UK, Ireland, France and Belgium. Information used in this section comes mainly from a report commissioned from CEFAS (2005) together with Pawson *et al.* (2002), ICES (2004) and Luddington & Moore (2005). An important gap in the information base is confirmed catch species, weights and values from vessels of less than 10m length.

### Offshore fishing effort

#### Otter trawling

In the Irish Sea, the principal source of fishing effort derives from otter trawling, which predominantly targets *Nephrops*, with bycatches of cod, whiting and plaice (CEFAS 2005, ICES 2004). Approximately 70% of the fleet is comprised of UK vessels, with French and Irish vessels comprising the majority of the remainder. In general, fishing effort has remained relatively consistent between 1996 and 2003. Most activity was distributed to the east and west of the Isle of Man and in the southern Irish Sea off the coast of south west Wales, with a lesser amount of activity recorded in Cardigan Bay (Figure 8.6). *Nephrops* catches are highly seasonal with the highest catches in summer months and rates are also dependent on tidal conditions, with higher catches during periods of weak tide (ICES 2004). In recent years, fishing effort for Irish otter trawlers has declined as many vessels switched from targeting roundfish to *Nephrops* (ICES 2004).

#### Beam trawling

The three major beam trawling countries in the Irish Sea are Belgium (52%), the UK (32%) and France (12%), with sole the main target species (CEFAS 2005). Fishing activity is mainly to the south west of the Isle of Man and Liverpool Bay, in Cardigan Bay (Figure 8.7). Effort is relatively consistent throughout the year with slightly less activity during autumn.

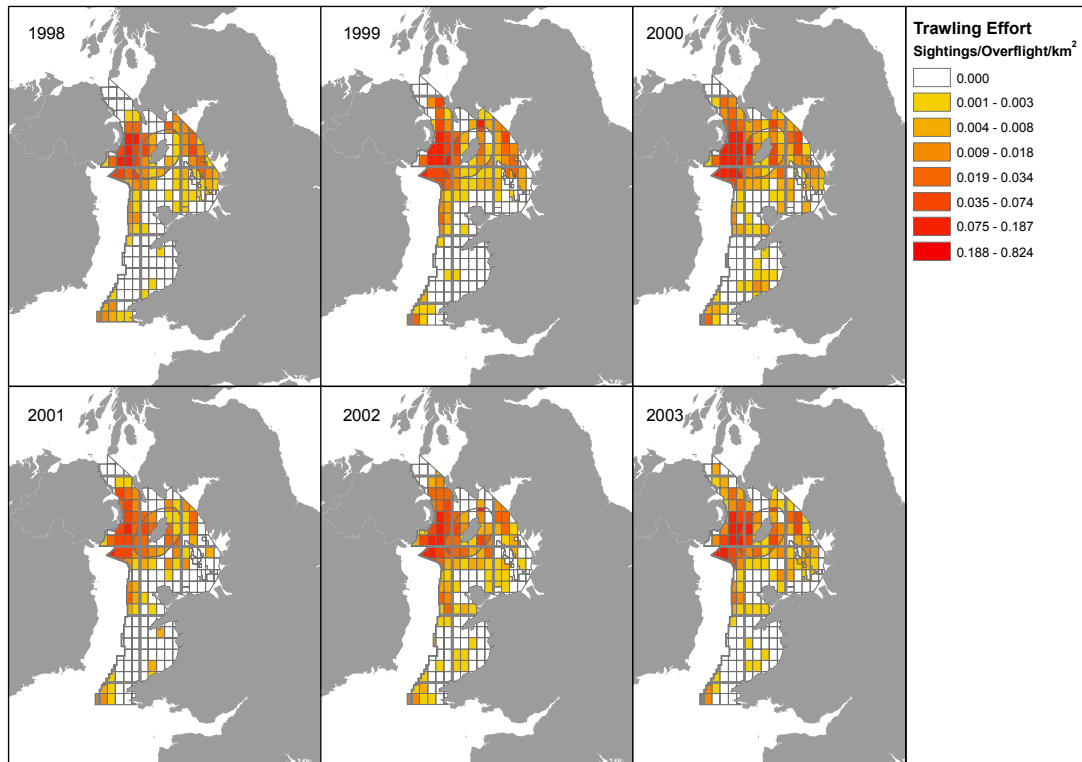
#### Scallop dredging

Within the Irish Sea, the vast majority of scallop dredging is by UK vessels, with scallop beds between Anglesey and the Isle of Man providing the main focus for activity (Figure 8.8) (CEFAS 2005). These beds are exploited by boats from the Isle of Man, Scotland and south west England and on average, effort is slightly higher over the winter months. A limited amount of effort also occurs in Cardigan Bay, although the inshore component of this fishery is subject to a seasonal closure between July and December (CEFAS 2005). Measures of effort in this fishing type category do not take account of the large number of vessels which take scallops and queen scallops as bycatch in white fish trawls.

#### Potters

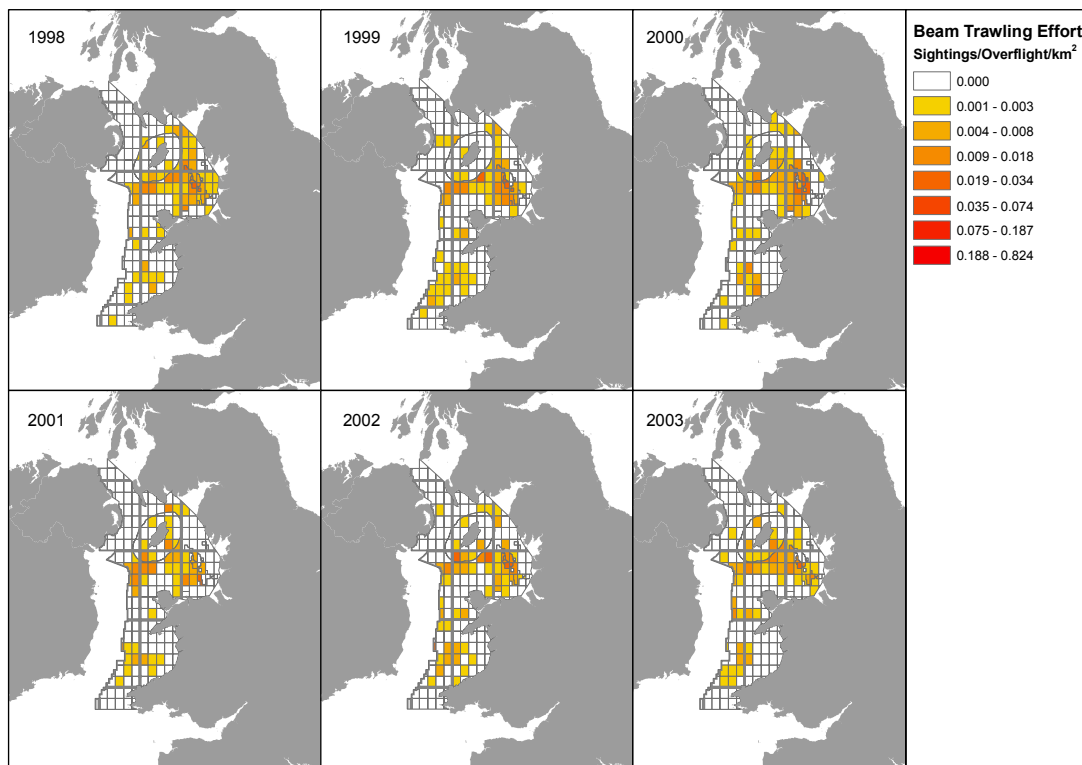
Between 1998 and 2003, less than 3% of the vessels sighted in offshore areas of the Irish Sea were potters (CEFAS 2005). The main focus of activity is centred around Cardigan Bay and Anglesey (Figure 8.9), with slightly higher intensities seen during the summer and autumn months. There is also some potting off Northern Ireland and around the Isle of Man.

Figure 8.6 - Annual distribution of otter trawling within SEA 6 (1998-2003)



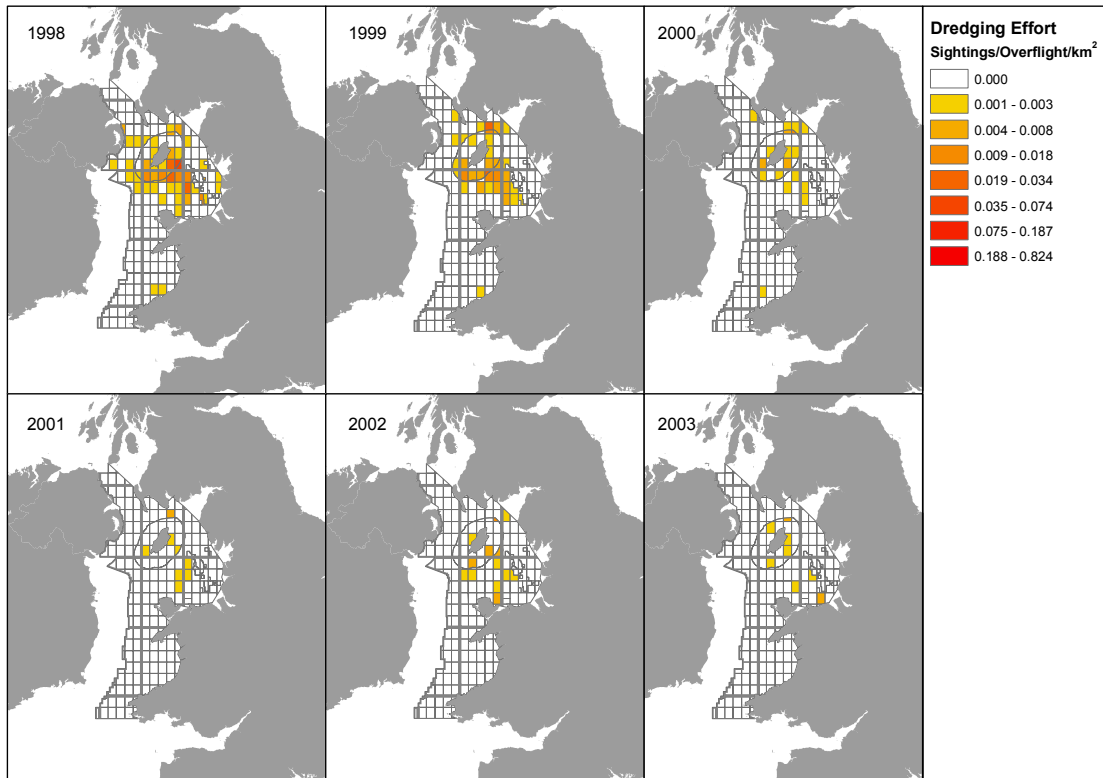
Source: CEFAS 2005

Figure 8.7 - Annual distribution of beam trawling within SEA 6 (1998-2003)



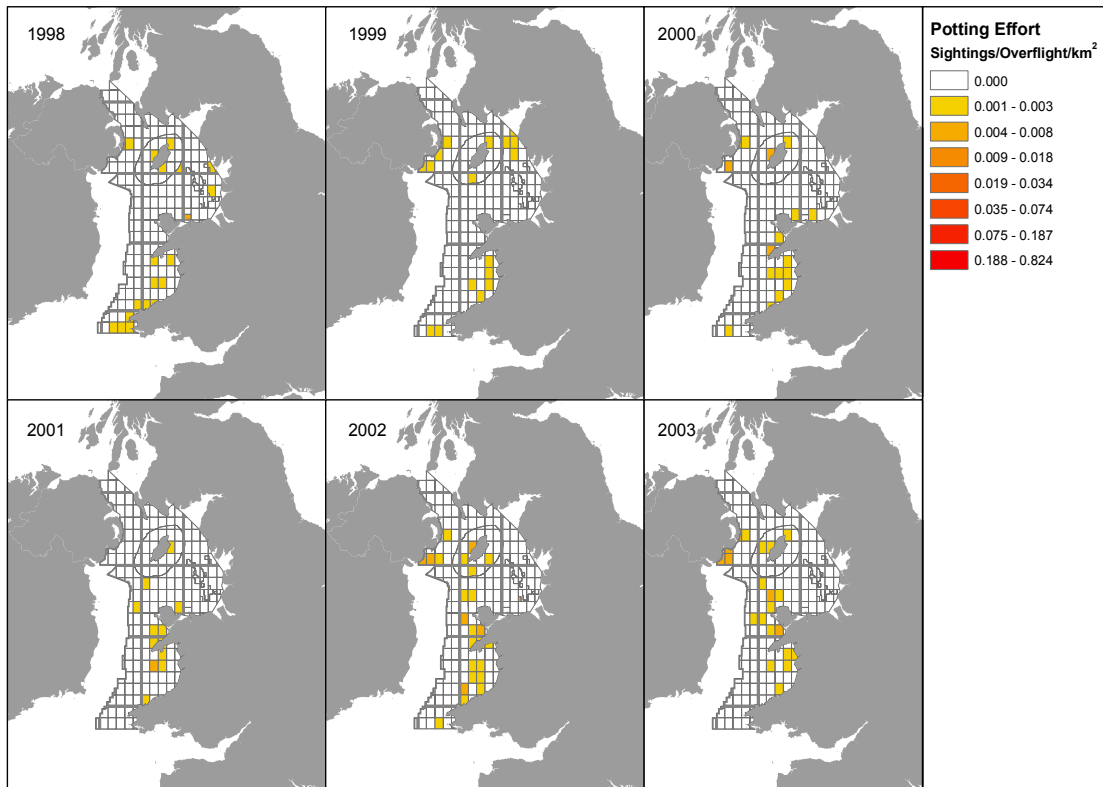
Source: CEFAS 2005

Figure 8.8 – Annual distribution of scallop dredging within SEA 6 (1998-2003)



Source: CEFAS 2005

Figure 8.9 – Annual distribution of potting within SEA 6 (1998-2003)



Source: CEFAS 2005

## Coastal fishing effort

### Demersal

Throughout coastal waters of the SEA 6, otter trawlers land plaice, sole and rays from spring to autumn, and cod and whiting during winter, and while the cod fishery off Whitehaven has declined, the haddock fishery has increased. In general, flatfish are the mainstay of inshore grounds, along with rays during the warmer months, especially within the Solway Firth and some shrimp beamers periodically switch to flatfish when shrimp are less available. The main target species for the netting fleets are sole, plaice, flounder, rays, turbot and brill, while longlines are used in a few areas to catch cod, rays and spurdogs (Pawson *et al.* 2002).

### Pelagic

Bass are taken in gill nets and on handlines from spring through to autumn, while some drift netting for herring occurs in autumn and winter, although effort is generally low as only small, local markets are supplied. Mackerel are also taken by nets, in small quantities, and on handlines in the charter angling sector.

### Shellfish

The main resource for many fishermen operating in Cardigan Bay, around the Lley Peninsula and Anglesey are lobsters, with pots typically set between April and November (Pawson *et al.* 2002). Brown crabs are also fished for off the Lley Peninsula, where <10m boats set pots out to 6nm from the coast. Many fishing ports along the Welsh coast support a small number of beach boats potting for crab and lobsters out to this distance. Crawfish are caught in tangle nets in a few rocky areas, as are spider crabs in the south of Cardigan Bay. Over the last twenty years potting for prawns in Cardigan Bay has increased, particularly between autumn and spring when the lobster fishery is at a seasonal low. From April to December, a shrimp fishery is pursued between the Dee and Duddon estuaries and *Nephrops* are taken by otter trawlers from the deep water areas off Whitehaven between May and August (Pawson *et al.* 2002). A number of other shellfish fisheries operate to the nearshore, including mussel, Manila clam and oyster cultivation and cockle harvesting by hand rakes and mechanical dredges, with both Morecambe Bay and the Solway Firth supporting important cockle fisheries.

### Diadromous fish

Scotland supports important commercial and recreational salmon and sea trout fisheries (Scottish Natural Heritage 2000). Compared to the north east and east coast of Scotland, catches of salmon and sea trout on the west coast are much smaller (FRS 2004). Notwithstanding this, the south west coast support important rod and line fisheries and in the case of the Solway, fixed engine fishery for salmon and sea trout. In 2003, the fishery districts of Clyde and Nith supported salmon and sea trout rod and line fisheries, accounting for 0.9% and 2.1% of the Scottish total respectively (FRS 2004). Angling can be of considerable economic importance and in Scotland, it is estimated that salmon and sea trout angling produces an estimated £80.9 million worth of annual output, supports over 2000 jobs and generates nearly £40 million in wages (Radford *et al.* 2004). In the SEA 6 area there are 14 rivers on the north west coast of England and 17 along the Welsh coast which support salmon and/or sea trout fisheries (Environment Agency 2003b). In England and Wales, salmon and trout are caught in seine, drift, haaf and trammel nets. In 2003, the rivers Eden and Esk (Solway) were the most important for salmon and trout caught by nets in the area, with 1,676 salmon and 799 trout caught, accounting for 9.7% and 2.7% of the England and Wales total (Environment Agency 2003b).



The rivers on the west coast also support a healthy angling industry, with several rivers recording relatively large rod catches of both salmon and sea trout. The top five rivers in the SEA 6 area for salmon rod catches in 2003 were the rivers Lune, Eden, Ribble, Derwent and Dee whilst the top five rivers for trout rod catches were the rivers Teifi, Lune, Dyfi, Ribble and Dwyfawr (Environment Agency 2003b).

## Fisheries management

The Common Fisheries Policy<sup>1</sup> (CFP), which was revised in 2002, is the overarching mechanism through which the major fisheries management decisions of relevance to the UK EEZ (including territorial waters - see below) are made. The CFP is implemented through the establishment of measures at the Community level such as the adoption of recovery and management plans, targets for the sustainable exploitation of stocks (including Total Allowable Catches for different species or TACs), limiting catches, fixing the number and type of fishing vessels authorised to fish, limiting fishing effort, spatial restrictions and other technical measures.

Under the CFP, community fishing vessels have equal access to waters and resources in all Community waters except:

- within the territorial waters of Member States, where the CFP allows Member States to restrict for a fixed period (to end 2012) fishing to those vessels *“that traditionally fish in those waters from ports on the adjacent coast”*, with the intent of protecting small local fisheries. The ability to restrict access is qualified and *“without prejudice”* to existing neighbourhood relations between Member States and to those arrangements contained in Annex I of the CFP which *“fix for each Member State the geographical zones within the coastal bands of other Member States where fishing activities are pursued and the species concerned”*. In practice this means that vessels from certain other Member States may fish within parts of the territorial waters of the UK and that UK vessels have rights in parts of the territorial waters of certain other Member States.
- that the measures adopted under the CFP may restrict or prohibit access (spatial, temporal and species).

The 2002 reform of the Common Fisheries Policy provided a legal foundation for the creation of seven *Regional Advisory Councils* (RACs). RACs are intended to increase stakeholder participation in the CFP process and they consist of representatives from the relevant fisheries sectors/areas together with other stakeholder groups. Within the UK responsibility for making Regulations relating to fisheries lies with the:

- Westminster Parliament for the English ‘zone’ of British fisheries limits and for waters off Wales outside the territorial sea and to English and Welsh vessels
- Department for Agriculture and Rural Development for Northern Ireland waters and to vessels from Northern Ireland
- Scottish Parliament for the Scottish zone of British fisheries limits and for Scottish vessels
- National Assembly for Wales for the 12 nautical mile territorial sea off Wales

There are 12 Sea Fisheries Committees (SFCs) in England and Wales established under the *Sea Fisheries Regulation Act 1966*. SFCs are local authority committees which regulate sea fisheries in their districts by means of byelaws. They cover most of the coast in England and Wales except certain estuaries, such as the Dee and Severn where the Environment Agency acts as an SFC. The seaward limit of SFC districts is 6 nautical miles the landward limit is

<sup>1</sup> Council Regulation (EC) No 2371/2002 of 20 December 2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy

generally the high water mark. SFCs are responsible for the management of fish stocks in their areas and for enforcement.

In Scotland, Ministers were granted powers to regulate fishing activity out to 6 nautical miles by the *Inshore Fishing (Scotland) Act, 1984*. The provisions of the 1984 Act are largely limited to prohibitions. The Scottish Executive Environment and Rural Affairs Department have instituted an Inshore Fisheries Branch within the Sea Fisheries Division.

The *Sea Fisheries (Shellfish) Act, 1967* (as amended) enables the granting of Several and Regulating Orders to individuals or companies for the purpose of severing or regulating the public right of fishing for a range of shellfish species e.g. by the issuing of licences, the temporal limitations on the fishery and the introduction of bag limits.

The European Commission introduced several emergency measures and a recovery plan for the Irish Sea cod, including, restrictions on the number of days that vessels can spend fishing and in 2000, spawning closures intended to maximise the cod egg production. Within the closure it was prohibited to use any demersal trawl, seine or similar towed net, any gillnet, trammel net, tangle net or similar static net or any fishing gear incorporating hooks. Derogations were permitted for *Nephrops* trawlers within defined areas and for certain beam trawls, and some limited experimental fisheries were permitted (with observers for bycatch of cod) in haddock and flatfish fisheries. This closure was continued but restricted to the western Irish Sea, west of 4°50'W (ICES 2004).

## 8.6 Ports and shipping

### Ports and shipping in the SEA 6 area

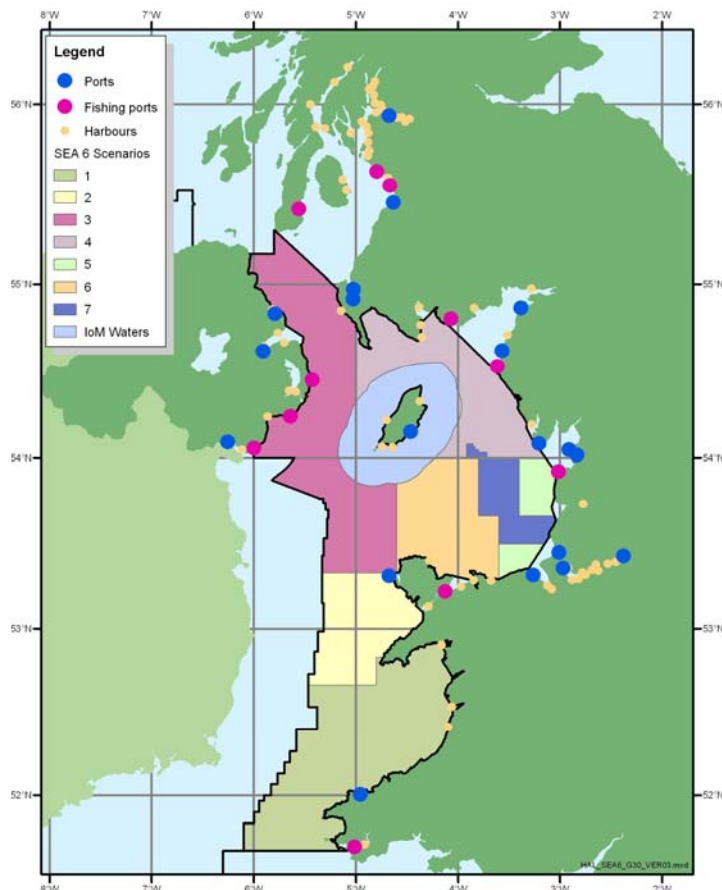


Figure 8.10 - SEA 6 Ports and harbours

Source: DEFRA 2003 UK Sea Fisheries Statistics

The main ports are Belfast, Liverpool and Milford Haven. However, the Irish Sea coast also supports a number of other industrial ports including the Clyde, Manchester and Larne) and there are a number of major fishing ports including Ardglass, Kilkeel, Kircudbright, Milford Haven and Portavogie (Figure 8.10). The majority of the industrial ports' border Scenario areas 3, 4, 5 and 7, with the exception of Milford Haven (Scenario area 1). The fishing ports follow a similar distribution.

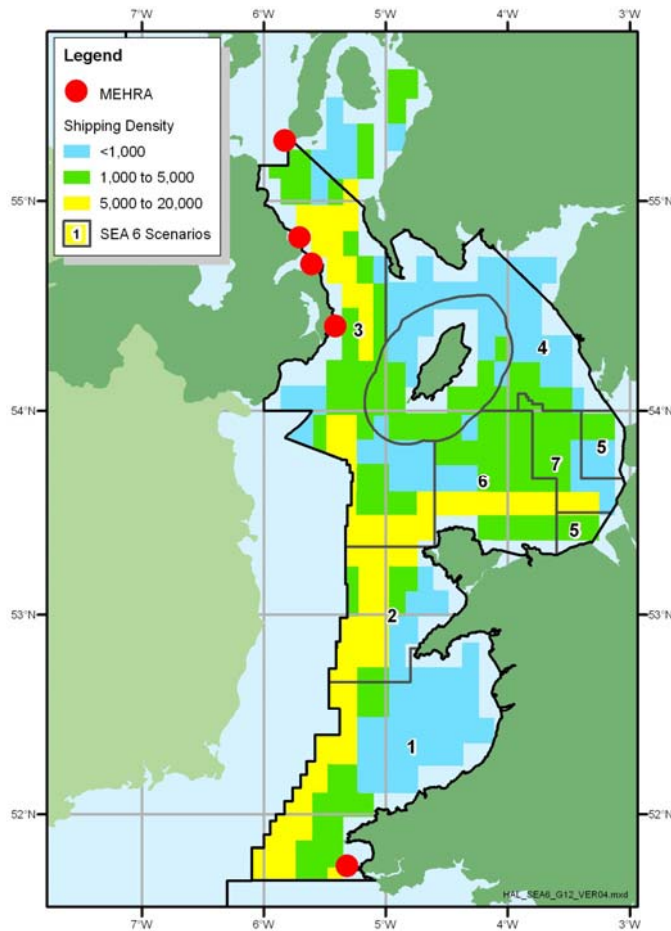


Figure 8.11 – Shipping density in the SEA 6 area

Source: DETR 1999

Areas off south Pembrokeshire, west Anglesey, Galloway and Northern Ireland, and offshore areas of SEA 6, have high shipping densities (5,000-20,000 vessels per annum), primarily associated with the movement of cargo vessels to and from various ports, and ferry traffic.

Moderate shipping densities (1,000-5,000 vessels) are experienced in all Scenario areas within SEA 6, particularly around the west coast of Wales and the Cumbrian and Scottish coasts. Most other nearshore areas of have predominantly low (<1,000 vessels per annum) shipping densities (Figure 8.11).

### Management issues

Nearly all traffic separation schemes in UK waters are IMO-adopted.

Traffic separation schemes in and around the SEA 6 area are given in Table 8.1.

Table 8.1 – Traffic separation schemes in and around the SEA 6 area

Site	Location	Scenario area
Off Tuskar Rock	52°08'.5N, 6°03'.8W	West of area 1
North Channel	55°20'.6N, 6°02'.3W	3
Off Smalls	51°45'.7N, 5°52'.5W	1
Off Skerries	53°22'.8N, 4°52'.0W to 53°32'.1N, 4°31'.6W	6
Holyhead Harbour entrance <sup>1</sup>	53°19'.5N, 4°36'.5W	2

Notes: 1. Scheme is not IMO-adopted. Irish Coast Pilot 1997, West Coasts of England and Wales Pilot 1999

In response to the 1993 *Braer* oil spill, the 1994 Donaldson Inquiry proposed the establishment of Marine Environment High Risk Areas (MEHRAs) in order to protect marine areas of high environmental sensitivity at risk from shipping. An assessment was carried out to identify the environmental sensitivity of the UK coastline and coastal waters and an inter-departmental group, which includes representatives from a number of governmental and non-governmental groups, are due to publish the identity of UK MEHRAs for consultation. The location of MEHRAs will be brought to the attention of ship owners and insurers in order to encourage ship routing to avoid these sites. There are five potential MEHRAs within SEA 6: four in Scenario area 3 (off the north east coast of Northern Ireland and the Mull of Kintyre) and one in Scenario area 1 (around the islands of Skokholm and Skomer) (Figure 8.10) (DETR 1999).

The IMO defines Particularly Sensitive Sea Areas (PSSA) those in need special protection because of its significance for ecological, socio-economic or scientific reasons and which may be vulnerable to damage by international maritime activities. Specific measures can be used to control the maritime activities in the PSSA such as vessel routing and strict application of MARPOL discharge and equipment requirement for ships (IMO website – <http://www.imo.org/home.asp>). In October 2004, the IMO Marine Environment Protection Committee agreed to designate the Western European Waters, which includes the whole of the SEA 6 area, as a PSSA. In addition, the committee also adopted the revised MARPOL Annex 1 Regulations for the prevention of pollution by oil including the phasing-in of double hull requirements for oil tankers (expected in force on start 2007).

The National Contingency Plan was published by the MCA in 2000 and has been extensively tested through exercises and use in actual incidents. The *Merchant Shipping (Oil Pollution, Preparedness, Response and Co-operation Convention) Regulations 1998*, requires UK ports, harbours and oil handling facilities to hold approved oil spill response contingency plans. The *Marine Safety Act 2003* provides powers of intervention and direction to the Secretary of State's Representative for Maritime Salvage and Intervention (the SOSREP), working with the MCA. The SOSREP oversees all incidents in UK waters where there is significant risk of pollution, and may direct vessels to places of refuge when judged appropriate. Anywhere around the UK's coasts could be identified as a place of refuge depending on the nature of the incident and prevailing circumstances.

## 8.7 Mariculture

### Overview

The south-west coast of Scotland has many sheltered sites suitable for finfish and shellfish cultivation and is where the majority of cultivation within SEA 6 takes place.

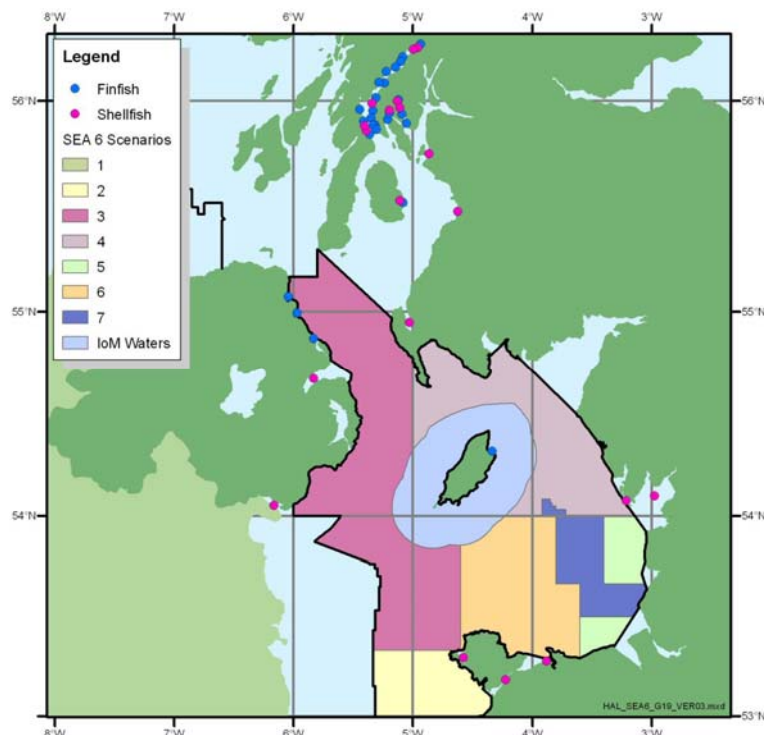


Figure 8.12 – Mariculture sites in the SEA 6 region

Source: FRS website, CEFAS website

### Finfish

In the SEA 6 area, finfish farms are confined to the sheltered sea lochs of south west Scotland and three sites in Northern Ireland (Figure 8.12). Atlantic salmon is the main species cultivated and in 2002 production (in the Scottish area bordering the Irish Sea) amounted to 8821 tonnes (Pers. Comm. R Smith, FRS) and approximately 208 tonnes (Northern Ireland) (Northern Ireland Seafood website).

Other species cultivated in Scotland, although not to date in the SEA 6 area, include halibut, rainbow trout and Arctic Char. In the southern part of the SEA 6 area, although there are no



marine finfish farms, there are two land based units rearing turbot (*Psetta maxima*), lemon sole (*Microstomus kitt*) and sea bass (*Dicentrarchus labrax*) on Anglesey and on the Llyn Peninsula, and total production from these units in 2003 was approximately 100 tonnes (Pers. Comm. Ian Laing, CEFAS). There is also a site on the Isle of Man which rears juvenile turbot for export.

### Shellfish

In west of Scotland sea lochs, mussel, Pacific oyster, native oyster, king scallop and queen scallop are farmed (Figure 8.12). In 2003, total production from this area amounted to 284 tonnes. Seed Pacific oysters reared for the export market and for on-growing in the UK are produced at Walney Island, while Pacific oysters for the table market are produced at a nearby site in Morecambe Bay and two sites on Anglesey. Mussels are produced in the Menai Strait, off Penrhos Point (Anglesey) and in the Conwy estuary. Morecambe Bay is an important source of seed mussel for the Menai Strait fishery (Figure 8.12).

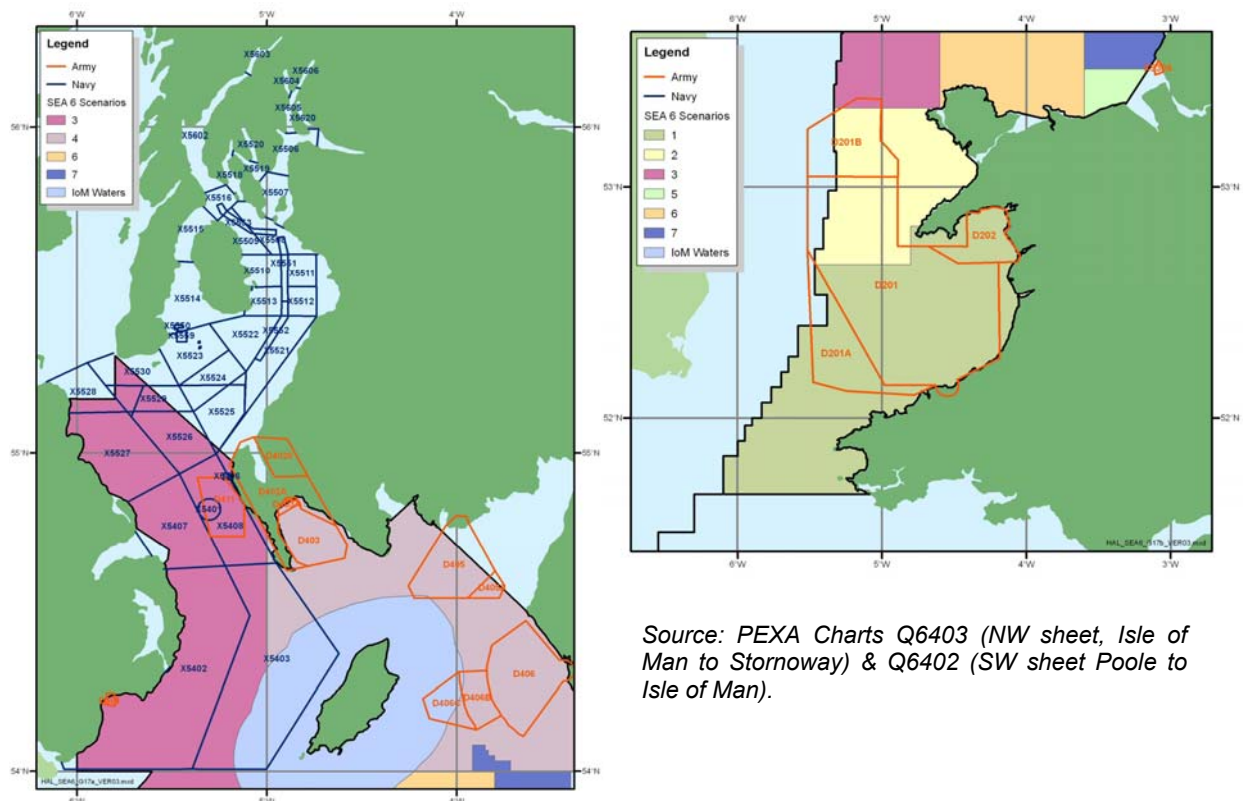
### Seaweed

A seaweed farm is located at Strangford Lough, Northern Ireland.

## 8.8 Military activity

The northern part of the SEA 6 area is extensively used by the Navy for a range of activities including non-firing exercises, practices and trials, submarine exercises and mine counter measures (Figure 8.13). No naval exercises occur in the southern part of SEA 6. Army exercises occur throughout SEA 6 but are most extensive in the southern part.

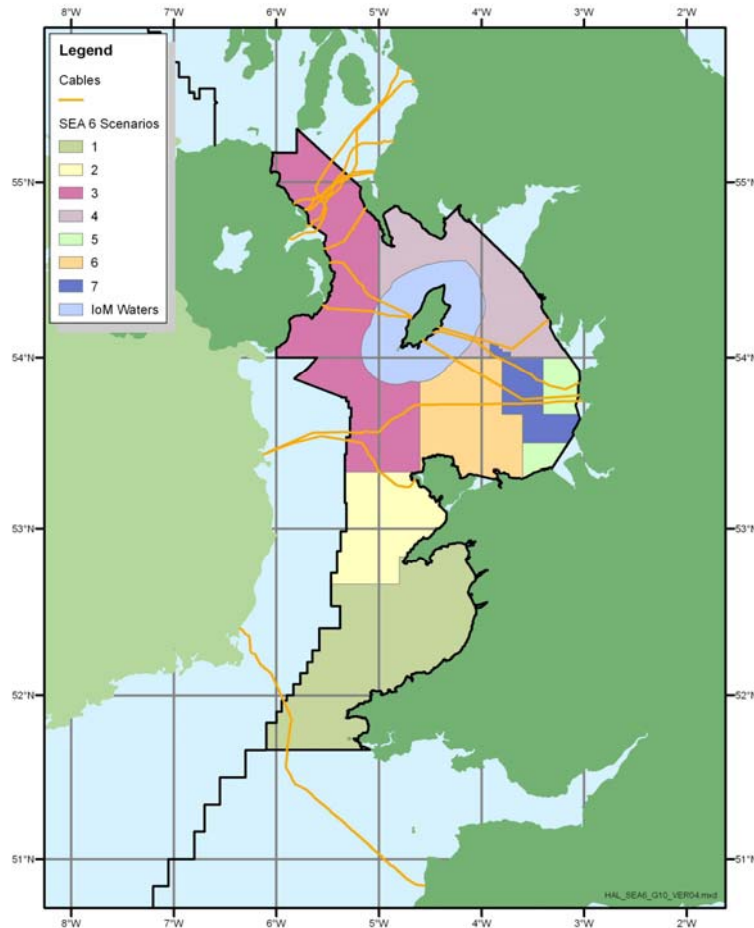
Figure 8.13 - Military activity in the SEA 6 area



Source: PEXA Charts Q6403 (NW sheet, Isle of Man to Stornoway) & Q6402 (SW sheet Poole to Isle of Man).



## 8.9 Telecommunication cables



*Figure 8.14 – Submarine telecommunication cables*

Source: Kingfisher Cable Awareness website <http://www.kisca.org.uk>

In the late 1990s, there was major growth in deployment of submarine telecommunications cables around the world, including the UK. It is believed that immediate future growth in the number of cables will be slow until such time as technology applications evolve to use the mass surplus transmission capacity currently available (The Crown Estate website).

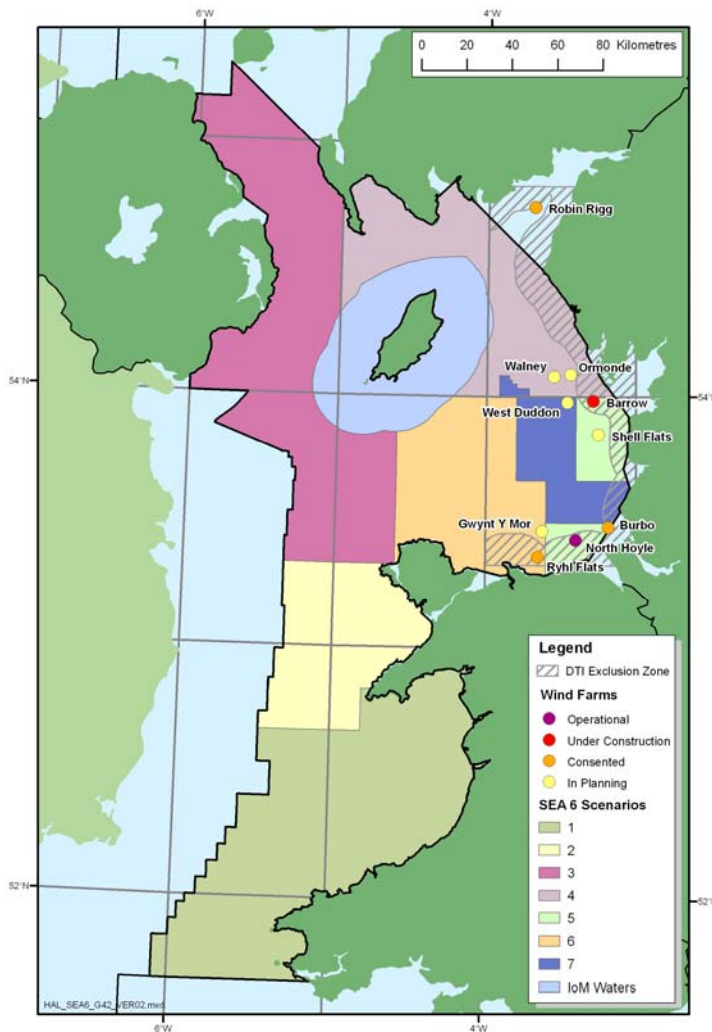
There are 14 telecommunication cables which cross the SEA 6 area (Figure 8.14). The majority of these cables traverse the northern Irish Sea, with only one each in scenario areas to the south.

## 8.10 Renewable Energy

The Irish Sea is rich in potential sources of offshore renewable energy including wind, wave and tidal (see DTI's Renewable energy atlas). SEA 6 is an important area for offshore wind energy developments and includes the UK's first large-scale offshore wind farm.

### Wind

Offshore wind energy is expected to be a major contributor towards the Government's 2010 target for renewable electricity generation (The British Wind Energy Association website-<http://www.bwea.com>).



**Figure 8.15 – Offshore wind farms in the SEA 6 area**

Sources: British Wind Energy Association website, The Crown Estate website.

A total of 13 offshore wind farm developments have been awarded site options within the SEA 6 area. Ten of these site options were awarded to developers during round one of The Crown Estate's UK Offshore Wind Development initiative and the remainder, which are larger developments situated further offshore, were awarded during the second round. Only 4 of the SEA 6 DTI scenario areas are currently set to contain offshore windfarm developments. Of these 13 wind farms, seven are still in the planning stage and require formal planning approval (see Figure 8.16)

Scenario area 4 contains 4 sites, area 5 contains 6, area 6 contains 2 and area 7 has approval for one wind farm. .

A recommendation from the SEA conducted prior to the 2<sup>nd</sup> round of offshore windfarm leasing, was that an inshore zone of 8km from the shore be excluded and this was extended to 13km in places of particular environmental sensitivity (see Figure 8.15). . This exclusion zone was set for Round 2 and will be reviewed at the time of any subsequent round. Following construction of all 13 of these developments, offshore wind farms in the SEA 6 area will have an installed power capacity of approximately 2.6GW, providing electricity for over 1.4 million homes in the vicinity. Outwith the SEA 6 area the Arklow Bank Wind park, Ireland's first offshore wind project, is now operational. The wind farm is located approximately 10km off the coast of Arklow and has an installed power capacity of 25MW.

## Tidal and Wave

At present only a few technologies have progressed to full-scale deployment and testing. There are several companies presently actively involved in the construction of such devices. Wave energy has the potential to provide as much renewable energy as the wind industry, but wave technology is still in development (DTI website). The potential for wave and tidal power generation in the SEA 6 area is detailed in the DTI Atlas of UK Marine Renewable Energy Resources (2005). This report indicates that the majority of the SEA 6 area has an annual mean wave power of 0-15Kw/m of wave crest, with a maximum of 25Kw/m off the

Pembrokeshire coast. It is worth noting that the maximum value detailed in the atlas is greater than 70kw/m of wave crest.

### 8.11 Coastal settlements

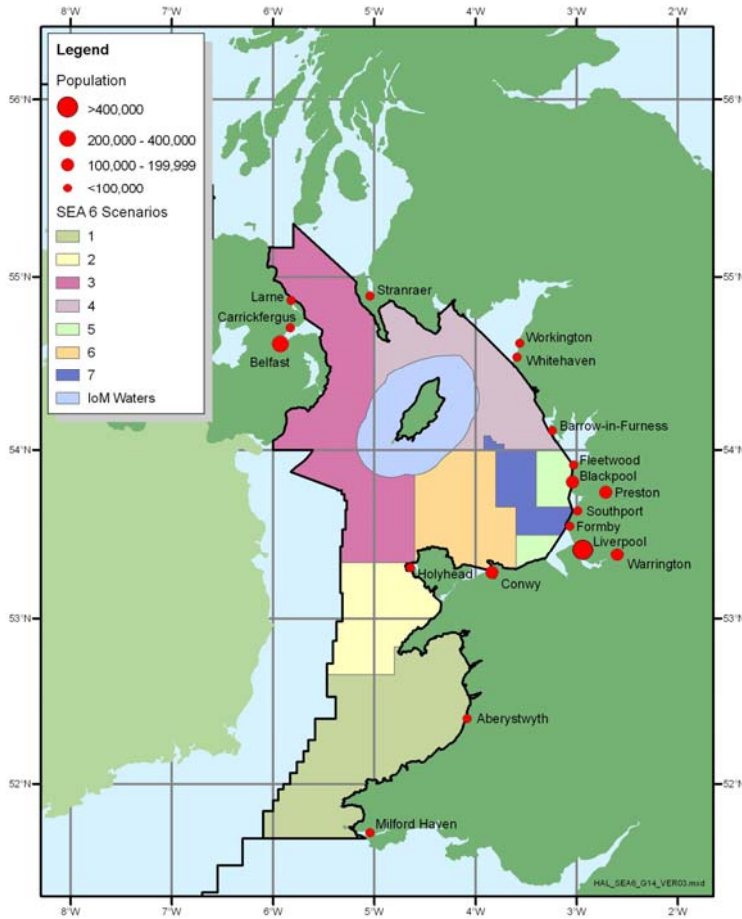


Figure 8.16 - Major coastal settlements in the SEA 6 area

The stretch of coast between Liverpool Bay and the Solway Firth (Scenario areas 4, 5 and 7) is one of the most intensively developed and populated coasts in the UK, in contrast to rural coastal areas such as Ceredigion, Argyll and Bute and Dumfries and Galloway, which are relatively sparsely populated (Figure 8.16).

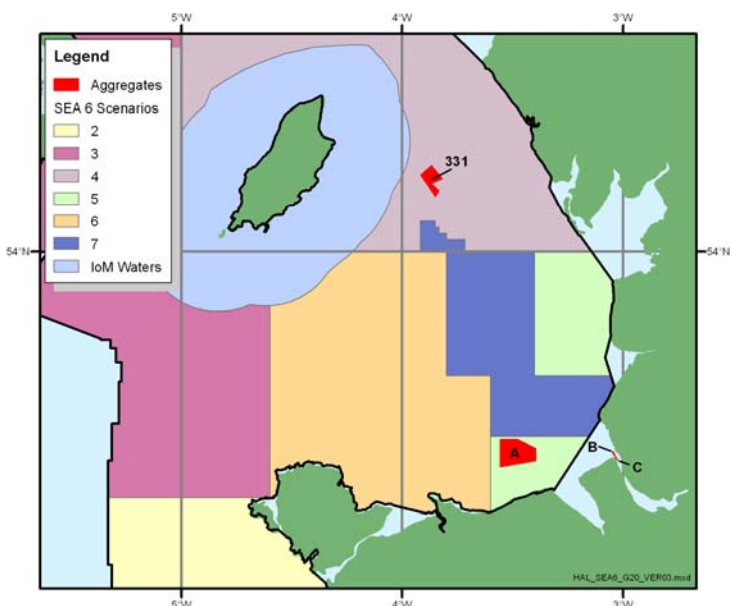
In 2001, the total population residing in the SEA 6 council areas was more than 3.7 million (Neighbourhood Statistics website). Of these, 12% resided in Liverpool, 8% in Wirral and 7.5% in both Sefton and Belfast).

### 8.12 Aggregate extraction

Figure 8.17 - Licensed areas for aggregate extraction

Source: The Crown Estate website - <http://www.thecrownestate.co.uk>

Extraction of seabed sand and gravel is licensed by the Crown Estate. The main areas of aggregate extraction in the UK are off England’s east and south coast and in the Bristol Channel. In the SEA 6 area there are four active licensed aggregate extraction areas, one in Liverpool Bay, two small sites at the mouth of the Mersey Estuary and a site off the Cumbrian coast (Figure 8.17).



### 8.13 Marine disposal

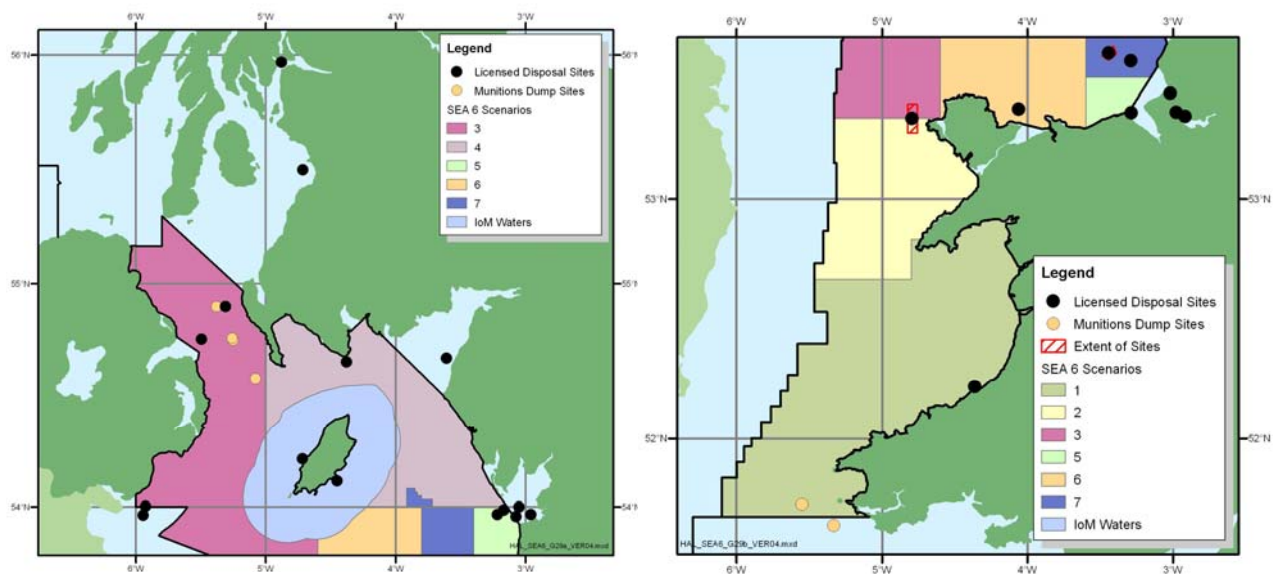
Since 1998, most forms of disposal at sea have been prohibited, the only significant exception being dredged material from ports and harbours. Disposals are controlled under a licence system, the responsibility of which lies with DEFRA (England and Wales), SEERAD (Scotland) and the Department of the Environment for Northern Ireland. In 2004, there were 13 sites licensed for the disposal of dredged material within the SEA 6 area (Figure 8.17).

Since the end of the First World War, the disposal of chemical weapons and munitions at sea has taken place and one of the most heavily used areas for dumping conventional and chemical warfare munitions in the north-east Atlantic, Beaufort's Dyke, is located within SEA 6. This area is a 200-300m deep trench between Scotland and Northern Ireland, and in excess of 1 million tons of munitions is estimated to have been dumped in the Beaufort's Dyke since the early 1920s.

In 1995 a survey was carried out of the Beaufort's Dyke explosives disposal site to determine the distribution and densities of dumped material and there was chemical contamination. Side-scan sonar and underwater surveys of the area were carried out and samples of seabed sediment and commercial fish and shellfish species were also taken. Further surveys were undertaken in 1996 and the combined results from the 1995 and 1996 surveys were published in a final report (Fisheries Research Services 1996). The centre of distribution of dumped munitions material was found to be within and immediately adjacent to, the northeast sector of the explosive disposal site. Large quantities of material were also in the area adjacent to the northeast sector of the disposal site, while moderate quantities of unidentified man-made material, probably associated with munitions disposal was located in two smaller areas adjacent to the west and southwest boundaries of the disposal site.

In 2004 there were six chemical weapons and munitions dump sites in or bordering the SEA 6 area, four of which are within Beaufort's Dyke and two off the coast of Pembrokeshire (Figure 8.18).

Figure 8.18 - Licensed disposal sites for dredged material in the SEA 6 area



Source: Pers. Comm. Sue Reed DEFRA, Peter Hayes FRS & Paul McAnulty DOENI



## 8.14 Locally important coastal activities

### Quarrying

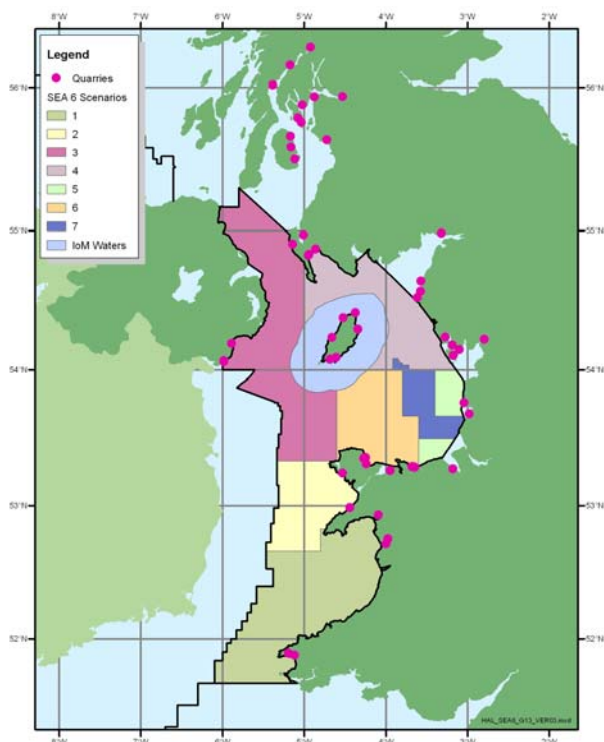


Figure 8.19 – Coastal quarries in the SEA 6 area

Source: Luddington & Moore 2005

There are 60 coastal quarries (<2km inland) within the SEA 6 area (Figure 8.19) for a variety of minerals including igneous and metamorphic rock, sand and gravel, limestone and slate.

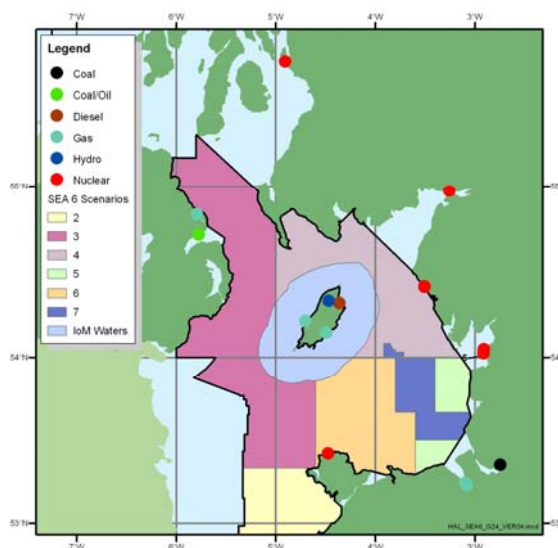
### Power stations

Figure 8.20 – Power stations in SEA 6 area

Source: DTI Energy website <http://www.dti.gov.uk/energy>, BNFL website <http://www.bnfl.com>, Northern Ireland Energy Map <http://www.detina.gov.uk>

In 2005, five nuclear power stations were operational in the SEA 6 area Hunterston B, Chapelcross, Heysham 1 and Heysham 2, and Wylfa (Figure 8.20).

Sellafield is also in the SEA 6 area but is no longer an active nuclear power station. In addition, there are also a number of hydro, coal and gas power stations.



## 8.15 Relevant data gaps

Whilst a number of data gaps exist on existing uses of the SEA 6 area, these are not considered significant with regard to strategic assessment of the implications of the DTI's draft plan. However, an important gap in the information base for the assessment of individual activities/developments is confirmed catch species, weights and values from vessels of less than 10m length.