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**OFFSHORE ENERGY STRATEGIC  
ENVIRONMENTAL ASSESSMENT  
PROGRAMME**

**TECHNICAL REPORT ON THE  
OTHER USERS OF THE SEA 8  
AREA**

REPORT NO. R1673, REV 1

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## SUMMARY

The purpose of this report is to provide an initial assessment of what is termed the “Other Users” of the SEA 8 area. These other users include those significant human activities and infrastructure occurring in the marine and coastal zone, and not addressed by other SEA 8 data reports. Fisheries, maritime archaeology (wrecks), and boating (recreational) are therefore excluded. The report summarises current activity in the area and, where possible, discusses likely future trends. It also summarises the relevance of each activity to any future proposed oil and gas activity. Where appropriate, comment is made about the potential sensitivity of an “Other User” to oil and gas development, or the potential restrictions to oil and gas development presented by existing users.

The SEA 8 area covers the sea area off the southwest and southern UK coastline. It extends between 10° W, the edge of the 200 nautical mile limit, in the west and to 1.5° E, just west of Dover and Folkstone, in the east. Its most northerly extent is 51° 40.5' N (immediately south of and excluding Milford Haven), and the most southerly extent is 48° 05' N, in the far west. The majority of the area is on the continental shelf, but in the far west it extends across the shelf break into water depths of greater than 1,000 m. Much of the SEA 8 area is bounded either by Irish or French territorial waters.

Although inshore waters within the bay enclosure lines will not be included in offshore oil and gas licensing, they are included in this assessment because they may be subject to related impacts. This summary provides an overview of the activities covered in the report and its conclusions. **Figure 1.1** shows the spatial extent and distribution of “Other Users” described. For further details, please refer to the appropriate section of this report.

## COASTAL POPULATIONS

The total near-coastal population living within the SEA 8 area is over eight million. Coastal land use within the SEA 8 area is mixed, varying from heavily settled and industrialised conurbations through regions characterised by prosperous small towns to marginal agricultural land. In the latter (mainly in the western parts of the region) population density is low. Throughout the region there are coastal settlements, largely based on inlets in the west, but which become near continuous in the eastern part of the English Channel.

Much of the region is characterised by relatively low unemployment. However, part-time and seasonal work is common in the more rural areas, where tourism has become a major economic factor, largely replacing traditional industries such as mining and fishing.

There is a general tendency to increasing population throughout much of the region, the exceptions being settlements which have been dependant on heavy industry in the past. The growth in population is frequently accompanied by a relative increase in the over 45-year age groups, particularly along the south coast.

## **PORTS AND SHIPPING**

Shipping activity for vessels of all sizes and types is highly important in the SEA 8 area. The region includes a number of major cargo ports, seven of which handle over two million tonnes annually. There are international and domestic ferry ports, important fishing industry centres and a large number of recreational facilities. In addition, the area includes one of the world's busiest through routes for shipping.

## **OIL AND GAS ENERGY**

At the moment, there is little interest in oil and gas extraction from offshore sources in SEA 8 area, because no economic reserves have been shown to exist. This situation may change as a result of technological and economic changes. The area includes Western Europe's most productive on-shore oil field (Wych Farm, Dorset) with reserves extending under the adjacent seabed. These reserves are currently accessed from land.

## **RENEWABLE ENERGY**

The south-western coastline offers many advantages for offshore renewable energy extraction, with high wave exposure and strong tidal currents, particularly on the two peninsular coastlines. Feasibility studies for both wave and tidal developments ranging from major tidal barrage schemes to a pre-commercial array of tidal turbines have been undertaken. A "Wave Hub" development to provide an offshore connection point for arrays of wave energy devices is currently in the consenting phase.

Wind energy is also an attractive option, although suitable sites for offshore windfarm construction may prove problematic due to water depth restrictions (currently the

deepest depth in which turbines are being deployed is 45 m). There is an existing ('Round 1') licence for offshore wind farm development at Scarweather Sands, in the Swansea Bay/Bristol Channel, but there is currently a delay in the development at this site and its future is uncertain.

There is considerable potential for offshore renewable energy development in the SEA 8 area, particularly for wave and tidal developments, and the level of resource available in the SEA 8 area also suggests that further, larger scale projects will be developed in the future.

## **CABLES**

The SEA 8 area contains a number of important hubs for international telecommunications, with a large concentration of sub-marine cables in the waters surrounding and to the west of the Cornish peninsula. These include Trans-Atlantic links both from the UK and other European states and UK-Europe links. There are also cables which are no longer in commercial use, some of which may be employed for research purposes. Any future developments in offshore renewable energy exploitation in the region will be accompanied by the installation of associated power cables.

## **MILITARY ACTIVITY**

Military activity, particularly naval, is considerable throughout SEA 8, occupying about 80% of the area and includes the UK's two largest Royal Navy bases (Portsmouth and Devonport) and the only military port (Marchwood).

The spatial extent of the military exercise areas in the SEA 8 area means that any future oil and gas development is likely to occur in areas designated for use by the armed forces. Provided there is sufficient planning and consultation between the oil and gas industry and the Ministry of Defence (MoD) the presence of a PEXA does not necessarily preclude other activities.

## **DREDGING AND AGGREGATE EXTRACTION**

Aggregate dredging is an important economic activity within the SEA 8 region. Most of the areas licensed for dredging are either close to the shore or in inshore waters, and are unlikely to impinge on offshore oil and gas extraction.

## **MARINE WASTE DISPOSAL (INCLUDING ORDNANCE)**

There are 38 marine disposal sites listed around the SEA 8 coastline as licensed to receive dredging waste. The disposal of this material at sea is considered as relocation. Where industrial estuaries have been dredged such waste material can contain a variety of contaminants, some of which are persistent in the marine environment and could be mobilised by oil and gas related operations. There are also four relict sewage sludge disposal sites (used up to 1998, with monitoring since). All are dispersive and are considered to have caused little long-term effect on the seabed. In addition, there are five munitions sites in the SEA 8 area. Non-listed munitions containing vessel remains may be encountered throughout the area.

## **MARICULTURE**

Mariculture is the cultivation of marine species in coastal waters. The harvesting of naturally present shellfish is widespread throughout the SEA 8 area, with a number of sites where cultivation is either currently carried out or is possible. All shellfish waters are sensitive to hydrocarbon contamination through tainting of the product.

## **TOURISM AND RECREATION**

Coastal tourism is important throughout the SEA 8 area and is a major economic factor in the rural regions. A considerable portion of the SEA 8 coastline is listed and protected as either of National or World Heritage value. The recent threat to the “Jurassic Coastline” (South Devon and Dorset) through pollution following the wrecking of the MV “Napoli”, and damage to the Bristol Channel coast following the “Sea Empress” grounding some years ago, indicates the vulnerability of the SEA 8 coastline.

Predominantly land-based outdoor activities include walking, geology and simple sight-seeing. The long-distance coastal paths of the Pembroke and South-West Peninsulas are, in themselves, major tourist attractions.

The South and South-West peninsular coast is also of considerable importance for all water sports, particularly sailing. Other popular coastal recreational activities include sea angling, swimming, surfing, canoeing, windsurfing and scuba diving. A considerable total mileage of the coastline is regulated under the EU Bathing Waters Directive.

Given the importance of tourism and recreation in the SEA 8 area, any future oil and gas exploration and production activities should avoid negative impacts on the natural environment and coastal landscape.

## **OTHER LOCALLY IMPORTANT ACTIVITIES**

There are a range of activities within the SEA 8 area, not discussed elsewhere, which are of economic or cultural importance and are dependent on coastal locations. Whilst mining (with its associated shipping requirements) of metals and coal has declined as an employer, quarrying remains locally important, particularly in Cornwall, with coastal sites providing a ready means of transport. The power industry, both conventional and nuclear, is important in the SEA 8 area and depends on the sea for transport of fuels and for a supply of cooling water. Educational facilities at all levels, from those associated with the tourist industry to major oceanographic research institutions, derive much of their value from access to the coastline and ocean.

## **COASTAL AND MARINE MANAGEMENT INITIATIVES**

A diverse management framework exists to monitor, influence and regulate activities in the marine and coastal zone. These range from development plans that regulate coastal developments, Shoreline Management Plans for coastal protection, coastal water quality initiatives, nature conservation initiatives, and integrated coastal zone management initiatives.

Many of these are terrestrial or coastal in nature and would only be directly relevant to coastal infrastructure associated with offshore oil and gas activity. For example, the EC Water Framework Directive (WFD) which will eventually integrate or replace existing water quality initiatives. It is applied by UK out to 3 nautical miles from the coast and is, therefore, unlikely to be relevant to most offshore activity. Offshore operations are more likely to be restricted by moves to designate offshore nature conservation sites out to the limit of the UK continental shelf under the EC Habitats and Birds Directives (Natura, 2000).

The Marine Bill/EC Marine Framework Directive (in varying stages of preparation) will probably result in an extension of WFD type control out to the edge of the continental shelf.

## CONCLUSIONS

Ports and shipping (including fishing), coastal tourism and the power supply industry are all important economic factors in the SEA 8 area. These sectors are concentrated around the coastal zone and waters within the 3 nautical mile limit, where development planning and environmental constraints are greatest. The scenic value and pristine nature of much of the coastal environment is also a valued feature of the region. Given that the majority of any future oil and gas development in SEA 8 is likely to be in offshore areas, significant conflict with inshore activities would be largely avoided. Should new oil and gas activities take place, it is likely that existing infrastructure, such as refineries, would be utilised. Additional infrastructure would potentially impact the coastline.

Existing activities beyond 3 nautical miles with potential to restrict offshore oil and gas development include shipping, military activity, wave energy projects, and submarine cables. The amount of military activity along the south coast of England is considerable and would be an issue to future development, requiring discussions with the Ministry of Defence (MoD). **Figure 1.1** shows the extent of offshore activities in the SEA 8 area. There is also interest in developing marine renewable energy production in SEA 8.



*This document was produced as part of the UK Department of Trade and Industry's offshore energy Strategic Environmental Assessment programme. The SEA programme is funded and managed by the DTI and coordinated on their behalf by Geotek Ltd and Hartley Anderson Ltd.*

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# CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	<b>1</b>
<b>2</b>	<b>COASTAL POPULATIONS</b> .....	<b>4</b>
2.1	INTRODUCTION.....	4
2.2	DEMOGRAPHICS AND SOCIO-ECONOMICS.....	4
2.3	MAIN ISSUES AFFECTING SEA 8 AREA.....	16
2.4	RELEVANCE FOR SEA 8.....	17
2.5	SOURCES OF INFORMATION.....	17
<b>3</b>	<b>PORTS AND SHIPPING</b> .....	<b>19</b>
3.1	INTRODUCTION.....	19
3.2	ACTIVITY IN THE SEA 8 AREA.....	19
3.3	MANAGEMENT ISSUES AND INITIATIVES.....	28
3.4	RELEVANCE FOR SEA 8.....	31
3.5	SOURCES OF INFORMATION.....	31
<b>4</b>	<b>OIL AND GAS INDUSTRY</b> .....	<b>33</b>
4.1	INTRODUCTION.....	33
4.2	ACTIVITY IN THE SEA 8 AREA.....	33
4.3	MANAGEMENT ISSUES AND INITIATIVES.....	35
4.4	RELEVANCE TO SEA 8.....	35
4.5	SOURCES OF INFORMATION.....	36
<b>5</b>	<b>RENEWABLE ENERGY</b> .....	<b>37</b>
5.1	INTRODUCTION.....	37
5.2	ACTIVITY IN THE SEA 8 AREA.....	37
5.3	MANAGEMENT ISSUES AND INITIATIVES.....	43
5.4	RELEVANCE TO SEA 8.....	43
5.5	SOURCES OF INFORMATION.....	44
<b>6</b>	<b>CABLES</b> .....	<b>45</b>
6.1	INTRODUCTION.....	45
6.2	ACTIVITY IN SEA 8.....	45
6.3	RELEVANCE FOR SEA 8.....	45
6.4	SOURCES OF INFORMATION.....	48
<b>7</b>	<b>MILITARY ACTIVITY</b> .....	<b>49</b>

7.1	INTRODUCTION.....	49
7.2	ACTIVITY IN THE SEA 8 AREA .....	49
7.3	RELEVANCE FOR SEA 8 .....	52
7.4	SOURCES OF INFORMATION.....	52
<b>8</b>	<b>DREDGING AND AGGREGATE EXTRACTION.....</b>	<b>53</b>
8.1	INTRODUCTION.....	53
8.2	ACTIVITY IN SEA 8 AREA .....	53
8.3	MANAGEMENT ISSUES AND INITIATIVES .....	59
8.4	RELEVANCE TO SEA 8 .....	60
8.5	SOURCES OF INFORMATION.....	60
<b>9</b>	<b>MARINE WASTE DISPOSAL (INCLUDING ORDNANCE).....</b>	<b>61</b>
9.1	INTRODUCTION.....	61
9.2	ACTIVITY IN THE SEA 8 AREA .....	61
9.3	RELEVANCE TO SEA 8.....	65
9.4	SOURCES OF INFORMATION.....	66
<b>10</b>	<b>MARICULTURE.....</b>	<b>67</b>
10.1	INTRODUCTION.....	67
10.2	MARICULTURE IN THE SEA 8 AREA.....	67
10.3	MANAGEMENT ISSUES AND INITIATIVES .....	69
10.4	RELEVANCE FOR SEA 8 .....	72
10.5	SOURCES OF INFORMATION.....	72
<b>11</b>	<b>TOURISM AND RECREATION .....</b>	<b>73</b>
11.1	INTRODUCTION.....	73
11.2	ACTIVITY IN SEA 8 AREA .....	73
11.3	RELEVANCE TO SEA 8.....	78
11.4	SOURCES OF INFORMATION.....	79
<b>12</b>	<b>OTHER LOCALLY IMPORTANT ACTIVITIES.....</b>	<b>81</b>
12.1	INTRODUCTION.....	81
12.2	ACTIVITY IN SEA 8 AREA .....	81
12.3	RELEVANCE TO SEA 8.....	83
12.4	SOURCES AND INFORMATION .....	83
<b>13</b>	<b>COASTAL AND MARINE MANAGEMENT INITIATIVES .....</b>	<b>85</b>

13.1 INTRODUCTION.....85

13.2 THE MARINE FRAMEWORK DIRECTIVE AND MARINE BILL.....85

13.3 INTEGRATED COASTAL ZONE MANAGEMENT .....86

13.4 COASTAL DEVELOPMENT PLANNING .....86

13.5 COASTAL PROTECTION.....90

13.6 COASTAL WATER QUALITY INITIATIVES .....92

13.7 COASTAL AND MARINE NATURE CONSERVATION INITIATIVES .....94

13.8 IMPLICATIONS FOR SEA 8 DEVELOPMENT .....94

13.9 SOURCES OF INFORMATION.....94

**14 REFERENCES.....97**

**APPENDIX A TELECOMMUNICATIONS CABLES IN THE SEA 8 AREA.....A-1**

**APPENDIX B MILITARY ACTIVITY AREAS (PEXAS) IN THE SEA 8 AREA..... B-1**

## TABLES

TABLE 2-1: POPULATION IN THE SEA 8 AREA.....	4
TABLE 2-2: MAJOR SETTLEMENTS IN THE SEA 8 AREA (2001).....	7
TABLE 2-3 : AGE STRUCTURE OF THE POPULATION IN THE SEA 8 AREA, 2001 (PERCENTAGES).....	10
TABLE 2-4: ECONOMIC ACTIVITY IN THE SEA 8 AREA.....	11
TABLE 2-5: PERCENTAGE OF PEOPLE AGED BETWEEN 16-74 BY INDUSTRY OF EMPLOYMENT IN THE SEA 8 AREA.....	13
TABLE 2-6: OCCUPATIONAL GROUPS IN SEA 8 .....	15
TABLE 3-1: FOREIGN AND DOMESTIC TRAFFIC (MILLION TONNES) HANDLED BY MAJOR PORTS IN THE SEA 8 AREA: 2003 – 2005.....	20
TABLE 3-2: FISH LANDINGS BY UK FLEET INTO MAJOR PORTS IN THE SEA 8 AREA 2004 .....	21
TABLE 3-3: VESSEL TYPES INCLUDED IN THE UPDATED COAST DATABASE .....	25
TABLE 3-4: MARINE ENVIRONMENTAL HIGH RISK AREAS (MEHRAs) IN THE SEA 8 AREA.....	29
TABLE 8-1: AREAS OF SEABED LICENSED AND EXPLOITED FOR AGGREGATE EXTRACTION IN SEA 8 (2005).....	57
TABLE 8-2: PERMITTED AND ACTUAL REMOVAL AND USE OF AGGREGATES IN 2005 BY WEIGHT (METRIC TONNES).....	57
TABLE 8-3: COMPANIES CARRYING OUT DREDGING OPERATIONS IN SEA 8.....	57
TABLE 8-4: SUMMARY OF PORT STATISTICS FOR MARINE DREDGED AGGREGATES - 2005.....	58
TABLE 8-5: CONTRACT FILL/BEACH NOURISHMENT, SOUTH COAST .....	59
TABLE 9-1: MARINE DISPOSAL SITES IN THE SEA 8 AREA.....	62
TABLE 9-2: FORMER SEWAGE SLUDGE DISPOSAL SITES IN THE SEA 8 AREA .....	63
TABLE 9-3: MARINE MUNITIONS DUMP SITES IN THE SEA 8 AREA.....	65
TABLE 10-1: SITES REGISTERED FOR PRODUCTION OF SHELLFISH IN SEA 8 (2006/7).....	68
TABLE 11-1: RESIDENCE AND SPENDING IN THE UK BY OVERSEAS VISITORS .....	74
TABLE 11-2: UK RESIDENT VISITORS TO COASTAL REGIONS IN THE SEA 8 AREA.....	75
TABLE 12-1: COASTAL POWER STATIONS IN THE SEA 8 AREA.....	82
TABLE 13-1: LOCAL PLANNING IN THE SEA 8 AREA .....	88
TABLE 13-2: SHORELINE MANAGEMENT PLANS FOR THE SEA 8 AREA COASTLINE AND COASTAL WATER STATUS .....	91

## FIGURES

FIGURE 1-1: SUMMARY OF KEY OFFSHORE FEATURES AND ACTIVITIES IN SEA 8 AREA.....	2
FIGURE 2-1: POPULATION OF MAJOR SETTLEMENTS IN SEA 8 AREA.....	8
FIGURE 3-1: PORTS AND SHIPPING IN THE SEA 8 AREA .....	22
FIGURE 3-2: COAST SHIPPING ROUTES (ALL VESSELS TYPES).....	26
FIGURE 3-3: SHIPPING DENSITY IN SEA 8 AREA.....	27
FIGURE 4-1: OIL AND GAS ACTIVITY IN THE SEA 8 AREA .....	34
FIGURE 5-1: RENEWABLE ENERGY IN THE SEA 8 AREA.....	41
FIGURE 6-1: CABLES IN THE SEA 8 AREA .....	46
FIGURE 7-1: MILITARY PRACTICE AND EXERCISE AREAS (PEXA) IN THE SEA 8 AREA .....	50
FIGURE 8-1: ACTIVE DREDGE AREAS AND DREDGING LICENCE AREAS IN THE SOUTH WEST AND SOUTH COAST REGIONS OF SEA 8 AREA .....	55
FIGURE 8-2: ACTIVE DREDGE AREAS AND DREDGING LICENCE AREAS IN THE OWERS BANK AND EAST ENGLISH CHANNEL REGIONS OF SEA 8 AREA .....	56
FIGURE 9-1: WASTE AND MUNITIONS DISPOSAL SITES IN SEA 8 AREA.....	64
FIGURE 10-1: SHELLFISH WATERS IN SEA 8 AREA .....	70
FIGURE 10-2: SHELLFISH PRODUCTION AREAS IN SEA 8 AREA .....	71
FIGURE 11-1: DESIGNATED BATHING WATERS IN SEA 8 AREA .....	77

# 1 INTRODUCTION

The SEA 8 area covers the sea area off the southwest and southern UK coastline. It extends from the 200 nautical mile limit at 48° 05' N, 10° W, in the south-west to 51° N, 1° 27' E, south-east of and excluding Dover and Folkstone, in the Dover Straights. At its most northerly, in the Irish Sea, it is bounded by latitude 51° 40.5' N (immediately south of and excluding Milford Haven). Much of the SEA 8 area is bounded either by Irish or French territorial waters. Most of the area is on the continental shelf but at its south-westerly extension it crosses the shelf break into water depths exceeding 1,000 m. The coastline is characterised by erosional features and ria inlets, resulting from post-glacial rises in sea level.

This report describes the human use of the SEA 8 area and examines the importance of industries and activities in the region, the main management issues and initiatives which affect them, and any implications for oil and gas licensing of the SEA 8 area.

The following subject areas are addressed:

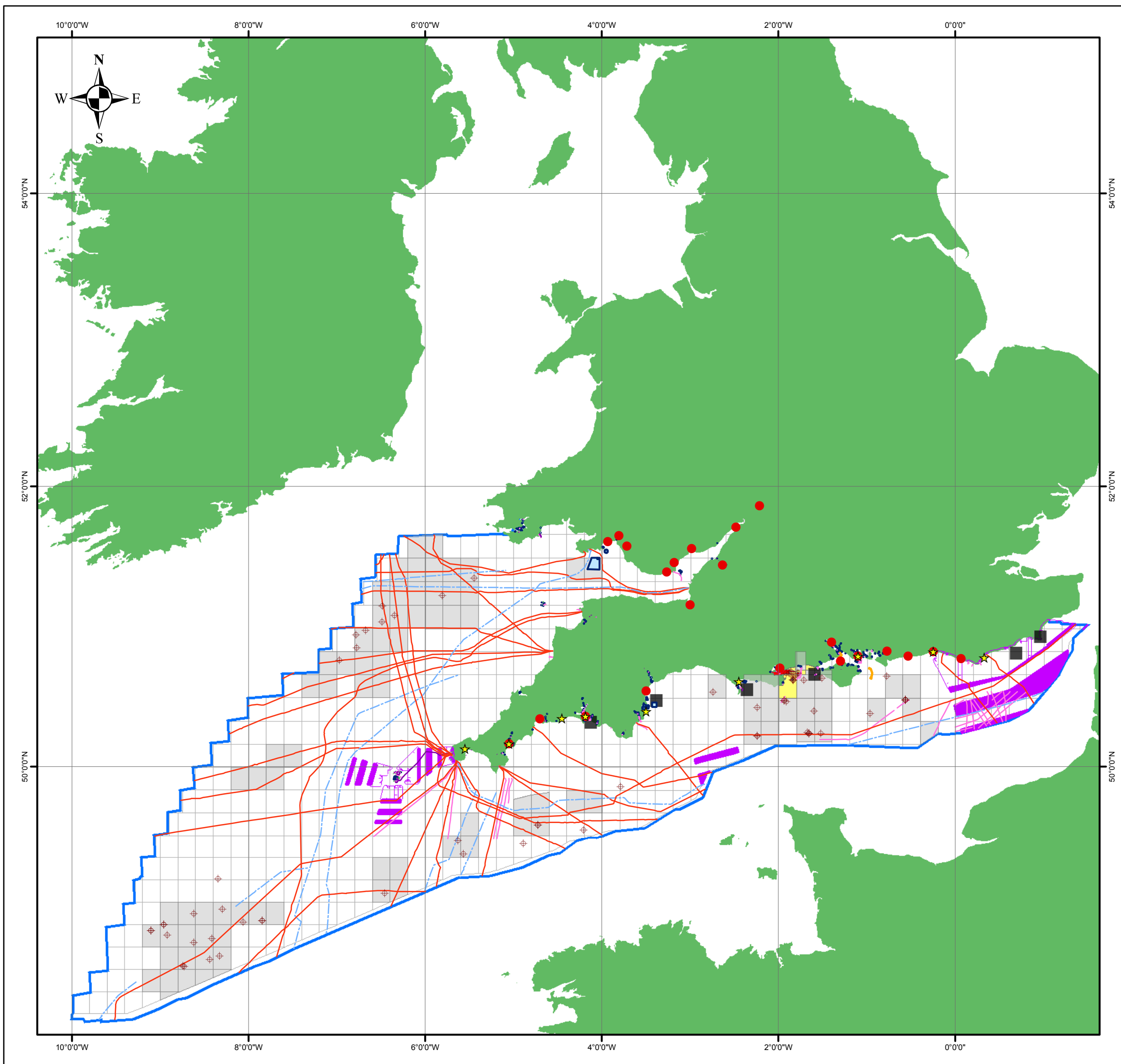
- Coastal Populations;
- Ports and Shipping;
- Energy (oil & gas; renewable energy);
- Cables;
- Military Activity;
- Dredging and Aggregate Extraction;
- Marine Waste Disposal (including Ordnance);
- Mariculture;
- Tourism and Recreation;
- Other locally important Activities; and
- Coastal and Marine Management Initiatives.

Where appropriate, comment is made about the potential sensitivity of an "Other User" to oil and gas development, or the potential restrictions to oil and gas development presented by existing users.

**Figure 1-1** shows the full extent of the SEA 8 area and summarises offshore activities of relevance to oil and gas development. Coastal and inshore activities are numerous and are mapped in the relevant sections of this report. The inshore area within the bay enclosure lines would not form part of the licensing of offshore areas for oil and gas development. However, it is included in this report because impacts on Other Users in inshore areas should also be considered.

This report was produced as part of the DTI's offshore energy Strategic Environmental Assessment programme.

Figure 1-1a: Summary of key offshore features and activities in SEA 8 area



**Legend**

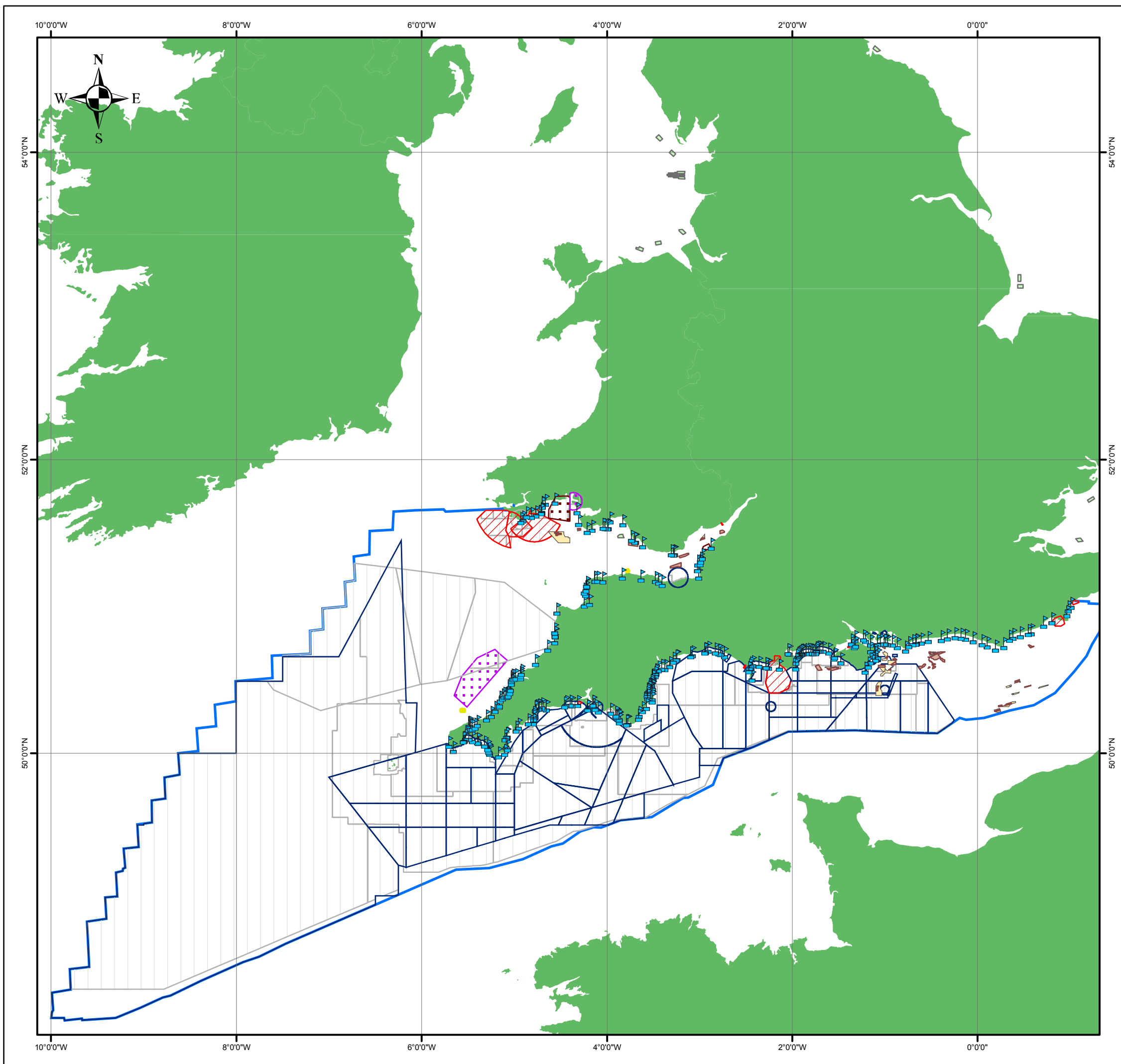
- ★ Fishing Ports
- Major Ports
- Submarine Cables
  - Active Telecommunications Cables
  - - - Out of service Telecommunication Cables
  - Power cables
  - Other cables
- Oil and gas fields
  - Gas
  - Oil
  - ⊕ Wells
  - Currently licenced blocks
  - Previously licenced blocks
  - Oil and gas licence blocks
- Shipping
  - MEHRA locations
  - Inshore traffic zone
  - Traffic separation zone
  - Anchorage area
  - Precautionary area
  - SEA 8 area

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	SeaZone Solutions Ltd, DETR	
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Checked	AM	GIS Specialist
	JH	Project Manager



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












**SEA 8 - Technical report on other users of the area**

**Figure 1-1b : Summary of key offshore features and activities in SEA 8 area**

**Legend**

-  Bathing waters
-  Active dredging areas
-  Licensed dredging areas
-  Proposed Scarweather Sands windfarm site
-  Proposed marine renewable energy development site

**Military Practice Areas**

-  Navy Depart
-  Army Depart
-  Air Force Depart
-  MOD(PE)
-  Unspecified
-  SEA 8 area

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	SeaZone Solutions Ltd, DETR	
File Reference	P939/GIS/mxds/ draft report/ Figure 1-1b Summary.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager



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## 2 COASTAL POPULATIONS

### 2.1 INTRODUCTION

Most of the data presented in this section are taken from the National Census 2001 (NSO, [neighbourhood.statistics.gov.uk](http://neighbourhood.statistics.gov.uk)), the last occasion for which reliable nationwide information is available. General regional information is also available from DEFRA ([www.defra.gov.uk](http://www.defra.gov.uk)) for the south-eastern and south-western regions of England.

The coastal boundary of SEA 8 impinges on seven English counties and nine Welsh Unitary Authorities. The population density generally decreases towards the far west in both England and South Wales although populations are increasing in the rural areas throughout the region. Coastal settlements are common throughout the SEA 8 area, and become near continuous along the south east coastline of England. The western sections of both England and Wales are largely dependent on rural tourism. Central South Wales is predominantly industrial hinterland, with a relatively high unemployment rate, while south-eastern England is typified by prosperous small towns and financial/service sector employment.

### 2.2 DEMOGRAPHICS AND SOCIO-ECONOMICS

#### 2.2.1 Population

The total population living in Counties or Unitary Authorities that directly contact SEA 8 is over eight million. Population densities are lowest in the extreme western regions (both in England and Wales) and highest in the urbanised regional centres on the Bristol Channel and on the south coast of England. The population throughout the area is growing, particularly in the rural west of England. However, there has been some population decrease (apparently reversed in recent years) in industrialised areas such as Plymouth, Bristol, Portsmouth, Swansea and Port Talbot probably reflecting outwards migration. The population by council areas within SEA 8 area is shown in **Table 2-1** below.

**Table 2-1: Population in the SEA 8 area**

Council area	Population 2001	Population change 1982 – 2002 (percent)	Population Density 2001 (People per km <sup>2</sup> )	Estimated population 2005 (thousands)	Estimated population change 2001-2005 (percent)
<b>England</b>	<b>49,138,831</b>	<b>5.9</b>	<b>380</b>	<b>50431.7</b>	<b>2.6</b>
Cornwall and Isles of Scilly	501,267	18.2	143	519.4	3.6
Devon	704,493	18.6	108	731	3.8
Plymouth	240,720	-6.2	3,000	246.1	2.2
Torbay	129,706	16.0	2,081	132.8	2.4
Dorset	390,980	16.7	155	401.1	2.6

Council area	Population 2001	Population change 1982 – 2002 (percent)	Population Density 2001 (People per km <sup>2</sup> )	Estimated population 2005 (thousands)	Estimated population change 2001-2005 (percent)
Poole	138,288	13.4	2,130	137.1	-0.9
Bournemouth	163,444	13.2	3,547	163.6	0.1
Somerset	498,093	16.5	146	515.6	3.5
North Somerset	188,564	16.0	507	195.1	3.5
Bristol, City of	380,615	-4.8	3,482	398.3	4.6
South Gloucestershire	245,641	20.4	496	248.1	1.0
Hampshire	1,240,103	14.3	338	1259.5	1.6
Isle of Wight	132,731	13.7	355	140	5.5
Southampton	217,445	6.3	4,438	222	2.1
Portsmouth	186,701	-1.6	4,671	189.6	1.6
West Sussex	753,614	12.1	380	764.4	1.4
East Sussex	492,324	14.7	289	497.9	1.1
Brighton and Hove	247,817	4.8	3,023	255	2.9
Shepway (Kent)	96,238	11.5	271	99.5	3.4
<b>Wales</b>	<b>2,903,805</b>	<b>4.1</b>	<b>141</b>	<b>2958.6</b>	<b>1.9</b>
Pembrokeshire	114,131	6.0	72	117.5	3.0
Carmarthenshire	172,842	7.2	73	178.1	3.0
Swansea	223,301	-1.7	591	226.4	1.4
Neath Port Talbot	134,468	-4.6	305	135.6	0.8
Bridgend	128,645	2.0	514	130.8	1.7
The Vale of Glamorgan	119,292	6.5	363	122.9	3.0
Cardiff	305,353	7.9	2,222	319.7	4.7
Newport	137,011	4.7	729	139.6	1.9
Monmouthshire	84,885	11.5	100	87.7	3.3

Source: NSO, [neighbourhood.statistics.gov.uk](http://neighbourhood.statistics.gov.uk)

## 2.2.2 Coastal Settlements

Whilst most of the settlements within the land area enclosed by SEA 8, are coastal, the distribution is highly variable. In the western section of South Wales, settlements are sparse and typical of a rural nature. To the east of the Gower Peninsula the character of settlements changes and the region between the Brecon beacons and the sea is generally densely populated. The upper reaches of the Severn Estuary are again more rural in character. This rural character extends through the south coast of the Severn Estuary, with the exception of Avonmouth and Bristol, to the Cornish Peninsula, with few significant towns between the Somerset Avon and Lands End. This pattern

continues along the south coast as far as the Test Estuary, although the towns are larger than those on the north coast. East of the Test, coastal settlements become near continuous as far as Hastings and sparse again east of Hastings. Major settlements within SEA 8 area are shown in **Table 2-2** below and **Figure 2-1**: Population of major settlements in SEA 8 area (as at 2001).

**Table 2-2: Major settlements in the SEA 8 area (2001)**

SEA 8 Region	Settlement	Population (000s)
Cornwall + Scilly Isles	Falmouth	20
	Penzance and Newlyn	20
	Newquay	20
Devon	Plymouth	241
	Torbay	130
	Exeter	111
Somerset	Bristol	381
	Weston-Super-Mare	71
Dorset	Bournemouth	164
	Poole	137
	Christchurch	45
Hampshire	Southampton	217
	Portsmouth	187
	Gosport	76
West Sussex	Bognor Regis	65
	Worthing	98
East Sussex	Brighton and Hove	248
	Eastbourne	90
	Hastings	85
Wales	Cardiff	305
	Swansea	223
	Newport	137

Sources: NSO, [neighbourhood.statistics.gov.uk](http://neighbourhood.statistics.gov.uk)

Cornwall guide, [www.cornwalls.co.uk](http://www.cornwalls.co.uk)

Dorset For You, [www.dorsetforyou.com](http://www.dorsetforyou.com)

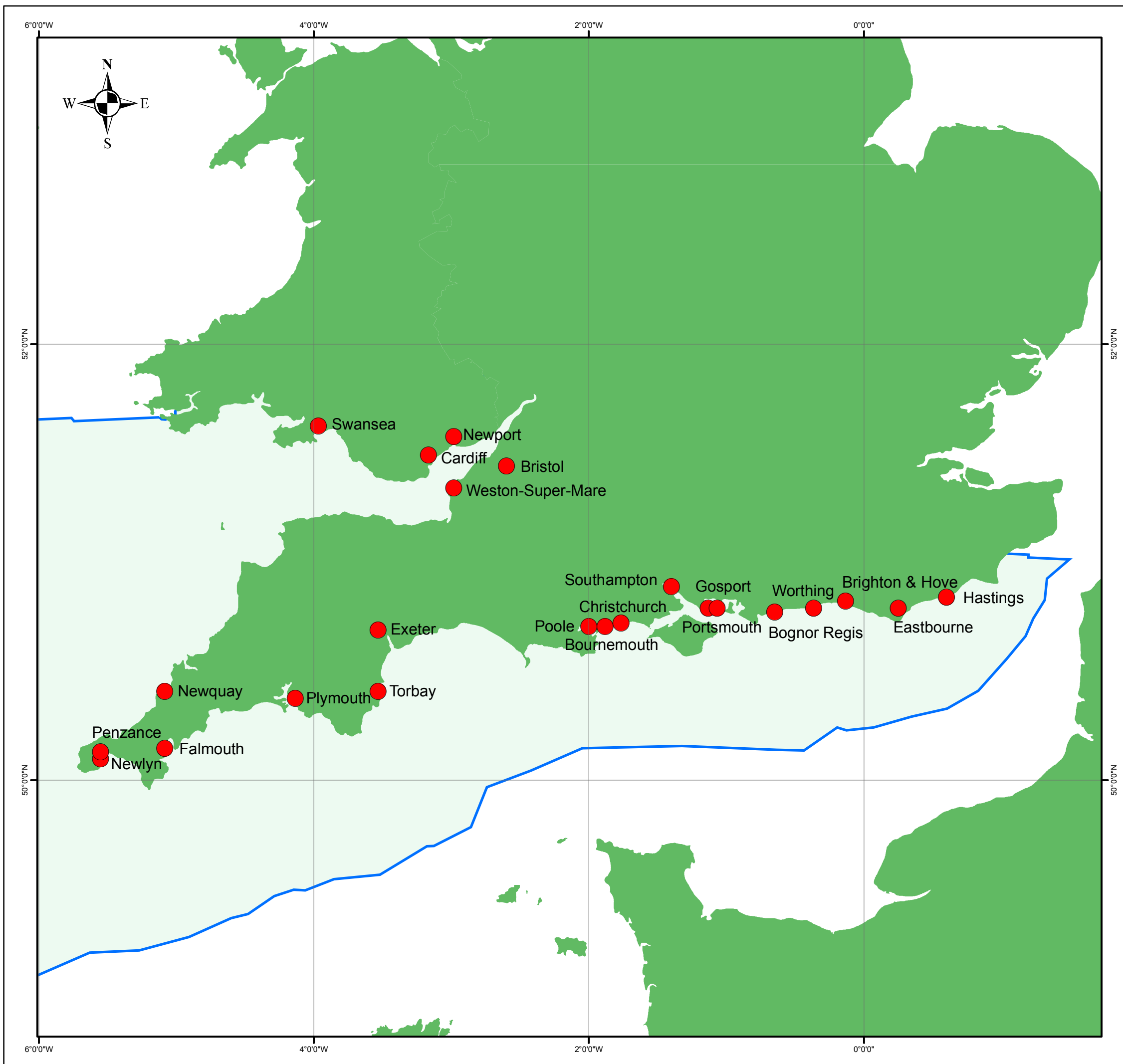
Hampshire County Council, [www3.hants.gov.uk](http://www3.hants.gov.uk)

About Weston Super Mare, [www.melaniecook.co.uk](http://www.melaniecook.co.uk)

West Sussex County Council, [www2.westsussex.gov.uk](http://www2.westsussex.gov.uk)

Note: Between Bognor Regis and Hastings (E Sussex) Coastal settlement is near continuous

Figure 2-1 : Population of major settlements in SEA 8 area



**Legend**

- SEA 8 Area
- Major Settlements

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	Office for National Statistics 2007 2001 Census	
File Reference	P939/GIS/MXD/draft report/ Figure 2-1 Population.mxd	
Checked	KK	GIS Specialist
	JH	Project Manager



### 2.2.3 Age structure

In the south of England the proportion of the population in the post 45 years age groups is relatively large, particularly in the more rural areas such as Devon, Dorset, and the Isle of Wight but also in coastal resort towns such as Torquay, Poole and Bournemouth and the Sussex coast. For example, in Dorset more than half the population is aged over 45, compared with 40% for England as a whole. In contrast, there is a distinct bias away from the over 45 year age groups in the industrial cities (and Brighton and Hove) in favour of the 16-44 year age class.

Relative to England, the Welsh population as a whole is biased towards the post 45 groups. Within the Welsh part of the SEA 8 area there is a slight increase in the portion of the population in the over 45-year classes in rural districts (Pembrokeshire, Carmarthenshire and Monmouthshire), compared with the more industrialised areas. Cardiff in particular has a high proportion of the population in the 16-45 age group.

**Table 2-3 : Age structure of the population in the SEA 8 area, 2001 (Percentages)**

Percentage of population in broad age ranges						
Council area	2001 Population:	<5 Years	5 to 15 Years	16 to 44 Years	45 to Retirement Age	Retirement Age and Over
<b>England</b>	<b>49,138,831</b>	<b>5.7</b>	<b>14.0</b>	<b>40.4</b>	<b>21.5</b>	<b>18.4</b>
Cornwall and Isles of Scilly	501,267	4.9	13.2	33.6	25.0	23.3
Devon	704,493	4.7	13.1	33.9	24.1	24.2
Plymouth	240,720	5.2	13.7	41.2	21.4	18.6
Torbay	129,706	4.7	13.0	32.9	23.6	25.9
Dorset	390,980	4.5	13.2	31.4	24.1	26.8
Poole	138,288	5.0	13.1	35.9	22.7	23.4
Bournemouth	163,444	4.7	11.6	40.9	20.0	22.8
Somerset	498,093	5.2	14.1	34.5	23.7	22.5
Bristol, City of	380,615	5.7	12.4	46.8	18.7	16.5
South Gloucestershire	245,641	5.8	14.6	39.7	22.3	17.6
Hampshire	1,240,103	5.5	14.1	38.1	23.0	19.2
Isle of Wight	132,731	4.5	13.1	32.7	24.4	25.4
Southampton	217,445	5.3	12.3	48.2	18.2	16.1
Portsmouth	186,701	5.5	13.0	46.0	18.5	17.0
West Sussex	753,614	5.4	13.6	35.3	22.7	23.1
East Sussex	492,324	5.1	13.6	32.3	23.2	25.8
Brighton and Hove	247,817	5.2	11.2	47.6	18.5	17.6
Shepway (Kent)	96,238	5.2	13.9	34.9	23.0	23.0
<b>Wales</b>	<b>2,903,805</b>	<b>5.5</b>	<b>14.2</b>	<b>37.5</b>	<b>22.3</b>	<b>20.3</b>

Percentage of population in broad age ranges						
Council area	2001 Population:	<5 Years	5 to 15 Years	16 to 44 Years	45 to Retirement Age	Retirement Age and Over
Pembrokeshire	114,131	5.5	14.6	33.0	24.1	22.8
Carmarthenshire	172,842	5.2	13.9	34.2	24.1	22.5
Swansea	223,301	5.3	13.1	38.4	22.0	21.1
Neath Port Talbot	134,468	5.2	14.0	36.4	23.2	21.2
Bridgend	128,645	5.7	14.3	37.9	22.6	19.6
The Vale of Glamorgan	119,292	5.7	15.2	36.3	23.2	19.7
Cardiff	305,353	5.6	13.9	45.7	18.6	16.2
Newport	137,011	6.2	15.5	38.5	21.2	18.7
Monmouthshire	84,885	5.0	14.7	33.9	25.0	21.5

Source: NSO, [neighbourhood.statistics.gov.uk](http://neighbourhood.statistics.gov.uk)

## 2.2.4 Economic activity

**Table 2-4** provides summary statistics on the economic activity for the SEA 8 area. It can be seen that for the English regions unemployment is generally below the national average whilst the percentage of economically inactive people is variable around the national average. In the Welsh part of the SEA unemployment and the percentage of the population that are economically inactive are both markedly higher than in England.

**Table 2-4: Economic activity in the SEA 8 area**

Percentage of economically active people aged 16-74							
Council area	All people aged 16-74	Part-time	Full-time	Self-employed	Unemployed	Full-time student	Economically inactive
<b>England</b>	<b>35,532,091</b>	<b>11.81</b>	<b>40.81</b>	<b>8.32</b>	<b>3.35</b>	<b>2.58</b>	<b>33.13</b>
Cornwall and Isles of Scilly	359,707	13.29	32.29	12.3	3.26	1.96	36.91
Devon	503,212	13.38	34.36	12.6	2.54	2.38	34.74
Plymouth	175,134	12.95	39.09	5.66	3.23	3.51	35.57
Torbay	90,852	12.98	33.3	10.78	4.14	2.13	36.67
Dorset	275,193	13.53	35.86	11.43	2.03	2.01	35.13
Poole	98,280	13.35	40.88	8.96	2.21	2.39	32.22
Bournemouth	117,313	11.63	37.09	9.61	3.03	3.91	34.74
Somerset	353,419	13.8	38.49	11.08	2.46	2.09	32.09
Bristol, City of	134,132	14.04	40.22	9.65	2.12	2.39	31.58
South Gloucestershire	279,083	11.82	41.37	6.91	3.08	3.78	33.04



Percentage of economically active people aged 16-74							
Council area	All people aged 16-74	Part-time	Full-time	Self-employed	Un-employed	Full-time student	Economic ally inactive
Hampshire	179,071	14.62	46.29	7.99	1.81	2.62	26.66
Isle of Wight	895,199	13.03	45.36	9.1	1.92	2.61	27.97
Southampton	161,625	10.96	39.62	5.89	2.88	5	35.64
Portsmouth	135,628	11.96	41.81	6.73	3.09	4.22	32.19
West Sussex	530,694	13.01	41.75	10.21	1.93	2.52	30.57
East Sussex	340,023	12.88	35.12	11.98	2.56	2.37	35.08
Brighton and Hove	185,131	11.41	38.31	10.41	3.63	4.01	32.23
Shepway (Kent)	67,539	12.29	38.65	9.11	3.37	2.1	34.47
<b>Wales</b>	<b>2,075,347</b>	<b>11.31</b>	<b>36.18</b>	<b>7.69</b>	<b>3.49</b>	<b>2.3</b>	<b>39.02</b>
Pembrokeshire	80,763	12.04	29.6	12.55	3.88	1.67	40.26
Carmarthenshire	122,863	10.75	32.67	10.02	3.37	1.78	41.4
Swansea	161,414	11.57	34.7	5.76	3.61	2.97	41.39
Neath Port Talbot	96,223	10.99	34.92	4.73	3.92	1.66	43.79
Bridgend	92,413	11.07	38.75	5.75	3.46	1.93	39.05
The Vale of Glamorgan	83,905	12.49	39.64	7.92	3.3	2.36	34.3
Cardiff	220,355	10.96	38.33	6.26	3.09	4.1	37.26
Newport	95,912	12.4	38.86	5.5	3.94	2.35	36.94
Monmouthshire	60,791	12.82	37.98	10.49	2.63	1.9	34.17

Source: NSO, [neighbourhood.statistics.gov.uk](http://neighbourhood.statistics.gov.uk)

## 2.2.5 Industry of employment

The main employers (by group) in the SEA 8 area are shown in **Table 2-5**. Manufacturing, trade (wholesale and retail, including vehicle repairs), public sector and business activities are important throughout the SEA 8 area, whilst agricultural pursuits rarely occupy more than a few percent of the population, even in the most obviously rural areas. Mining and quarrying are generally only minor employers (most important in Cornwall).

Construction industries are an important source of employment throughout the region.

Fishing, although economically important to the south-west (**Section 3.2.2**), employs only 0.35% of the work force in Cornwall (including the Isles of Scilly) and 0.14% in Devon, the two counties where it is most important. This low figure may reflect seasonal and part-time employment in the industry.

**Table 2-5: Percentage of people aged between 16-74 by industry of employment in the SEA 8 area**

Percentage of economically active people aged 16-74													
Council area	All people aged 16-74	Agriculture, hunting, forestry & fishing	Mining & quarrying and construction	Manufacturing	Electricity, gas & water supply	Wholesale & retail trade	Hotels & catering	Transport, storage & communication	Business activities	Public admin & defence	Education	Health & social work	Other
<b>England</b>	<b>35,532,091</b>	<b>1.4</b>	<b>6.6</b>	<b>14.0</b>	<b>0.7</b>	<b>15.9</b>	<b>4.5</b>	<b>6.7</b>	<b>17.0</b>	<b>12.7</b>	<b>10.1</b>	<b>4.9</b>	<b>4.5</b>
Cornwall and Isles of Scilly	359,707	4.3	8.9	10.5	0.5	17.1	8.2	4.9	10.0	13.8	11.2	5.0	8.2
Devon	503,212	4.5	7.7	11.7	0.8	16.7	6.3	5.4	12.0	14.0	11.9	4.7	6.3
Plymouth	175,134	0.5	6.4	14.0	0.7	15.5	4.7	7.4	10.4	19.1	10.5	5.1	4.7
Torbay	90,852	1.2	7.5	13.7	0.5	17.2	9.6	5.2	9.9	10.1	13.1	5.2	9.6
Dorset	275,193	3.3	8.0	12.5	0.4	16.0	5.7	4.9	14.0	16.1	10.7	5.0	5.7
Poole	98,280	0.7	7.3	15.4	0.5	16.7	4.5	6.0	18.0	11.2	11.4	4.7	4.5
Bournemouth	117,313	0.6	7.0	9.3	0.4	17.4	7.3	6.5	19.5	10.2	11.0	5.4	7.3
Somerset	353,419	3.6	7.8	15.9	0.8	17.8	4.9	5.0	11.6	13.5	10.7	4.4	4.9
Bristol, City of	134,132	1.4	6.8	11.7	0.8	17.8	4.4	6.7	19.2	12.1	11.0	4.8	4.4
South Gloucestershire	279,083	0.4	6.1	10.2	0.5	15.4	4.3	7.3	21.3	12.7	11.2	5.4	4.3
Hampshire	179,071	1.0	7.6	14.5	0.8	17.0	3.3	7.4	19.7	12.2	9.8	3.9	3.3
Isle of Wight	895,199	1.5	7.1	13.5	0.7	15.5	4.0	6.7	19.4	15.1	9.0	4.6	4.0
Southampton	161,625	2.2	7.2	11.6	0.5	15.7	9.1	5.4	10.0	13.4	12.6	5.9	9.1
Portsmouth	135,628	0.4	7.3	11.9	1.0	17.3	4.9	7.9	16.8	11.9	10.3	4.7	4.9
West Sussex	530,694	0.4	7.3	12.5	0.9	14.4	5.5	6.3	14.3	17.7	10.4	4.9	5.5
East Sussex	340,023	2.0	6.8	11.4	0.8	15.8	4.5	9.7	19.3	11.0	10.6	4.9	4.5

Percentage of economically active people aged 16-74													
Council area	All people aged 16-74	Agriculture, hunting, forestry & fishing	Mining & quarrying and construction	Manufacturing	Electricity, gas & water supply	Wholesale & retail trade	Hotels & catering	Transport, storage & communication	Business activities	Public admin & defence	Education	Health & social work	Other
Brighton and Hove	185,131	2.1	8.2	10.2	0.6	16.4	4.8	5.9	15.8	13.1	13.5	5.3	4.8
Shepway (Kent)	67,539	0.5	5.8	7.2	1.1	13.5	5.1	8.0	21.5	13.4	11.4	6.1	5.1
<b>Wales</b>	<b>2,075,347</b>	<b>1.7</b>	<b>8.6</b>	<b>8.8</b>	<b>2.2</b>	<b>14.5</b>	<b>5.1</b>	<b>10.3</b>	<b>12.8</b>	<b>15.0</b>	<b>11.4</b>	<b>4.0</b>	<b>5.1</b>
Pembrokeshire	80,763	2.3	7.0	16.3	1.0	15.3	5.0	5.2	11.0	14.0	12.2	4.5	5.0
Carmarthenshire	122,863	6.4	8.7	10.0	0.7	16.2	6.9	5.6	8.1	13.9	11.2	5.4	6.9
Swansea	161,414	5.1	7.6	12.8	0.6	16.3	4.5	5.0	8.2	15.8	13.8	4.2	4.5
Neath Port Talbot	96,223	0.8	5.9	12.6	0.5	16.6	5.0	6.1	11.9	16.6	13.2	4.0	5.0
Bridgend	92,413	0.7	8.3	20.2	0.6	14.0	3.5	5.1	10.0	14.0	12.4	3.8	3.5
The Vale of Glamorgan	83,905	0.6	7.4	22.4	0.8	15.0	4.4	4.5	9.4	13.0	12.3	3.9	4.4
Cardiff	220,355	1.0	6.2	11.9	1.4	14.5	4.6	6.4	14.8	16.6	12.2	5.0	4.6
Newport	95,912	0.3	5.1	9.7	1.6	14.9	5.4	5.7	16.4	15.9	12.7	6.4	5.4
Monmouthshire	60,791	0.6	5.7	16.8	0.9	16.1	4.6	6.5	13.6	12.9	11.4	4.1	4.6

Source: NSO, [neighbourhood.statistics.gov.uk](http://neighbourhood.statistics.gov.uk)

## 2.2.6 Occupation groups

The spread of occupational groups amongst industry employees in the SEA 8 area is summarised in **Table 2-6**. Within the English section of SEA 8, there is a noticeable difference between the western and eastern parts. In the west, and particularly in Cornwall and the Isles of Scilly, a higher percentage of the population are employed in skilled trades than is the case in England as a whole, with a shift towards management, professional and technical employment towards the east. Employment in the professional services sector is rather higher than the national average throughout the English region. In general, the management, professional and technical sectors are less well represented in Wales than in England, although Cardiff, the Vale of Glamorgan and Monmouthshire show exceptionally high employment in these groups. The skilled trades are particularly important in the rural areas of Pembrokeshire and Carmarthenshire.

**Table 2-6: Occupational groups in SEA 8**

Percentage of the workforce aged 16-74								
Council area	Managers & Professional	Associate professional & technical	Admin & secretarial	Skilled trades	Personal service	Sales & customer service	Process, plant & machine operatives	Elementary
<b>England</b>	<b>26.5</b>	<b>13.8</b>	<b>13.4</b>	<b>11.6</b>	<b>6.9</b>	<b>7.7</b>	<b>8.4</b>	<b>11.8</b>
Cornwall and Isles of Scilly	21.9	12.1	10.6	17.0	8.0	7.9	8.4	14.0
Devon	23.9	12.8	11.5	15.6	8.0	8.0	7.8	12.5
Plymouth	18.1	14.2	12.4	12.7	7.7	11.2	9.5	14.2
Torbay	22.5	12.5	11.0	13.8	8.9	9.0	9.4	13.0
Dorset	25.5	14.2	12.5	14.3	7.6	7.1	7.1	11.7
Poole	25.0	13.7	13.9	13.2	7.2	8.3	7.7	11.0
Bournemouth	25.0	14.1	14.1	11.9	7.7	9.6	5.9	11.6
Somerset	23.9	12.2	11.4	14.9	8.0	7.6	9.1	12.9
North Somerset	28.1	14.0	14.0	11.0	7.4	8.2	6.8	10.6
Bristol, City of	26.6	14.6	14.3	9.9	6.2	8.9	7.2	12.4
South Gloucestershire	26.1	13.5	16.1	11.8	5.8	8.5	7.7	10.6
Hampshire	28.7	15.0	14.1	11.6	6.6	7.0	6.6	10.4
Isle of Wight	23.3	12.6	10.9	14.8	9.7	8.0	6.8	14.0
Southampton	22.3	12.9	13.5	11.6	6.9	9.9	8.9	14.1
Portsmouth	22.5	15.0	13.0	12.1	7.3	8.5	7.6	14.0
West Sussex	26.9	13.9	13.1	13.2	8.6	7.5	6.0	10.9
East Sussex	27.7	14.0	14.2	11.4	8.3	7.9	6.1	10.4
Brighton and	30.4	17.4	12.7	9.3	7.8	9.2	4.3	9.0

Percentage of the workforce aged 16-74								
Council area	Managers & Professional	Associate professional & technical	Admin & secretarial	Skilled trades	Personal service	Sales & customer service	Process, plant & machine operatives	Elementary
Hove								
Shepway (Kent)	22.8	14.5	12.2	12.3	9.7	8.8	7.7	12.0
<b>Wales</b>	<b>22.7</b>	<b>12.8</b>	<b>12.2</b>	<b>13.4</b>	<b>7.4</b>	<b>8.0</b>	<b>10.2</b>	<b>13.3</b>
Pembrokeshire	21.7	11.8	9.7	18.6	8.5	8.8	8.3	12.6
Carmarthenshire	21.4	12.0	11.7	16.6	8.2	7.7	9.8	12.6
Swansea	23.4	13.8	13.9	11.3	7.1	9.7	8.0	12.9
Neath Port Talbot	18.0	11.5	13.0	13.6	8.1	8.4	13.0	14.4
Bridgend	20.9	13.7	10.8	12.7	7.9	8.3	12.4	13.3
The Vale of Glamorgan	27.6	16.0	14.1	11.0	7.1	7.6	6.3	10.3
Cardiff	28.9	16.0	14.5	8.5	6.0	9.0	5.8	11.4
Newport	23.6	13.1	13.6	10.6	6.6	8.7	9.7	14.2
Monmouthshire	30.8	13.3	11.2	12.1	6.5	6.4	7.3	12.4

Source: NSO, [neighbourhood.statistics.gov.uk](http://neighbourhood.statistics.gov.uk)

## 2.3 MAIN ISSUES AFFECTING SEA 8 AREA

Within the SEA 8 area, three main groups can be distinguished:

- the predominantly coastal and rural counties, largely to the west of the area both in England and Wales,
- a widespread region of prosperous towns inland, with near continuous coastal development extending eastward from Hampshire along the English south coast, and
- largely restricted to South Wales, areas of industrial hinterland (NSO, [neighbourhood.statistics.gov.uk](http://neighbourhood.statistics.gov.uk)).

In general, the English sector is relatively prosperous, with unemployment below the national average. In the west there is a greater tendency to part time and self employment, combined with an increased representation of the hotel and catering industries, reflecting the importance of tourism in the region. Employment patterns in the east of the region differ slightly from those in the west with a higher proportion of people employed in the management professional and technical sectors. Throughout the region the proportion of the population in the above 45-year age groups, is slightly larger than the English average.

The situation in Wales is rather different, much of the SEA 8 area being dominated by the industrialised areas of South Wales, with a relatively large

percentage of the population being employed in the manufacturing industries. Unemployment and non-economic activity are relatively high in comparison with England. Rural and Coastal areas have relatively low income levels and whilst there has been a decline in the number of registered unemployed people, the disparity between rural incomes and prices is on the increase.

## **2.4 RELEVANCE FOR SEA 8**

There is no marine oil or gas extraction activity in SEA 8 at present (although there are major oil terminal and processing facilities). Should commercially viable reserves of hydrocarbons be discovered in SEA 8, particularly in the west of the English Channel or in the Bristol Channel, there would be a boost to the local economies, with associated population or employment increases to locations servicing the oil and gas sector. However, such economic benefits may be counterbalanced by perceived threats to the coastal environment and consequently to employment related to tourism.

## **2.5 SOURCES OF INFORMATION**

Cornwall guide, Cornwall facts and figures

<http://www.cornwalls.co.uk/Cornwall/statistics.htm>

Dorset For You, <http://www.dorsetforyou.com>

Hampshire County Council, <http://www3.hants.gov.uk/>

About Weston Super Mare,

<http://www.melaniecook.co.uk/about-weston-super-mare.htm>

West Sussex County Council, <http://www2.westsussex.gov.uk/>

Defra, SouthEast England

<http://www.defra.gov.uk/erdp/docs/sechapter/default.htm>

Defra, South West England

<http://www.defra.gov.uk/erdp/docs/swchapter/default.htm>

NSO, Census 2001, <http://neighbourhood.statistics.gov.uk/dissemination>

## 3 PORTS AND SHIPPING

### 3.1 INTRODUCTION

Shipping and maritime trade are vital to the economy of the UK and it is estimated that 95 percent by volume and 75 percent by value of the UK's international trade is transported by sea. After a fall in UK port traffic between 2000 and 2003 from 573 to 556 million tonnes, UK port traffic has been steadily increasing with 586 million tonnes total traffic (foreign and domestic) in 2005 (DfT, Department for Transport, 2005).

Shipping in the SEA 8 area is diverse, comprising cargo vessels, fishing vessels, international and domestic ferries and a large number of recreational boats. Ports and shipping play an important role in the economy of the SEA 8 area, which is reflected in the number of significant cargo and fishing ports, the diversity and number of ferries operating out of the area and the density of shipping.

### 3.2 ACTIVITY IN THE SEA 8 AREA

#### 3.2.1 Major ports

There are a number of major cargo ports in the SEA 8 area, which are shown in **Figure 3-1** and **Table 3-1**. The most notable ports in order of greatest tonnage handled in 2005 are Southampton, Bristol, Port Talbot, Portsmouth and Newport.

Southampton has consistently grown in size since 1980 and was the fourth largest UK port in 2005, handling 40 million tonnes (7 per cent of UK traffic). Southampton was one of the four leading UK ports for oil and gas traffic in 2005. Together, these ports handled half of all such traffic. Southampton was the second largest UK container port in 2005, handling 838 thousand units (18 per cent UK traffic) (DfT, 2005). Southampton also has the largest share of the UK cruise passenger market (62 per cent of UK cruise passengers in 2004). The port has three cruise terminals and is home to the Queen Elizabeth 2 and the Queen Mary 2 (DfT, 2006<sub>a</sub>).

Bristol handled just over 11 million tonnes of traffic in 2005, with coal products (38 per cent) and oil products (22 per cent) making up the largest tonnage. It was the fourth largest UK port for coal, with 8 per cent of total UK traffic, (DfT, 2005) whilst the movement of trade vehicles is also important (DfT, 2006<sub>a</sub>).

Port Talbot handled approximately 8.5 million tonnes of traffic in 2005. Of this total, ores made up 63 per cent and coal 30 per cent largely as imports. Port Talbot was the third largest UK port for ores traffic in 2005 (30 per cent of total UK traffic).

Portsmouth handled 4.9 million tonnes in 2005, 74 per cent of which was roll-on roll-off traffic. Portsmouth was the second largest Ro-Ro ferry passenger port and the second largest passenger ferry port in the UK in 2005.

Newport handled 3.9 million tonnes in 2005. Iron and steel products (44 per cent) and coal (35 per cent) represented the largest tonnage. Newport was the

second largest UK port for iron and steel in 2005, handling 17 per cent of all UK traffic.

**Table 3-1: Foreign and domestic traffic (million tonnes) handled by major ports in the SEA 8 area: 2003 – 2005**

Port Name	2003	2004	2005
Barry	0.46	0.40	0.44
Bridgwater	0.10	0.11	0.11
Bristol	11.44	10.76	11.21
Cardiff	2.29	2.50	2.45
Chichester	0.36	0.33	0.16
Cowes (IOW)	0.68	0.50	0.56
Falmouth	0.44	0.35	0.57
Fowey	1.45	1.33	1.27
Gloucester and Sharpness	0.55	0.54	0.50
Littlehampton	0.17	0.09	0.06
Neath	0.38	0.42	0.41
Newhaven	0.95	0.93	0.88
Newport	2.79	3.45	3.97
Par	0.35	0.34	0.32
Plymouth	2.05	2.17	2.31
Poole	1.64	1.75	1.71
Port Talbot	7.82	8.56	8.57
Portsmouth	4.22	4.94	4.93
Shoreham	1.73	1.69	1.83
Southampton	35.77	38.43	39.95
Swansea	0.85	0.72	0.70
Teignmouth	0.64	0.57	0.60
<b>All UK Ports</b>	<b>555.66</b>	<b>573.07</b>	<b>585.68</b>

Source: DfT, 2005

### 3.2.2 Fishing ports

In 2005 the UK fleet landed 491.7 thousand tonnes of fin and shell fish, valued at £456.1 million into UK ports. Landings by ports within SEA 8 area accounted for 48.8 thousand tonnes (10 per cent of the UK total) and were valued at £ 60.2 million (13 per cent of the UK total).

The value of fisheries in and around the SEA 8 area is reflected in the presence of several significant fishing ports which are listed below in **Table 3-2** and shown in **Figure 3-1**. According to the latest 2005 figures, five of the top 20 largest UK fishing ports, by landings in tonnes, are within the SEA 8 area. Plymouth was the fifth largest UK fishing port, by tonnes landed, in 2005, whilst



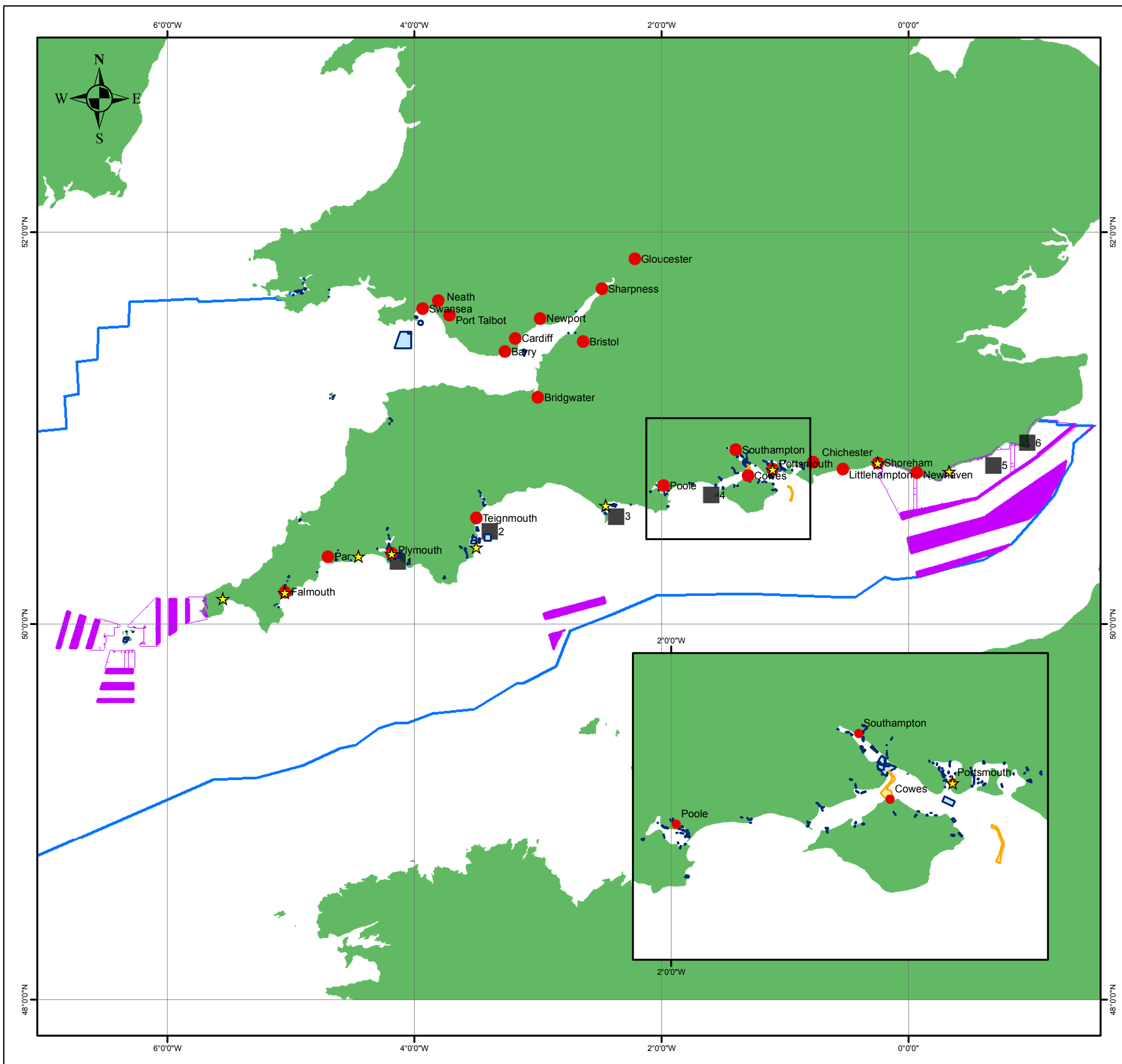
Brixham and Newlyn were the fourth and fifth largest fishing ports respectively, in the UK in 2005 by value of landings (DEFRA, 2005).

**Table 3-2: Fish landings by UK fleet into major ports in the SEA 8 area 2004**

Fishing Port	Demersal		Pelagic		Shellfish	
	Quantity ('000 tonnes)	Value (£ million)	Quantity ('000 tonnes)	Value (£ million)	Quantity ('000 tonnes)	Value (£ million)
Plymouth	1.2	3.4	9.9	3.3	2.1	3.7
Brixham	3.9	10.3	0.7	0.2	5.7	7.9
Newlyn	6.0	15.4	0.5	0.3	1.2	2.0
Weymouth	0.1	0.2	0.0	0.0	5.8	1.6
Portsmouth	0.2	0.5	0.0	0.0	4.0	1.6
Falmouth	0.3	0.6	0.0	0.0	1.4	2.0
Eastbourne	0.2	0.5	0.0	0.0	1.4	1.1
Shoreham	0.5	1.5	0.0	0.0	1.0	1.2
Looe	0.5	1.4	0.2	0.2	0.3	0.9
<b>Total SEA 8 ports</b>	<b>12.9</b>	<b>33.7</b>	<b>11.4</b>	<b>3.9</b>	<b>22.9</b>	<b>22.0</b>
Total UK ports	155.0	170.4	203.1	96.2	118.5	174.7

Source: DEFRA, 2005

Figure 3-1: Ports and shipping in SEA 8 area



**Legend**

- ★ Fishing Ports
- Major Ports
- Anchorage area
- Precautionary area
- MEHRA locations
- Inshore traffic zone
- ▨ Traffic separation zone
- SEA 8 area

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	SeaZone Solutions Ltd, DETR	
File Reference	P939/GIS/mxds/ draft report/Figure 2-1 Shipping.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager



### 3.2.3 Ferry routes

International sea passenger journeys to and from the UK fell by seven per cent in 2005 to 24.7 million and domestic waterborne, passengers fell three per cent from 2004 figures to 40 million. Despite this national decline, the ferry industry remains both diverse and extensive in the SEA 8 area. Ports of most significance for ferry traffic in SEA 8 area are largely found along the south coast of England and include Portsmouth, Southampton, Plymouth and Poole (DfT, 2005).

In the SEA 8 area three ports were in the top ten UK ports for international ro-ro ferry passenger movements in 2005. Portsmouth had the second largest number of ro-ro ferry movements with 2,631,000 passengers (11.1 per cent of the UK total). Plymouth was the seventh largest with 636,000 passengers (2.7 per cent of UK total) and Poole was the ninth largest with 398,000 passengers (1.7 per cent of UK total).

Portsmouth and Plymouth were also in the top ten ports for accompanied passenger cars ferry traffic in 2005. Portsmouth handled 770 thousand units (12.2 per cent of the UK total) and Plymouth handled 194 thousand units (3.1 per cent of the UK total).

Other ferry routes of importance in the SEA 8 area include mainland to Channel Island crossings from Poole, Portsmouth and Weymouth, and domestic crossings from Hampshire to the Isle of Wight (DfT, 2005).

### 3.2.4 Ship Arrivals

Ship arrivals in the SEA 8 area in 2005 were dominated by: Southampton, the fifth largest port with 5894 vessel arrivals (4 per cent UK total); and Portsmouth, the eighth largest port with 4469 vessel arrivals (3.1 per cent UK total). Southampton was also the most important port for cruise passenger movements in the UK in 2005 with 637 thousand passengers (68 per cent of UK total) (DfT, 2005).

### 3.2.5 Shipping density and routeing

For the purpose of this high-level report, shipping density and routeing have been derived from the report "Identification of Marine Environment High Risk Areas in the UK" (Safetec, 1999). This document utilises shipping density and routeing in UK waters from the COAST database, developed and maintained by Safetec on behalf of DETR. The main data sources for the COAST database are:

- Port Callings Data;
- Offshore Traffic Surveys carried out by Standby Vessels (>200 surveys);
- Platform and Coastal-based Radar Systems;
- Information from Offshore Operators (Standby/Supply/Shuttle Tanker details);
- Information from Ferry Operators;
- Vessel Passage Plans; and
- Deep Sea Pilot Route Details.

Information contained in the COAST database includes port of departure/destination, route waypoints, number of vessels per year, and distribution by type, size, age and speed. Types of vessel included in the COAST database are summarised below in **Table 3-3**. It should be noted that the database does not include “non-routine” traffic, such as naval vessels, fishing vessels, pleasure craft and offshore traffic to mobile drilling units.

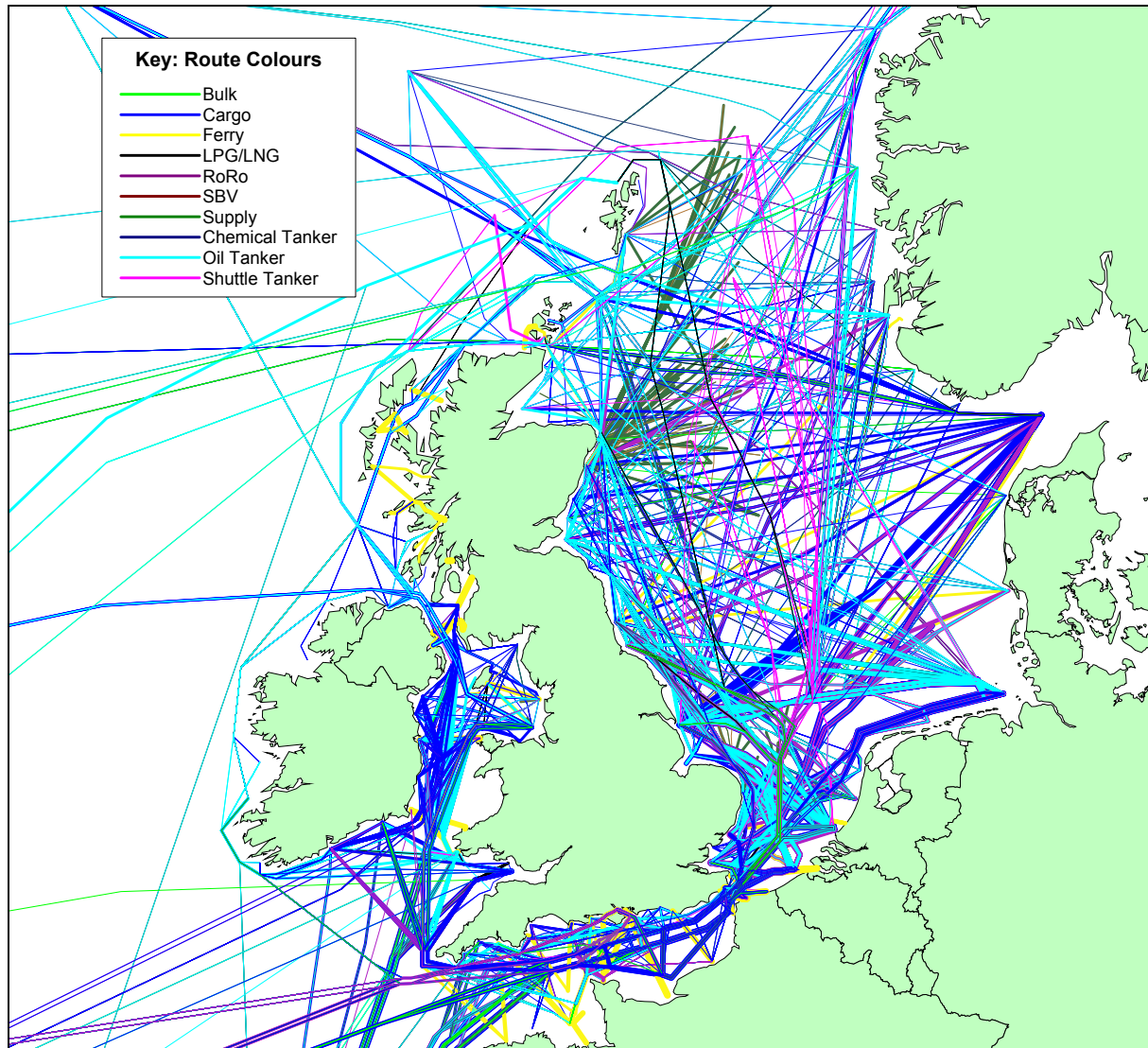
**Table 3-3: Vessel types included in the updated COAST database**

Type	Subtypes included
Bulk	Bulk carrier, bulk/containership, cement carrier, ore carrier, wood-chip carrier, bulk/oil carrier, ore/oil carrier
Cargo	Cargo/training, general cargoship, multipurpose cargoship, refrigerated cargoship, livestock carrier, containership, refrigerated containership
Ferry	-
Liquefied gas tanker	LPG carrier, LNG carrier, LNG/LPG carrier
Ro-Ro	Ro-Ro ship, Ro-Ro/containership, vehicle carrier, passenger Ro-Ro
Standby vessel	-
Supply vessel	-
Chemical tanker	-
Oil tanker	-
Shuttle tanker	-

The database provides a general indication of shipping density and routeing rather than an authoritative assessment of actual vessel numbers. Given the strategic level of this report, shipping density and routeing in the SEA 8 area are described in broad terms (see **Figure 3-1**). However, the COAST database can provide more detailed information on a local project-specific basis.

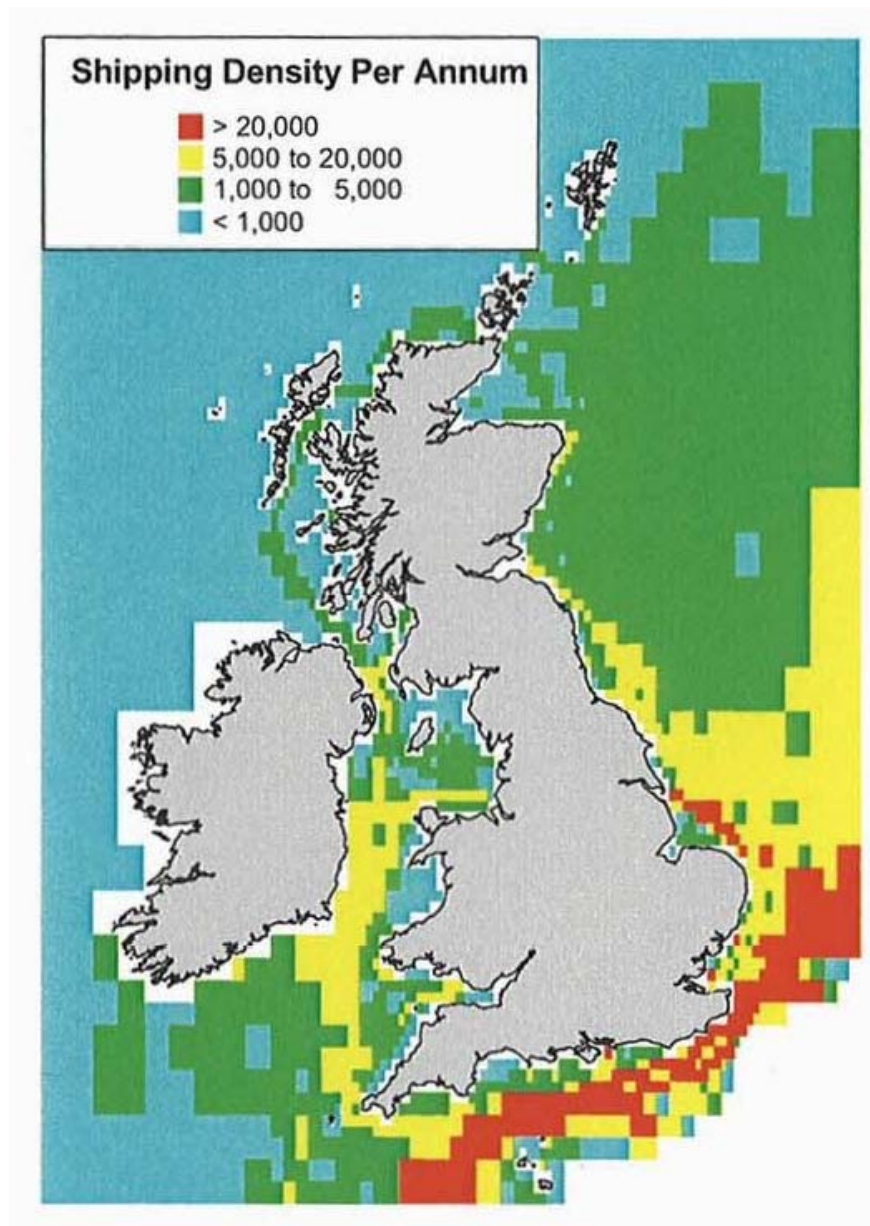
**Figure 3-2** and **Figure 3-3** below show shipping routes and shipping density respectively, in and around the SEA 8 area. Shipping densities range from low (<1,000 vessels per annum) to very high (>20,000 vessels per annum). There is a large area of SEA 8, in the offshore areas west of Cornwall and the near-shore areas of the Bristol Channel and along the coast of southwest England, which experiences low to moderate shipping densities (<1,000 – 5,000 vessels per annum). The highest shipping densities are found in the English Channel, Dover Strait, and around the west coast of Cornwall, where there is a route running northwards into the Irish Sea.

Figure 3-2: COAST Shipping Routes (All vessels types)



Source: Safetec, 1999

Figure 3-3: Shipping density in SEA 8 area



Source: Safetec, 1999

### 3.3 MANAGEMENT ISSUES AND INITIATIVES

The coastal region of SEA 8 area is recognised for its natural beauty and environmental sensitivity. As such, one of the main issues relating to ports and shipping in the area is the risk of marine pollution from shipping activity. Given the diversity of shipping densities experienced in the area there are a number of management initiatives in place to reduce this risk.

#### 3.3.1 Routeing measures

Any navigational controls applying to ships exercising their rights to free passage have to be agreed by the International Maritime Organisation (IMO). IMO routeing measures are based on safety considerations and on protection of the marine environment and can apply within and beyond the territorial waters.

IMO routeing measures include traffic separation schemes, areas to be avoided, precautionary areas, deep water routes, mandatory ship reporting systems, and non-mandatory ship reporting systems. Those found in the SEA 8 area are described in Sections 3.3.1.1 and 3.3.1.2 below (DfT, 2006b).

In addition to these measures, there is also an IMO adopted recommendation within SEA 8 area, which advises against laden tankers of 10,000 gross tonnage and above from entering or leaving Southampton via the Western Solent (most commercial shipping enters the Solent from the east).

##### 3.3.1.1 Traffic separation schemes

A traffic separation scheme details specific routes for traffic, to reduce the risk of collision in congested and/or converging areas by separating traffic moving in opposite, or nearly opposite, directions. The traffic separation schemes in SEA 8 area include:

- **Isles of Scilly** have an extensive pattern of Traffic Separation Schemes with associated Inshore Traffic Zones around the Isles and between Seven Stones and Longships. The International Regulations for Preventing Collision at Sea, 1972, as amended (COLREGS) require ships, sailing vessels and fishing vessels, not to use an inshore traffic zone when they can safely use the appropriate traffic lane within the adjacent traffic separation scheme;
- **Off Casquets**, This traffic separation scheme straddles the median line with half of it falling within SEA 8 south of Lyme Bay and north of the Channel Islands; and
- **Dover Straits** has a Traffic Separation Scheme and associated English Inshore Traffic Zone (DfT, 2006<sub>b</sub>).

##### 3.3.1.2 Mandatory Ship Reporting Systems

Mandatory Ship Reporting Systems (MSRSs) are adopted by the IMO in specified areas in accordance with international requirements. They include the area of the Channel Navigation Information Service (CNIS). Under the system ships must report prior to entering the area covered by CNIS. There are two MSRSs in the UK, both of which fall partly within the SEA 8 area (DfT, 2006b).

These cover the Dover Straits, west to a line between the Royal Sovereign light and Bassurelle Bouy, on the median line (CALDOVREP reporting zone) and the area of the Channel Islands and the Casquets traffic separation scheme to the north (MANCHEREP reporting zone).

### 3.3.2 Marine Environmental High Risk Areas (MEHRAs)

The establishment of Marine Environmental High Risk Areas (MEHRAs) followed recommendations made by the late Lord Donaldson in his report "Safer Ships, Cleaner Seas" (Donaldson, 1994). This followed the Braer tanker oil spill disaster off the Shetland Islands in January 1993. Lord Donaldson recommended that a comparatively limited number of areas of high environmental sensitivity, which are also at risk from shipping, should be identified and established around the UK coast.

On 13th February 2006 the Government unveiled 32 locations around the UK coast that have been identified as MEHRAs (Government News Network, 2006). The primary purpose of MEHRAs is to inform mariners of areas of high environmental sensitivity where there is a realistic risk of pollution from shipping. Identification of MEHRAs in the UK involved separating UK waters into cells and classifying them in terms of environmental sensitivity, risk from shipping activity and other environmental protection measures already in place at each location. The study was conducted by Safetec on behalf of the DETR.

Six MEHRAs have been identified in the SEA 8 area. These are shown in **Figure 3-1** and listed in **Table 3-4** below:

**Table 3-4: Marine Environmental High Risk Areas (MEHRAs) in the SEA 8 Area**

Map Ref	MEHRA
1	Plymouth, Devon
2	Berry Head, Devon
3	Portland, Dorset
4	Western Solent, Hampshire
5	Hastings, East Sussex
6	Dungeness, Kent

MEHRAs are notified by a Marine Guidance Note to mariners and are marked onto Admiralty charts to encourage mariners to take extra care in those areas.

The Isles of Scilly was recommended by Lord Donaldson in his report "Safer Ships, Cleaner Seas" as an example of a potential MEHRA site but, notably, has not been included in the 32 established MEHRA sites. The environmental sensitivity of the area has, however, already been acknowledged through existing protective measures that reduce the risks to such an extent that all the criteria for identifying a MEHRA site were not met. There are three IMO adopted traffic separation schemes, with associated inshore traffic zones, in close proximity to the Isles of Scilly and Cornwall:

- West of the Scilly Isles;
- South of the Scilly Isles; and
- Off Land's End, between Seven Stones and Longships.



There is also an IMO-adopted Recommendation on Navigation off the Isles of Scilly which advises laden tankers over 10,000 gross tonnage using the traffic separation scheme between Land's End and the Isles of Scilly to keep at least three miles seaward of Wolf Rock and further advises such vessels not to use the scheme in restricted visibility or other adverse weather.

Additionally, an IMO-adopted voluntary reporting scheme recommends that laden tankers using the Isles of Scilly route report to Falmouth Coastguard at least one hour from the Estimated Time of Arrival for entering the route and on final departure. Finally, there is a dedicated emergency towing vessel on stand-by 24 hours a day, 365 days a year ready to respond to shipping incidents in the South Western approaches (House of Commons, 2006).

### 3.3.3 National contingency plan

The Maritime and Coastguard Agency (MCA) which is the competent UK authority on response to pollution from shipping and offshore installations, published the "National Contingency Plan for Maritime Pollution from Shipping and Offshore Installations" (NCP) in 2000 (MCA, 2000). The NCP provides a comprehensive response procedure to deal with any emergency at sea that causes pollution, or threatens to cause pollution.

In order to assess the risks to the UK coastline from the transport of oil and hazardous chemicals by shipping, the MCA continuously monitors the movements of maritime traffic and potentially polluting substances within the UK's pollution control zone.

The 2001 "Review of Emergency Towing Vessel (ETV) Provision around the Coast of the UK" (MCA, 2001) identified the need for ETVs in four areas around the UK. Two of these ETVs are located at either end of the SEA 8 area. There is one stationed to cover the western approaches to the English Channel at the western end of SEA 8 and another is stationed covering the Dover Strait at the eastern end of SEA 8. The MCA has tugs in these areas on stand-by 24 hours a day, 365 days a year to respond to shipping incidents in their area.

### 3.3.4 International initiatives

The legal basis for marine pollution contingency planning comes from the following International legislation:

- **UN Convention on the Law of the Sea (UNCLOS)**, the UK has an obligation to protect and preserve the marine environment;
- **Merchant Shipping Act 1995**, as amended by the Merchant Shipping and Maritime Security Act 1997, provides the Secretary of State for Transport, Local Government and the Regions the function of taking measures to reduce and minimise the effects of marine pollution;
- **The International Convention on Oil Pollution Preparedness, Response and Co-operation 1990 (the OPRC Convention)**. The Convention requires signatories to inspect ships, maintain a national contingency plan for responding to oil pollution incidents and provide technical assistance to other signatories in the event of such incidents. The Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998 implement the obligations of the Convention in the UK; and

- **The International Convention for the Prevention of Pollution from Ships (the “MARPOL Convention”)** is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. Under this Convention, signatories must inspect ships in port and at sea, trace and prosecute polluting ships, and ensure there are adequate port facilities for receiving waste from ships.

### 3.4 RELEVANCE FOR SEA 8

SEA 8 is an important area for shipping and contains some of the busiest shipping lanes in the UK. As such, any oil and gas activities in the area are likely to interact with existing shipping. Potential impacts are likely include the effects on existing shipping through the physical presence of oil and gas infrastructure and increased shipping traffic associated with future developments. An increase in vessels transporting hydrocarbons might be expected, particularly if oil and/or condensates are discovered. Particular attention would need to be given to the English Channel area of SEA 8 area and impacts to the environmentally sensitive waters of the Isles of Scilly and the six identified MEHRAs avoided (see **Figure 3-1**).

All blocks within the UKCS require some level of shipping assessment to be carried out prior to the siting of any oil and gas infrastructure. Given the high level of shipping in SEA 8, it is likely an assessment will be required under the Coast Protection Act (CPA) in support of the consent to locate application.

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DfT, 2006a. Focus on Ports 2006. Available at: [http://www.dft.gov.uk/pgr/statistics/datatablespublications/maritime/focusonports/coll\\_focusonports2006a/focusonports2006](http://www.dft.gov.uk/pgr/statistics/datatablespublications/maritime/focusonports/coll_focusonports2006a/focusonports2006)

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MCA, 2001. Review of Emergency Towing Vessel (ETV) Provision Around the Coast of the UK Available at: [http://www.mcga.gov.uk/c4mca/mcga-environmental/mcga-dops\\_cp\\_environmental-counter-pollution/mcga-dops\\_cp\\_review\\_of\\_etvp.htm](http://www.mcga.gov.uk/c4mca/mcga-environmental/mcga-dops_cp_environmental-counter-pollution/mcga-dops_cp_review_of_etvp.htm)

Safetec (1999) Identification of Marine Environmental High Risk Areas (MEHRA's) in the UK. DETR document, Doc. No.: ST-8639-MI-1-Rev 01

## 4 OIL AND GAS INDUSTRY

### 4.1 INTRODUCTION

The oil and gas industry has played a key role in the UK economy since the 1960s. Although production is beginning to decline, it continues to contribute a major proportion (approximately 73%) towards the UK's total primary energy production. The UK oil and gas industry produced 78 million tonnes of oil and 92,620 million m<sup>3</sup> of gas in 2005 (DTI, 2006).

The majority of oil and gas activity in the UK Continental Shelf (UKCS) has come from the North Sea. In the late 1990s oil and gas activity expanded to the Atlantic Frontier (off the North and West Coasts of Scotland). This interest has not currently been extended to offshore activities in the SEA 8 area.

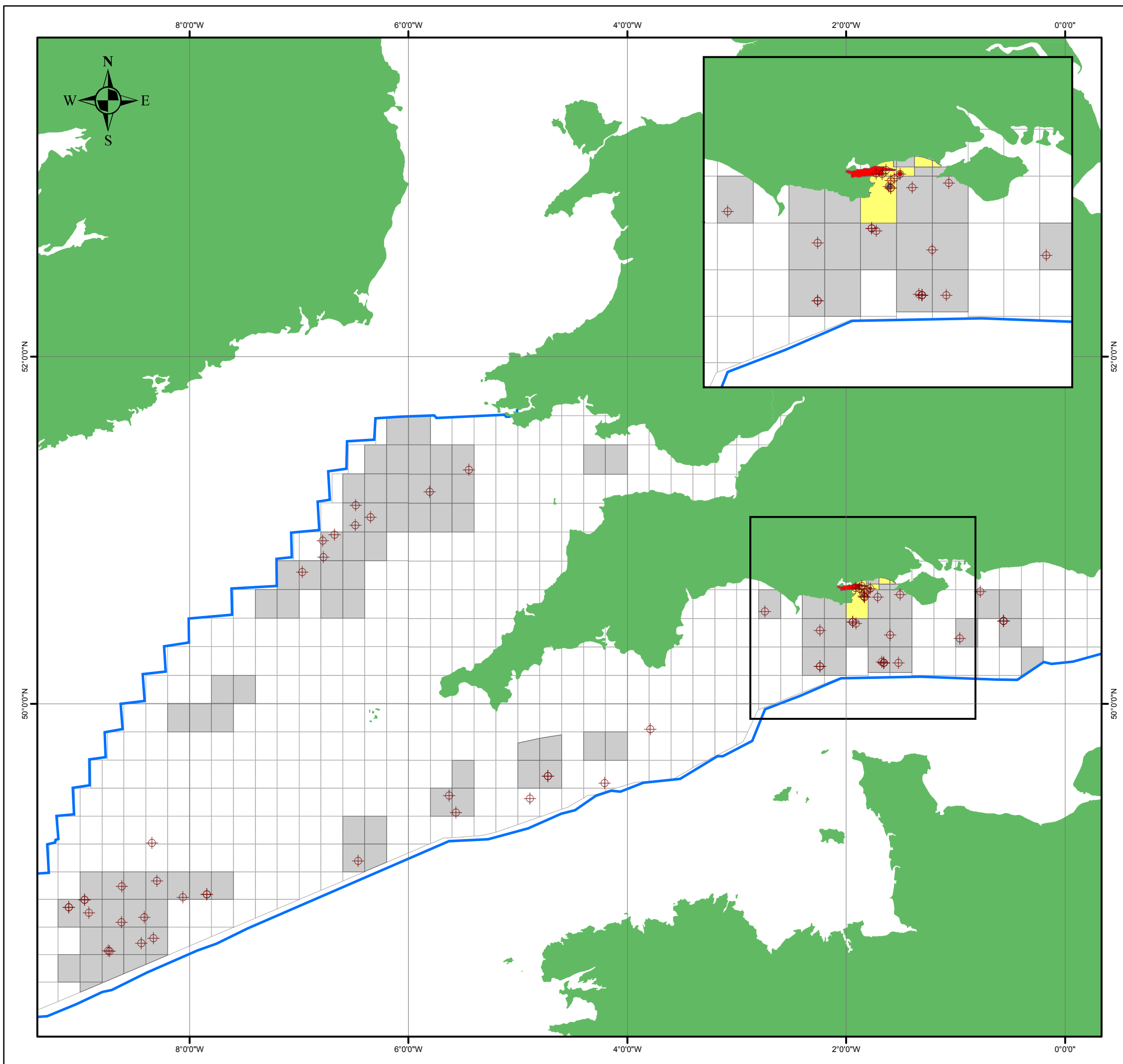
### 4.2 ACTIVITY IN THE SEA 8 AREA

#### 4.2.1 Upstream activity

There is no current offshore oil or gas production or development within the SEA 8 area (DTI, 2006<sub>a</sub>), although there is some near-shore activity off the Dorset coast (see **Figure 4-1**). Past offshore exploration in the region has suggested a lack of currently commercially viable reserves. There is a research level (i.e. pre-exploration) interest in the extreme western section of the area, through the Western Frontier Association (WFA). The WFA is a consortium of oil companies working with the BGS Continental Shelf and Margins Programme to investigate geohazards of the seabed and near seabed sediments relevant to the exploration and development of hydrocarbons west of the UK. (BGS, [www.bgc.ac.uk](http://www.bgc.ac.uk)). The main interest of the WFA is, however, in the SEA 7 (Atlantic Frontier) region west of the Hebridean and Shetland Islands. There are active offshore gas fields to the north of the SEA 8 area, off the southern coast of Ireland, e.g. Kinsale Head and Seven Heads gas fields, (Bord Gais, <http://www.naturalgas.ie>). There is also current exploration in the Porcupine Sea Bight, off the south west coast of Ireland (The Department of Communications, the Marine and Natural Resources, [www.dcmnr.gov.ie](http://www.dcmnr.gov.ie)).

By contrast to the lack of offshore activity, the SEA 8 area includes Western Europe's largest onshore oil field at Wytch Farm in Dorset. Total cumulative oil production (to 2005) from this field amounts to 53.2 million tonnes which, although minor, compared with the nearly 3000 million tonnes of oil produced offshore in the UK, represents nearly 90% of UK's total onshore production. Production figures for 2005 indicate that Wytch Farm is the UK's 11th (of 239) largest individual oil field (DTI, 2006). Whilst the field extends eastward under Poole Bay, drilling operations to access submarine reserves are currently land based using advances in drilling technology that have enabled wells to reach more than 10 kilometres horizontally from the wellhead. Development at Wytch Farm has had to take into account that it is situated in one of the most environmentally-sensitive areas of the United Kingdom (IPIECA, 2006).

Figure 4-1 : Oil and gas activity in SEA 8 area



**Legend**

- ⊕ Wells
- Oil and gas fields
- Gas
- Oil
- Oil and gas licence blocks
- Currently licenced blocks
- Previously licenced blocks
- SEA 8 area

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	UKDeal, SeaZone Solutions Ltd, DTI	
File Reference	P939/GIS/mxd/draft report/ Figure 4-1 Oil and gas.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager



## 4.2.2 Downstream activity

There is one major refinery (Esso, Fawley, on Southampton Water) within the SEA 8 area, with two others immediately adjacent to the area in Milford Haven and Pembroke. The Fawley refinery is the largest in the UK and one of the most, complex in Europe. It has a modern marine terminal that handles around 2,000 ship movements and 22 million tonnes of crude oil and other products every year (Exxon-Mobil, [www.exxonmobil.co.uk](http://www.exxonmobil.co.uk)). It is likely that currently existing facilities at Fawley and Milford Haven would be used to process any offshore product from the SEA 8 area and that infrastructure construction would reflect this.

## 4.3 MANAGEMENT ISSUES AND INITIATIVES

In the absence of planning controls in 'bay closing areas' and the near offshore, the Standing Conference on Oil and Gas Development in the English Channel (SCOG) was formed in 1979 to co-ordinate the views of local authorities. It covers the whole of the South Coast from Devon to West Sussex. It is recognised by government as the point of contact for local authority views on oil licensing, exploration and production (Solent Forum, [www.solentforum.hants.org.uk](http://www.solentforum.hants.org.uk)).

It is likely that any development of offshore oil and gas resources within the western SEA 8 area would require a coordinated strategic approach to environmental management. This could be similar to that of the SCOG and to that of the Atlantic Frontier Environmental Network (AFEN) and Forum (AFEF) for developments off the west of Scotland. The AFEN is a grouping of oil companies together with government bodies and research organisations. The AFEF was established to ensure that information from the AFEN is disseminated and that the concerns of local communities are addressed.

Details of the work undertaken by AFEN can be found on the UKOOA website ([www.ukooa.co.uk](http://www.ukooa.co.uk)). There are oil spill response plans for all of the SEA 8 area (ITOPF, 2006<sup>a, b</sup>) currently primarily directed at the possibility of shipping accidents but adaptable to future extraction industries.

## 4.4 RELEVANCE TO SEA 8

Currently, there is no evidence for commercially exploitable offshore reserves of oil or gas within the SEA 8 area, except off the Dorset coast where activity is, at present, land-based. There is interest, through the Western Frontier Association (WFA), in establishing whether potential reserves exist in the Western Approaches area and development may become commercially attractive in the future (BGS, [www.bgc.ac.uk](http://www.bgc.ac.uk)).

Major discoveries leading to productive fields would be of both national and regional significance. Developments off the south west of England and southwest Wales, in particular, would help boost local economies through regional investment and employment. These are, however, regions noted for the quality of their natural environment and any negative impact on this would be likely to have an adverse effect on tourism. Thus, any future oil and gas development will need to be sensitive to the natural qualities of the area.

## 4.5 SOURCES OF INFORMATION

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Solent Forum, Strategic Guidance for the Solent - Oil and Gas Chapter

<http://www.solentforum.hants.org.uk/oilgas/sqsoilgas.htm>

UKOOA, Atlantic Frontier Environmental Network, available at:

<http://www.ukooa.co.uk/issues/Afen/index.htm>

## **5 RENEWABLE ENERGY**

### **5.1 INTRODUCTION**

Renewable energy provides a clean, sustainable, alternative source of energy to the fossil fuel sources of coal, oil and gas, which produce greenhouse gas emissions, particularly carbon dioxide, believed to be contributing to global warming and climate change.

The Kyoto Protocol, which was adopted in 1997 and came into force in February 2005, is the treaty established to address the growing concerns of greenhouse gas emissions and global climate change. Under this protocol the UK committed to reduce greenhouse gas emissions by 12.5% below 1990 levels by 2008-12 and set a national goal to move towards a 20% reduction in carbon dioxide emissions relative to 1990 levels by 2020.

The EU Directive “The Promotion of Electricity from Renewable Energy Sources in the Internal Electricity Market” (2001/77/EC) - known as the Renewables Directive - aims, in addition to combating climate change, to include security and diversification of energy supply, environmental protection, and social and economic cohesion. Under this Directive, Member States are required to adopt national targets that are consistent with reaching a target of 22% of electricity from renewables by 2010. The target for the UK is 10% of electricity by that date.

In the Energy White Paper “Our energy future - creating a low carbon economy, 2003” the Government sets out how the UK can achieve its long-term goals to reduce carbon emissions. Although there is a strong emphasis on the need to increase energy efficiency, the White Paper identifies that renewable energy is integral to achieving a 60% reduction in carbon dioxide by 2050. Fossil fuel production in the UK is in decline and the UK, a former energy exporter, is set to become a net energy importer. By investing in renewable energy and harnessing the UK’s natural resources, renewable energy can play an important role in both reducing carbon emissions, while strengthening the security of energy supply.

In 2006 an Energy Review was announced to assess the developments and progress since the 2003 White Paper. The Government’s report on the Energy Review - “The Energy Challenge” was released on 11 July 2006 and an extensive consultation programme ensued on the proposals included in the review. The consultation on the Energy Review has now closed and the proposals are being progressed. The key proposals of relevance to renewable energy are those on the reform of the Renewables Obligation (see Section 5.3.2 for further details) and the establishment of a new fund to support renewable energy and other non-nuclear low carbon technologies.

### **5.2 ACTIVITY IN THE SEA 8 AREA**

#### **5.2.1 Resource Studies**

The UK wind resource is the largest in Europe and in terms of resource there is potential for development around the entire UK coastline, including the SEA study area. However, available technology currently limits the water depths in



which wind turbines can be installed – the deepest depth of water in which turbines are currently being installed is 45 m.

Several high-level wave and tidal energy resource studies have been undertaken which cover the SEA 8 study area:

- ABPmer, The Met Office, Garrard Hassan and Proudman Oceanographic Laboratory (2004). Atlas of UK Marine Renewable Energy Resources: Technical report. A report to the Department of Trade and Industry;
- Black & Veatch (2004). Tidal Stream Energy Resource and Technology Summary Report. A report to the Carbon Trust's Marine Energy Challenge;
- Black & Veatch (2005) Phase II UK Tidal Stream Energy Resource Assessment, A report to the Carbon Trust's Marine Energy Challenge; and
- Metoc plc (2004), Seapower SW review – Resources, Constraints and Development Scenarios for Wave & Tidal Stream Power, commissioned by the South West Regional Development Agency.

Each of these studies indicate that there is potential for wave and tidal energy development in the SEA study area. The key areas of technically exploitable wave energy span from south Pembrokeshire to Land's End in water depths of approximately 40 – 100 m. Areas of tidal resource are typically more discreet in spatial extent. In the SEA 8 study area the main region of tidal resource is located in the Bristol Channel, but there are several smaller areas of resource located around the coastline which are illustrated in **Figure 5-1**.

Details of offshore renewable energy developments in the SEA 8 area are given in **Sections 5.2.1** and **5.2.2** below.

## 5.2.2 Wind

Offshore wind energy is expected to be a major contributor towards the Government's target for renewable energy generation for 2010 and beyond.

As part of the first round of offshore wind energy developments, thirteen wind farm site leases were approved around the UK coastline. These 'Round 1' sites were chosen by potential developers, based on a range of relevant factors including water depth, wind resource, and grid connection. Areas of high nature conservation value (based mostly on statutory designation) were avoided as well as areas of seabed where existing seabed activities and uses are potentially incompatible with offshore windfarm development. At the present stage of technological development, water depth, grid connection and cable length are the major economic and technical considerations. Consequently, all the proposed windfarm sites under development following Round One are in water depths of less than 20 m, and no greater than 12 km offshore (Crown Estate). It is expected that technological advances will increase the range of suitable sites; however, it is likely that, in the near future, development in the SEA 8 area will be restricted by a combination of relatively deep water close inshore and important shipping routes and military exercise areas in the region.

Within the SEA 8 area, there is presently one proposed offshore windfarm from the 'Round 1' licence round in 2001. The proposed location of the Scarweather

Sands development is in the Swansea Bay area off the South Wales coast. The development was subject to an enabling order (Welsh Statutory Instrument 2004 No. 3054, W.263) allowing the construction operations to be started from 2004. It is intended by the developer that the site will comprise 30 turbines with a total generating capacity of up to 100 MW. There is currently a delay in development at this site.

There are currently no other plans for offshore windfarm development in the SEA 8 area.

### **5.2.3 Wave and Tidal**

There is one existing pre-commercial tidal energy development in the SEA area and several planned and potential marine renewable energy developments. The latter range from a “Wave Hub” development, which will provide a connection point and cables to shore for offshore wave energy devices, to several types of tidal energy development. Brief details of each of these developments are summarised below.

#### **Wave Hub**

The Wave Hub will provide a grid connection point for several arrays of wave devices and could greatly simplify and shorten the consents process for pre-commercial wave energy developments by providing a consented ‘plug-and-play’ facility.

The site is situated in approximately 50 m of water, 10 nm offshore of St Ives in north Cornwall. The proposed deployment area will be approximately 4 km by 2 km.

The power generated will be exported to shore via a 25 km cable.

The project is currently going through the consenting phase and the earliest predicted date for development is 2008, although this is subject to navigation issues being resolved.

#### **Tidal turbine development**

Marine Current Turbines (MCT) installed a pre-commercial scale tidal device off Lynmouth in Devon in 2003 and in January 2006 announced plans to investigate the feasibility of installing a 12 unit tidal array. The location being investigated is 2 km North West of Lynmouth, off Foreland Point (MCT, 2006).

#### **Tidal barrage development**

A tidal barrage is a dam that captures water in a basin at the peak of a tidal flow, then directs the water through a hydroelectric turbine as the tide ebbs. Typically, a barrage would run across an estuary.

Over recent decades there have been several feasibility studies into potential for development of a tidal barrage across the Bristol Channel/Severn Estuary. The two key studies are:

- The Cardiff-Weston Barrage scheme, as currently proposed by the Severn Tidal Power Group (STPG, 2006), would run from Lavernock Point to Brean Down, be 16 km long and enclose approximately 480 km<sup>2</sup> of the Bristol Channel/Severn Estuary; and

- The Shoots Barrage was proposed as an alternative to the Cardiff-Weston barrage scheme discussed above. This study considers the option of a smaller barrage, located close to the second Severn Crossing. This barrage would extend approximately 4 km across the estuary, and enclose approximately 90 km<sup>2</sup> of the Severn Estuary (Black and Veatch, 2006).

Neither of these proposals have progressed to the detailed planning stage as yet, due to both economic and environmental issues (barrage developments have potential to cause significant change to the environment).

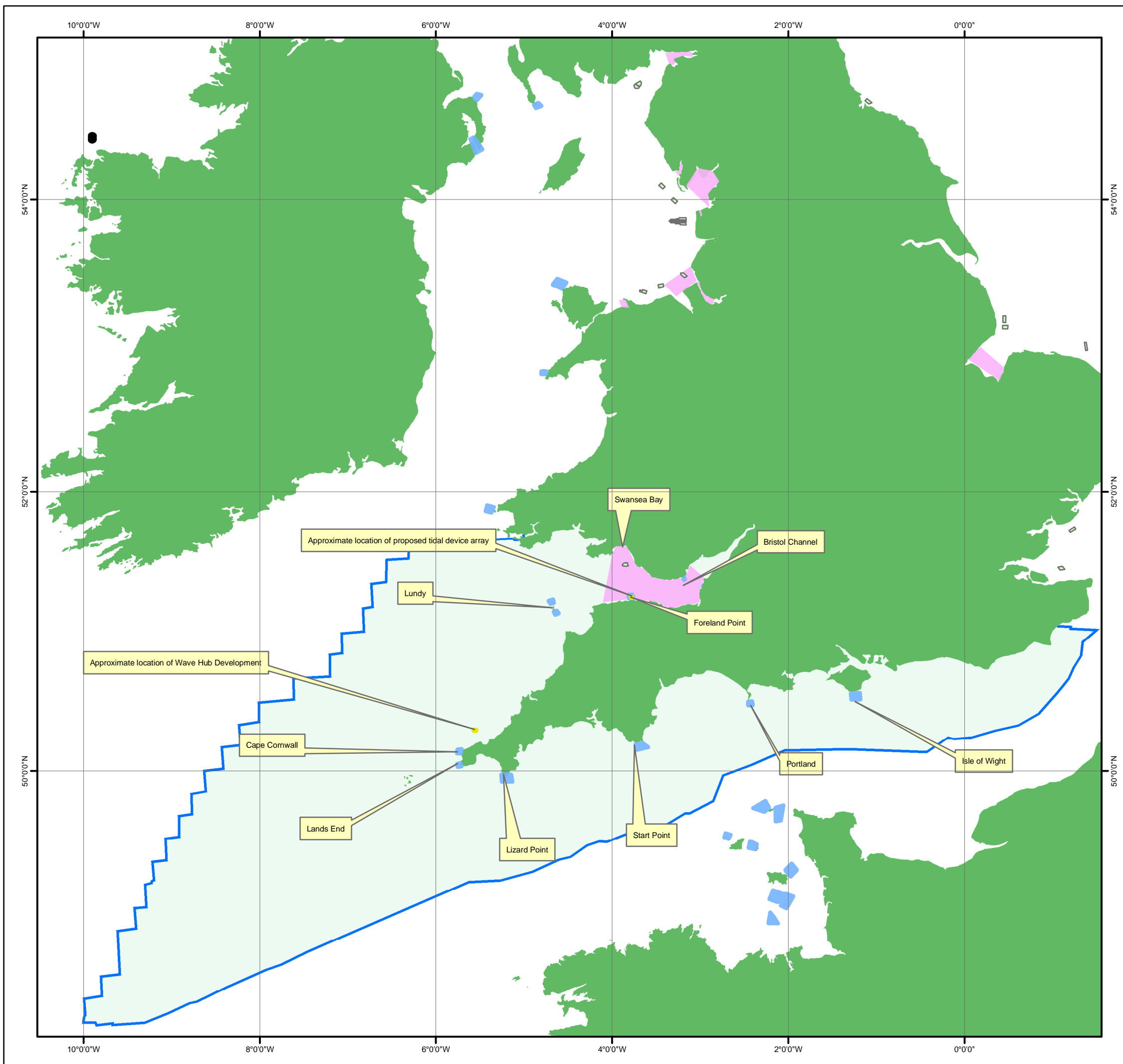
#### **Tidal lagoon development**

As an alternative to a barrage option of extracting energy from the tides in the Bristol Channel area, tidal lagoons have also been investigated as they are considered to potentially have less significant environmental effects than barrages.

Tidal lagoons are bunded structures that impound the incoming tide but do not extend across the full width of the channel/estuary and do not extend to the shoreline. The generation of energy from tidal barrages relies on complete closure of the estuary. In the Bristol Channel area the option of installing three lagoons in the area between Chepstow, Cardiff and Weston Super Mare was given as an alternative to a Severn Barrage. However, there are no formal plans to progress this proposal at the current time.

A tidal lagoon development has also been proposed for Swansea Bay by Tidal Electric Limited (TEL).

Figure 5-1: Offshore renewable energy development



**Legend**

- Proposed Scarweather Sands windfarm site
- Proposed marine renewable energy development site
- Indicative location of tidal resource areas**
- Barrage / lagoon
- Tidal stream
- SEA8 area

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	OSPAR Commission 2005, CEFAS	
File Reference	P939/GIS/MXD/draft report/ Figure 9-1 Waste disposal.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager



## **5.3 MANAGEMENT ISSUES AND INITIATIVES**

Management issues and initiatives have already been addressed in SEA 4 existing users report, issued in 2003 and so will not be repeated here. However, brief details for new or updated management issues and initiatives of relevance to SEA 8 area are included.

### **5.3.1 Energy Act 2004**

The Energy Act 2004 provides a comprehensive legal framework for offshore renewable energy beyond the UK's territorial waters. The Act establishes a Renewable Energy Zone (REZ), adjacent to the UK's territorial waters, within which renewable energy installations can be established.

### **5.3.2 Renewables Obligation**

The Renewables Obligation place an obligation on licensed electricity suppliers to purchase a specified proportion, increasing yearly, of electricity generated from renewable sources.

Following the UK Government's 2006 Energy Review (DTI, 2006<sub>a</sub>), in which a package of proposals were announced to help address the issues of climate change and the need to deliver secure, clean energy at affordable prices, the Government announced a number of changes to the Renewables Obligation, including policy recommendations. Subsequently, a consultation document on the Reform of the Renewables Obligation and the Renewables Obligation Order 2007 was published on 9 October 2006, by the DTI, and closed on 5 January 2007 (DTI, 2006<sub>b</sub>).

The consultation contained two parts:

- 1) Part 1 consulted on the proposals in the Government's Energy Review Report to introduce from 2009 or 2010 "banding" of the RO to "differentiate levels of support to different renewable technologies to give more support to emerging technologies such as offshore wind, wave and tidal" and give additional certainty on long-term ROC prices. These changes to the RO would be subject to the passage of primary legislation; any changes coming into force on 1 April 2009 at the earliest.
- 2) Part 2 was a statutory consultation on a small number of more limited and detailed changes to the Renewables Obligation legislation (via secondary legislation) that it is proposed to come into force for 1 April 2007. These changes are in the area of the administration of the Obligation, including: changes to allow easier access to the Renewables Obligation for small generators and the removal of the requirement for sale and buyback agreements for certain renewable generators.

## **5.4 RELEVANCE TO SEA 8**

There is considerable potential for offshore renewable energy development in the SEA 8 area, particularly for wave and tidal developments with several feasibility studies having been undertaken, and the Wave Hub is currently going through the consenting phase. The level of resource available in the SEA 8

area also suggests that further, larger scale projects will be developed in the future.

## 5.5 SOURCES OF INFORMATION

Black & Veatch (2004). Tidal Stream Energy Resource and Technology Summary Report. A report to the Carbon Trust's Marine Energy Challenge.

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Metoc plc (2004). Seapower SW review – Resources, Constraints and Development Scenarios for Wave & Tidal Stream Power, commissioned by the South West Regional Development Agency

Severn Tidal Power Group, 2006. Presentation to the Royal Institute of Physics, 1 June 2006

## 6 CABLES

### 6.1 INTRODUCTION

Globally, submarine cables play a key role in facilitating modern day life (ICPC, [www.ispcpc.org](http://www.ispcpc.org)). Submarine telecommunication cables form the backbone of the communications network including the internet and e-commerce, whilst submarine power cables have enabled the bulk import and export of electric power for both commercial and domestic use. Telecommunication and power cables link mainland UK with the islands around the UK, Europe and North America. The vast majority of cables laid in UK waters are telecommunication cables with numbers increasing through the 1990s in response to the internet boom and a general increase in the demand on telecommunication services. Power cables are, however, likely to become increasingly important with the development of offshore renewable energy resources.

Limited design lifetimes and changes in technology mean that existing telecoms cables are regularly replaced, with the old cable frequently left on the seabed.

### 6.2 ACTIVITY IN SEA 8

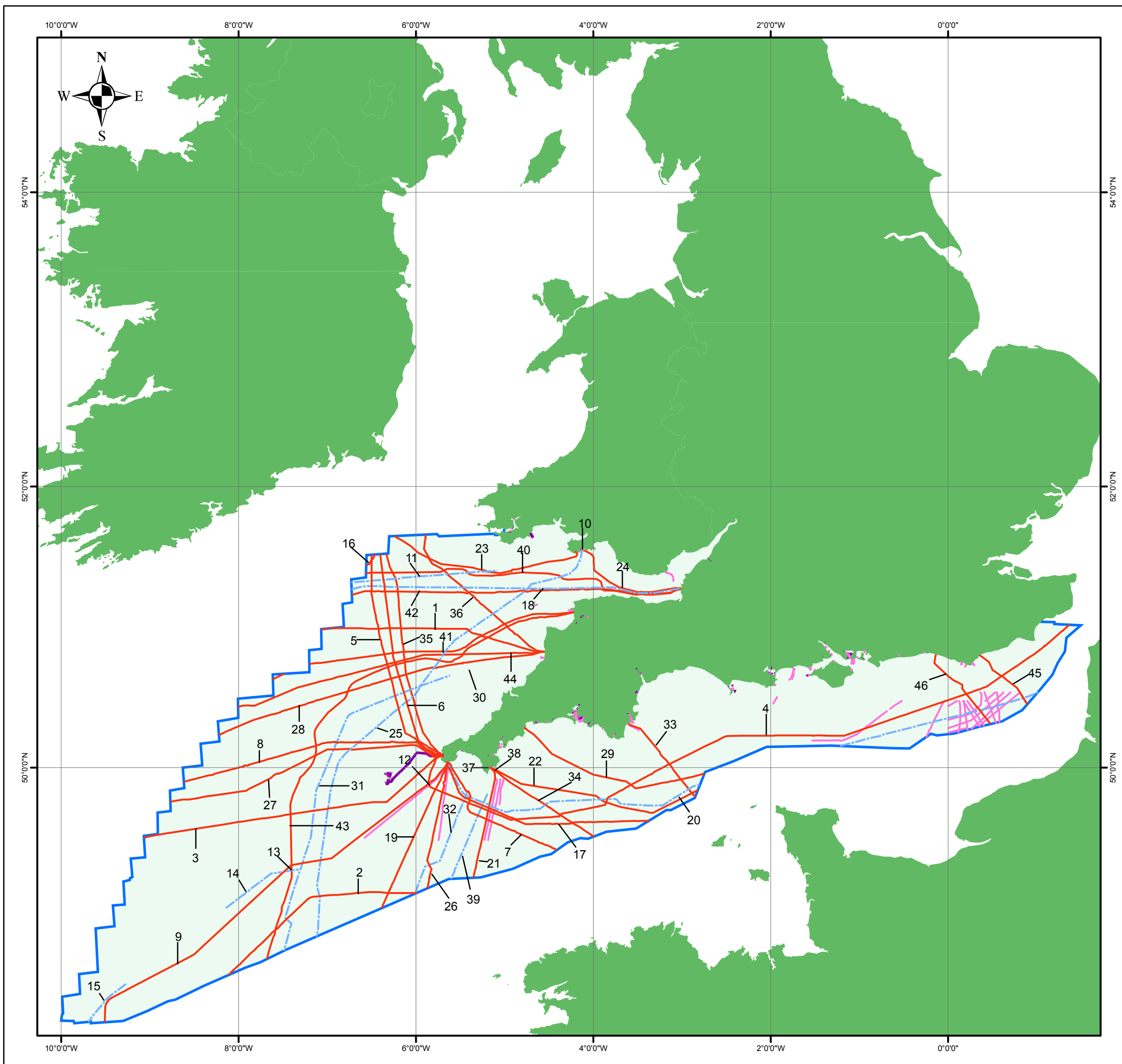
Available information (Kingfisher and Admiralty Charts 1123 and 2675) suggests that there are some 54 communications cables leaving the SEA 8 coastline or traversing the area (**Figure 6-1** and **Appendix A**). The greatest concentration of cables fans out from Lands End and the Lizard, linking the UK with the Americas, Europe and the Channel islands. Eastward, up the English Channel, the cable density becomes markedly lower; however, there are cables linking Dartmouth and Bournemouth with the Channel Islands and crossing between the East Sussex coast and France. In addition, there are a number of cables, originating in the North Sea States and France, running down the Channel, near the median line. There are also a number of cables originating along the north coast of the Cornish Peninsula and from the Gower Peninsula in Wales.

Future offshore renewable energy development in the SEA 8 study area (wave and tidal e.g. the proposed Wind Hub development off the North Cornwall coast, and wind farm developments, e.g. Scarweather Sands in the Bristol Channel, this report) will require connection to the national grid system. Currently there is no information available on the potential number of cables or routes, but as projects develop such information is likely to become available via project developers.

### 6.3 RELEVANCE FOR SEA 8

The locations of telecommunications and power cables in the SEA 8 area are charted on Admiralty charts and Kingfisher Awareness Charts. Cables are unlikely to interfere with oil and gas activities given that their location would be identified early on in the screening stage of an oil and gas project and the appropriate measures to avoid or cross the cables would be taken.

Figure 6-1: Cables in SEA 8 area



**Legend**

Submarine telecommunications cables

Status

— Active

- - - Out of service

Submarine cables, status unknown

— Power cables

— Other cables

SEA 8 area

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	SeaZone Solutions Ltd, Kingfisher Cable Awareness Charts	
File Reference	P939/GIS/MXD/draft report / Figure 6-1 Cables.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager





## **6.4 SOURCES OF INFORMATION**

ICPC, International Cable Protection Committee website. Available at:  
[www.iscpc.org](http://www.iscpc.org)

Kingfisher Cable Awareness Charts, 2006: Southwest Approaches and English Channel.

## 7 MILITARY ACTIVITY

### 7.1 INTRODUCTION

The assessment of military activities in the SEA 8 area is informed by the distribution and classification of Practice and Exercise Areas (PEXA). This information, which is available from the United Kingdom Hydrographic Office, shows areas around the UK which are in use or available for use by the Ministry of Defence for practice and exercise with or without the use of live ammunition.

### 7.2 ACTIVITY IN THE SEA 8 AREA

The amount of military activity in the Western approaches, Bristol Channel and English Channel is considerable and the region includes the UK's two largest Royal Navy bases (Devonport and Portsmouth) and the UK's only military port (Marchwood). Whilst the primary user in the SEA 8 area is the Royal Navy (RN), there are also Royal Air Force (RAF) exercise areas and a number of Army or Ministry of Defence (MoD) ranges with seaward extensions around the coast (see **Figure 7-1** and **Appendix B**).

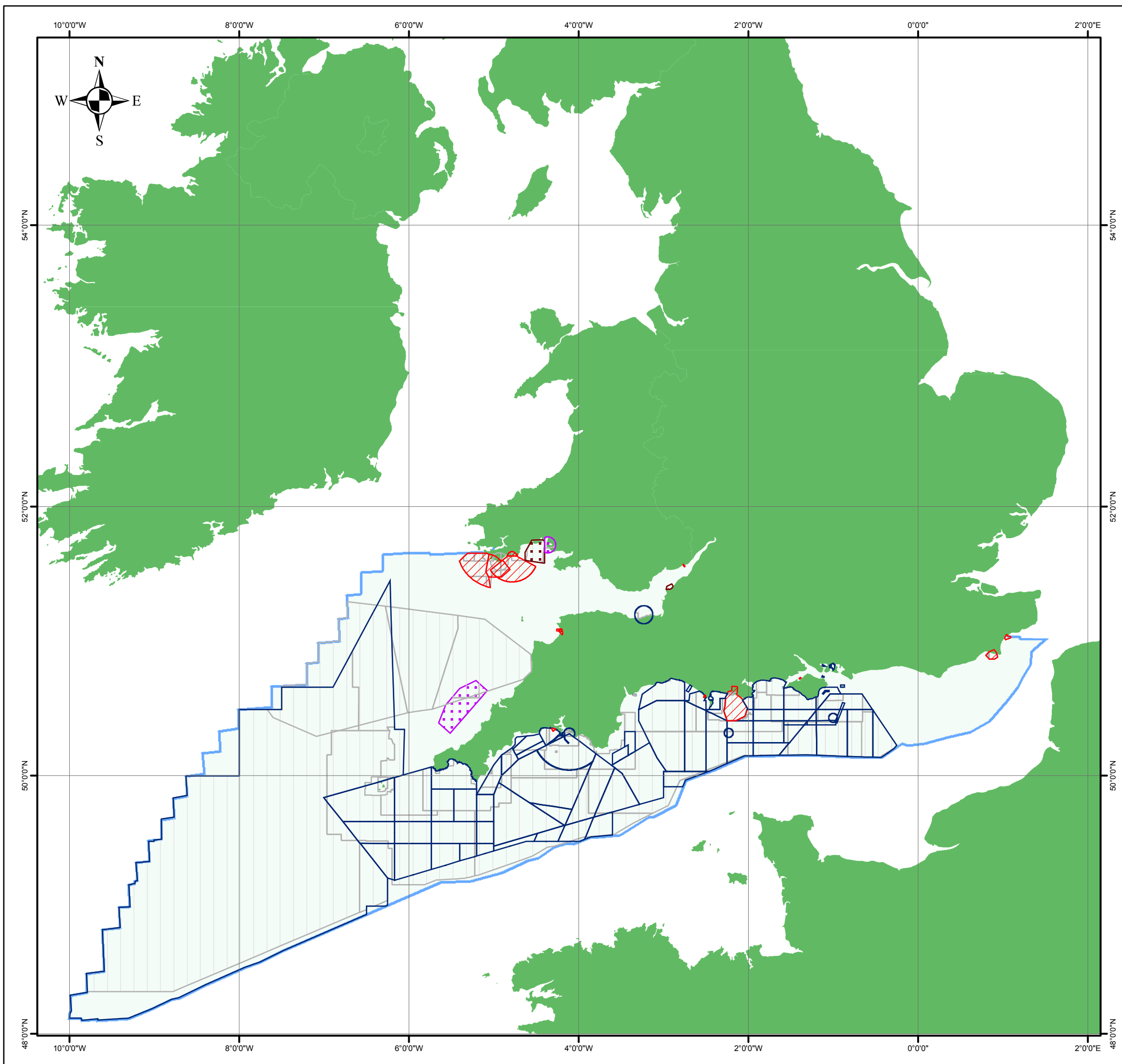
Further details of exercise areas in the SEA 8 area can be found on Practice and Exercise Area (PEXA) charts: Q 6401 (S.E. Sheet, Scarborough to Poole), Q 6402 (S.W. Sheet, Poole to Isle of Man) and Q 6407 (South-western Approaches to the English Channel) (UKHO).

Royal Navy exercise areas within the SEA 8 area extend throughout the English Channel, west of 0° 15' W, and the Western Approaches. The region is within the South Coast Exercise Area and RN exercises are carried out under the operational control of Plymouth Marine Operations Centre. The areas are routinely patrolled and used for operational sea training and exercises involving surface craft, submarines and aircraft.

Other military activities in the SEA 8 area include:

- RAF: bombing operations (non-live) in Carmarthen Bay and helicopter exercises off the north Cornish coast.
- Army: a number of army firing ranges around the SEA 8 coastline. The seaward extent of these is normally less than 5 km but the target areas extend to 18 km seaward from Lulworth, and in the area around St Govans Head.
- MoD: a MoD Procurement Executive weapons testing range, in Carmarthen Bay (Pendine), which has boundaries extending approximately 18 km offshore. There is an underwater explosives site near Weston-Super-Mare, extending approximately 5 km to seaward (QinetiQ, 2006).

**Figure 7-1: Military Practice and Exercise Areas in SEA 8 area**



**Legend**

Military Practice Areas within SEA 8 area

Navy Depart

Army Depart

Air Force Depart

MOD(PE)

Unspecified

SEA 8 area

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	SeaZone Solutions Ltd (UKHO)	
File Reference	P939/GIS/MXD/draft report/ Figure 7-1 Military.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager



### **7.3 RELEVANCE FOR SEA 8**

Given the number and extent of military (particularly RN) exercise areas in the SEA 8 area it is likely that any future oil and gas development will take place within areas used by the armed forces. There is, therefore, potential for interaction between the two activities.

Detailed information about military activities is not widely available. However, there is considerable naval activity to the south and southwest of England, where oil and gas blocks may be made available for licence in some future round. Therefore, dialogue with the MoD (Defence Estates) at the consenting stage for specific developments would be the most appropriate method of avoiding potential conflict. The existence of PEXAs has not necessarily precluded oil and gas development in other areas such as the North Sea and Irish Sea.

### **7.4 SOURCES OF INFORMATION**

QinetiQ (2006). Pendine Operations. Available at QinetiQ website: [http://www.qinetiq.com/home/defence/test\\_and\\_evaluation/singlesitefacilities/pendine\\_facilities/pendine\\_operations.html](http://www.qinetiq.com/home/defence/test_and_evaluation/singlesitefacilities/pendine_facilities/pendine_operations.html)

QinetiQ (2006). Weston-Super-Mare Operations. Available at QinetiQ website: [http://www.qinetiq.com/home/defence/test\\_and\\_evaluation/singlesitefacilities/weston\\_super\\_mare\\_facilities/weston\\_super\\_mare.html](http://www.qinetiq.com/home/defence/test_and_evaluation/singlesitefacilities/weston_super_mare_facilities/weston_super_mare.html)

UKHO. United Kingdom Hydrographic Office, Practice and Exercise Area (PEXA) charts: Q 6401 (S.E. Sheet, Scarborough to Poole), Q 6402 (S.W. Sheet, Poole to Isle of Man) and Q 6407 (South-western Approaches to the English Channel).

## **8 DREDGING AND AGGREGATE EXTRACTION**

### **8.1 INTRODUCTION**

Marine dredging in the UK takes two forms:

- Removal of sand and gravel from the seabed for use as a commercial resource; and
- Removal of accumulated sediment from navigation routes, usually within and around harbours.

Sand and gravel from marine sources makes an important contribution to meeting industrial demand for concrete, road construction, building, beach replenishment and coastal defence. In the UK, much of the sand and gravel used in the construction industry is quarried from the land but dredging of deposits on the seabed has involved fewer planning constraints and was perceived to have a less noticeable impact on the landscape. However, in recent years the assessment and licensing process has developed to incorporate broader and more rigorous assessment of environmental and socio-economic impacts.

Today, approximately 21% of the sand and gravel used in England and Wales is supplied by the marine aggregate industry. In the south east of England, 33% of sand and gravel for construction comes from the seabed and has been used in a number of major developments in the east London corridor.

One of the main benefits of using marine sources is that ships can deliver aggregates directly to wharves in urban areas, which eliminates transport by road. In London in 2004 it is estimated (BMAPA, 2006) that this saved 340,000 lorry trips, reducing road congestion and pollution. Marine aggregates are also used in beach replenishment schemes. Large volumes of aggregates are pumped directly from dredgers onto beaches, providing coastal protection as well as enhancing the amenity value and, therefore, the economy of an area.

There are currently over 70 production licences around the UK coast producing approximately 22 million tonnes of material per annum. These only cover about 0.12% of the UK continental shelf. Of this only about 12% is actively dredged each year, which equated to 144 square kilometres in 2003, a reduction of some 114 square kilometres since 1998 (Crown Estate 2006).

### **8.2 ACTIVITY IN SEA 8 AREA**




Commercial dredging areas for marine sand and gravel are restricted by the occurrence of suitable deposits as well as a number of other factors including economic viability, technical constraints, and distance from licence area to point of landing and commercial demand for the product. The suitability of such resources in the SEA 8 area is reflected in the industry's focus on areas such as the English Channel and Bristol Channel, where resources are closer to product demand.

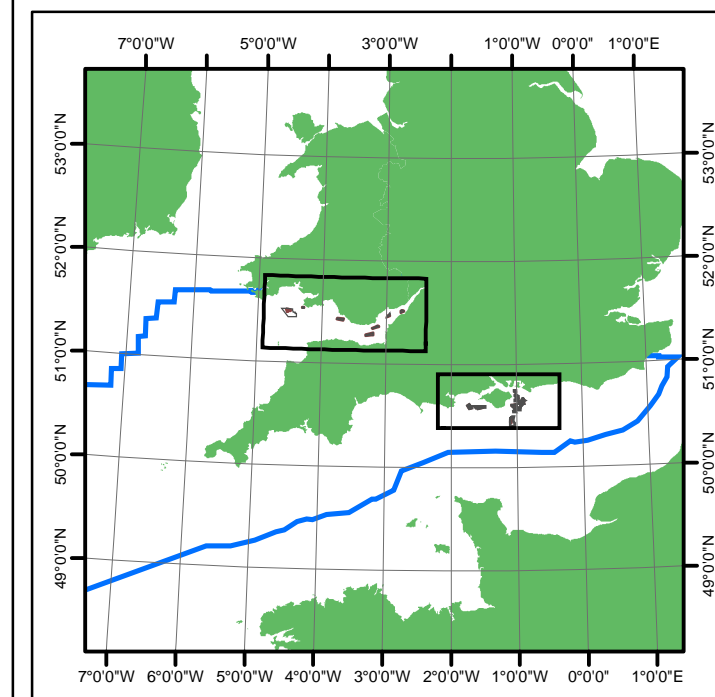
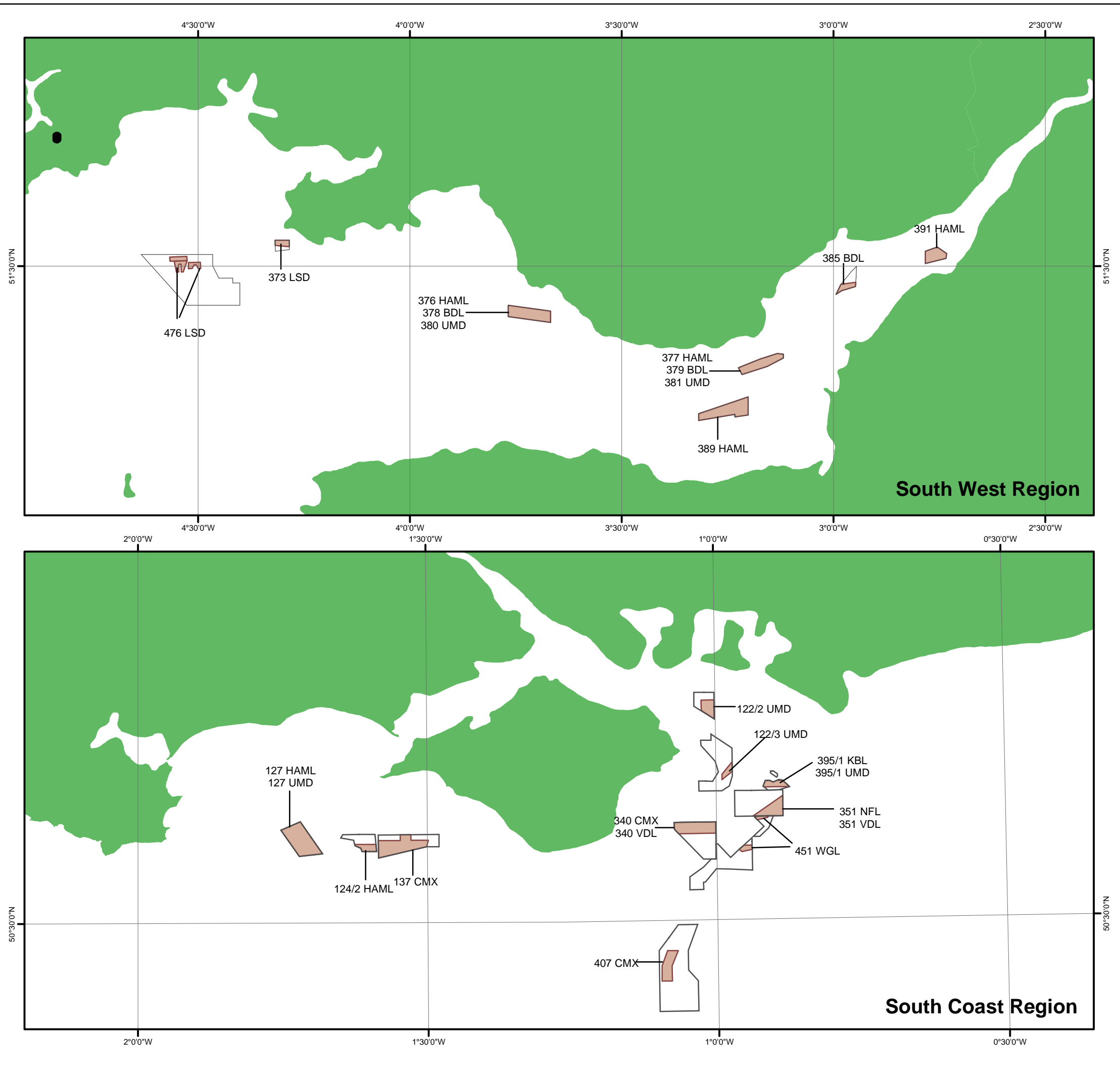
Four of the eight dredging regions around the coast of England and Wales, occur in the SEA 8 area (see **Figure 8-1** and **Figure 8-2**):

- South west (Bristol Channel);
- South Coast;
- Owers Bank; and
- East English Channel.

Figure 8-1: Marine dredging areas in SEA 8 area

Legend

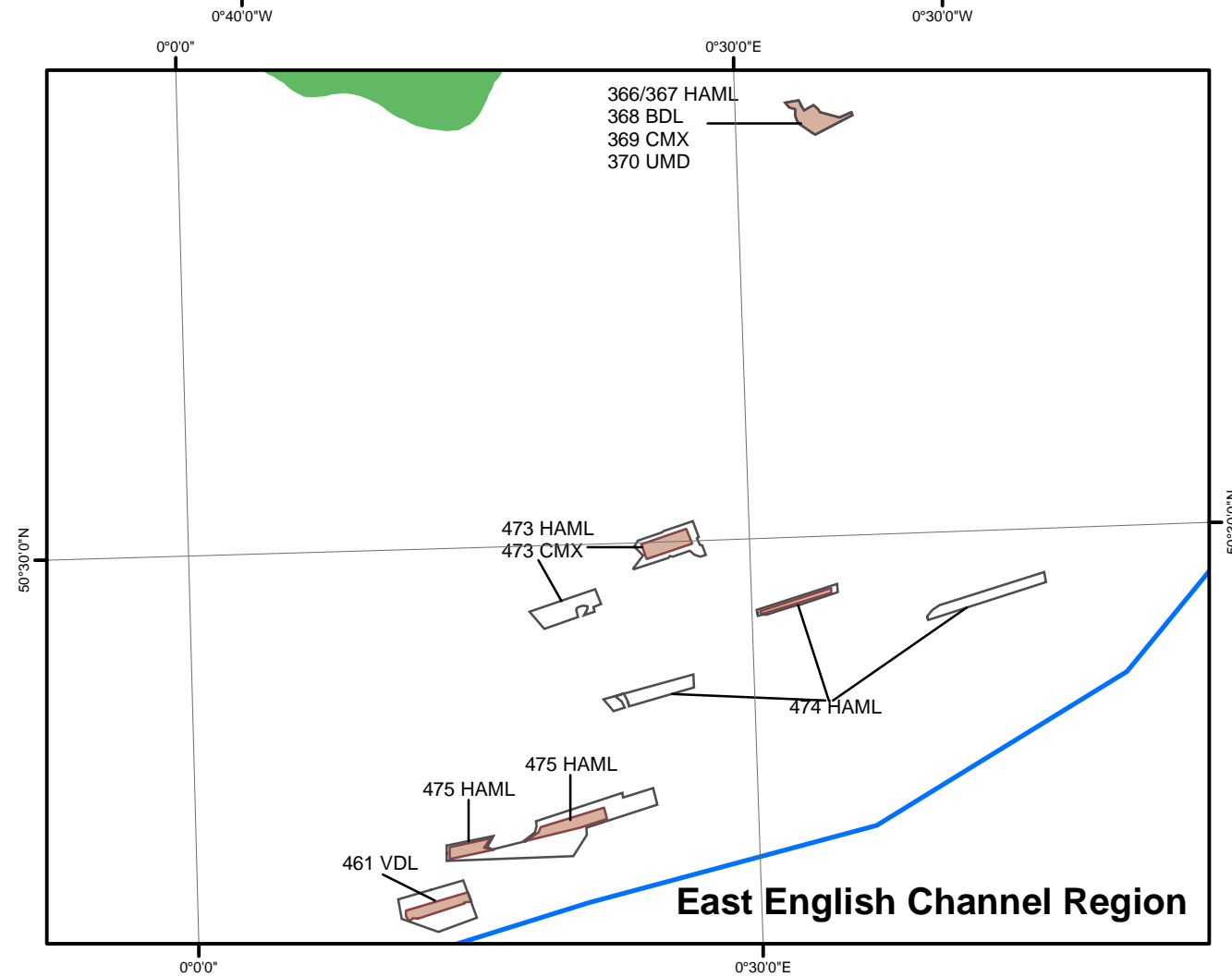
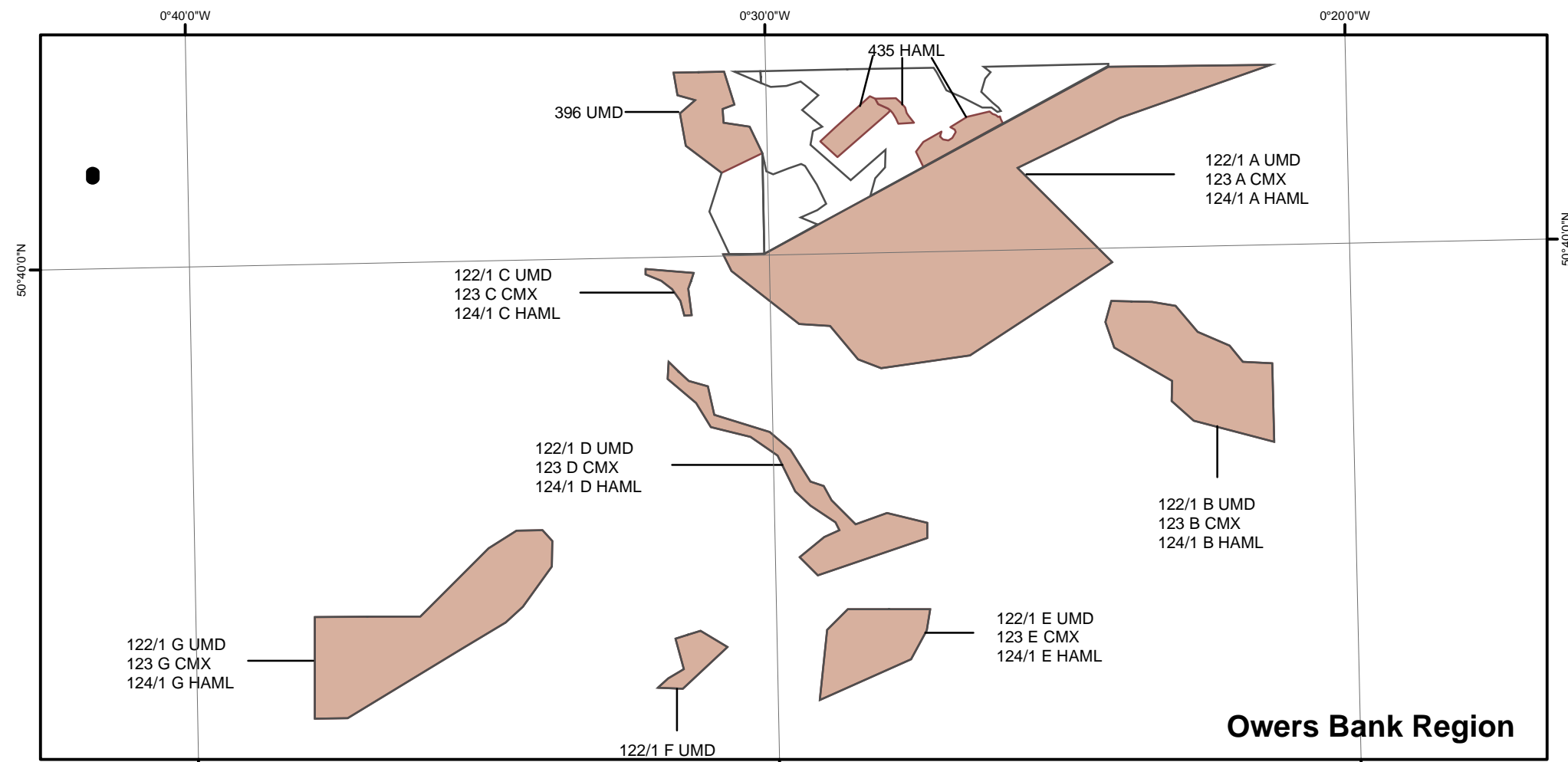
-  Active dredge areas in SEA 8 area
-  Licensed dredging areas in SEA 8 area
-  SEA 8 area



Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	Crown Estate / BMAPA	
File Reference	P939/GIS/MXD/draft report/ Figure 8-1a Dredging and Aggregates.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager



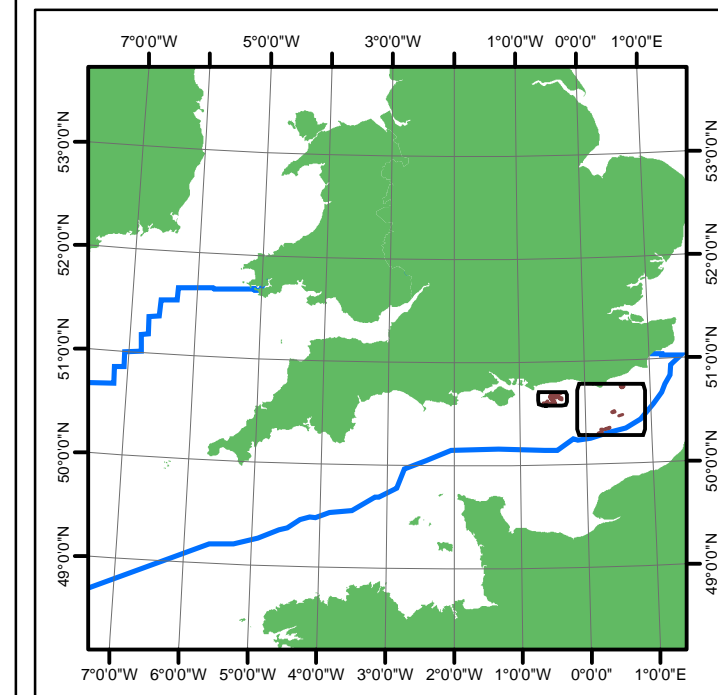
Figure 8-2: Marine dredging areas in SEA 8 area



Note: Dredging is not permitted on area 461 and 475 between 1 November and 28 February (inclusive)

**Legend**

- Active dredge areas in SEA 8 area
- Licensed dredging areas in SEA 8 area
- SEA 8 area



Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	Crown Estate / BMAPA	
File Reference	P939/GIS/MXD/draft report/ Figure 8-1b Dredging and Aggregates.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager





A comparison of total licensed, active (i.e. net, allowing for zoning etc.) and dredged areas is given in **Table 8-1**. Permitted and actual tonnages removed in these aggregate extraction regions are given in **Table 8-2**.

**Table 8-1: Areas of seabed licensed and exploited for aggregate extraction in SEA 8 (2005)**

Region	Total area licensed (km <sup>2</sup> )	Total active dredge area <sup>1</sup> (km <sup>2</sup> )	Total area dredged (km <sup>2</sup> )
South Coast	215.45	100.37	29.35
South West	54.41	49.55	10.24
Total UK (km <sup>2</sup> )	1179.36	595.90	137.55

<sup>1</sup> Total area actually available to be dredged during 2005, calculated on a cumulative basis

Source: The Crown Estate, 2006

**Table 8-2: Permitted and actual removal and use of aggregates in 2005 by weight (Metric tonnes)**

Dredging Area	Permitted Removal	Aggregates	Rivers and Miscellaneous	Contract Fill	Beach Nourishment	Total Removal
South	14,125,000	5,389,346	0	0	343,456	5,732,802
South West	2,573,000	1,591,610	0	0	0	1,591,610
Total UK	38,882,999	19,562,636	124,506	0	1,530,494	21,217,636

Source: The Crown Estate, 2006

Active dredge areas and the licensed dredging areas within the SEA 8 area are shown in **Figure 8-1** and **Figure 8-2**. Companies holding licences within each of the sub-regions are listed in **Table 8-3**.

**Table 8-3: Companies carrying out dredging operations in SEA 8**

Company	Regions	No of Sites
British Dredging Ltd	East English Channel	1
	South West	3
CEMEX UK Marine Ltd	East English Channel	2
	Owers Bank	1
	South Coast	3
Hanson Aggregates Marine Ltd	East English Channel	5
	Owers Bank	2
	South Coast	2
	South West	4
United Marine Dredging Ltd	East English Channel	1
	Owers Bank	2

Company	Regions	No of Sites
	South Coast	5
	South West	2
Volker Dredging Ltd	East English Channel	1
	South Coast	2
Northwood (Fareham) Ltd	South Coast	1
Kendal Brothers (Portsmouth) Ltd	South Coast	2
Westminster Gravels Ltd	South Coast	1
Llanelli Sand Dredging Ltd	South West	2 (1 dormant)

Source: The Crown Estate, 2006

Landings of marine aggregates at individual ports serving the four regions (Dover is included as receiving aggregate from the South Coast although it is outside the SEA 8 area) and exports from SEA 8 are given in **Table 8-4** below.

**Table 8-4: Summary of port statistics for marine dredged aggregates - 2005**

LANDING PORTS	TONNAGES
<b>SOUTH COAST</b>	
Shoreham	815,439
Southampton	771,954
Bedhampton	232,003
Dover	198,503
Newhaven	176,249
Portsmouth	167,006
Langstone	155,388
Cowes	117,688
Woolston	83,456
Poole	71,427
Fareham	30,712
Total Landed in Region	2,819,825
Total extracted in region	5,732,802
Beach Replenishment	343,456
Export	2,569,521
<b>SOUTH WEST COAST</b>	
Avonmouth	466,325
Newport	275,138
Cardiff	263,070
Briton Ferry	198,795
Burry Port	107,345
Swansea	74,467
Appledore	66,699

LANDING PORTS	TONNAGES
Pembroke	66,607
Bridgwater	65,185
Port Talbot	17,436
Barry	16,345
<b>TOTAL LANDED IN REGION</b>	<b>1,617,412</b>
<b>TOTAL EXTRACTED IN REGION</b>	<b>1,591,610</b>

Source: The Crown Estate, 2006

A proportion of aggregate extracted within SEA 8 is directly recycled for beach replenishment schemes as listed in **Table 8-5** below.

**Table 8-5: Contract fill/beach nourishment, south coast**

Landing ports	Tonnages
Pevensey Bay	139,308
Shoreham	204,148
Total	343,456

Source: The Crown Estate, 2006

There was also a considerable export from the South Coast region, 40% of the total UK export of marine aggregates to Europe.

Navigation dredging is the responsibility of individual harbour authorities and is unlikely to impinge on Oil and Gas industry offshore operations. However, a licence is required for the disposal of dredged material at offshore sites, usually located in the vicinity of ports in the region. Disposal sites in the SEA 8 area are discussed in Section 9.

### **8.3 MANAGEMENT ISSUES AND INITIATIVES**

The control and management of the sector is based on a sound understanding of the distribution and quality of the geological resources being worked. This in turn is informed by good quality data, and the industry is constantly improving its knowledge base through additional survey activity (BMAPA, 2006). The industry has a record of co-operating with conservation and heritage organisations in order to minimise environmental harm through its operations.

Government policy is to minimise both the area of seabed licensed for dredging and the area of seabed actually dredged. The latter is limited through zoning schemes, adopted either voluntarily by individual dredging companies or as condition of licensing (BMAPA, 2006).

Annual reporting of these figures by BMAPA and The Crown Estate has taken place since 1999, and the progressive information now represents a key indicator of the sector's overall environmental performance (Crown Estate, 2006).

## **8.4 RELEVANCE TO SEA 8**

Marine aggregate extraction represents a considerable economic activity within SEA 8, although the actual proportion of the seabed exploited is small. In the event of significant oil or gas discoveries, with subsequent exploitation and infrastructure development, it is possible that there would be some interaction between the two activities.

## **8.5 SOURCES OF INFORMATION**

BMAPA, 2006 Strength from the depths: A sustainable development strategy for the British marine aggregate industry. Available at: [http://www.bmapa.org/pdf/bmapa\\_sd\\_strategy2006.pdf](http://www.bmapa.org/pdf/bmapa_sd_strategy2006.pdf)

Crown Estate, 2006, Marine Aggregate Dredging 8th Annual Report [http://www.thecrownestate.co.uk/42\\_dredge\\_areas\\_and\\_statistics](http://www.thecrownestate.co.uk/42_dredge_areas_and_statistics)

## 9 MARINE WASTE DISPOSAL (INCLUDING ORDNANCE)

### 9.1 INTRODUCTION

Control of waste disposal at sea in UK waters is achieved through a strict licensing system under the Food and Environment Protection Act 1985 (FEPA). Responsibility for statutory licences to carry out disposal in UK waters lies with the Marine Consents & Environment Unit (MCEU) of DEFRA for England and Wales, (MCEU, [www.mceu.gov.uk](http://www.mceu.gov.uk)). A number of statutory changes, governing the types of waste that can be disposed of at sea have occurred over recent years. Since 1994, the dumping of most types of industrial waste has been prohibited and the disposal of sewage sludge was phased out at the end of 1998 under the Urban Waste Water Treatment Directive (91/271/EEC). Dredged material from port and navigation channel excavation and coastal engineering works now constitutes the majority of material that remains eligible for disposal at sea.

In addition to this, sites within the SEA 8 area have been used as dumping grounds for waste munitions and, in one known case, for disposal of chemical weapons.

### 9.2 ACTIVITY IN THE SEA 8 AREA

#### 9.2.1 Marine disposal sites

The dumping of most types of industrial waste and sewage sludge at sea is now prohibited and has been discontinued in UK waters since 1998. Material from port and navigation channel excavation and coastal engineering works now constitutes the majority of material disposed of at sea. Disposal licences are granted annually and new applications are made periodically when navigational dredging is required at local ports and harbours.

There are 38 marine disposal sites listed around the SEA 8 coastline as licensed to receive dredging waste (**Table 9-1**). The disposal of this material at sea is considered as relocation. Where industrial estuaries have been dredged such waste material can contain a variety of contaminants, some of which are persistent in the marine environment. There are also four relict sewage sludge disposal sites (used up to 1998, with monitoring since) – see **Table 9-2**. All are dispersive and are considered to have caused little long-term effect on the seabed (DEFRA 2006).

There are a number of other disposal sites in the SEA 8 area that have been used in the past and for which new licences may be granted. These are shown in **Figure 9-1**.

**Table 9-1: Marine disposal sites in the SEA 8 area**

MAP REF.	SITE NAME	OSPAR CODE DESIGNATION	LICENSE STATUS
1	EASTBOURNE	DV040	Current
2	WISH TOWER	DV045	Closed
3	NEWHAVEN	WI010	Closed
4	NEWHAVEN	WI011	Closed
5	BRIGHTON AND ROTTINGDEAN	WI020	Closed
6	SHOREHAM	WI031	Closed
7	CHICHESTER HARBOUR	WI045	Current
8	NAB TOWER (DREDGINGS)	WI060	Current
9	BASIN 1 NAVAL BASE PORTSMOUTH	WI065	Current
10	HURST FORT	WI080	Closed
11	WEST WIGHT	WI081	Closed
12	NEEDLES	WI090	Current
13	SWANAGE	WI110	Closed
14	SPREY POINT	PO070	Closed
15	BUNDLE HEAD	PO090	Closed
16	BOLT HEAD	PL019	Closed
17	FORT PICKLECOMBE X	PL021	Current
18	FORT PICKLECOMBE Y	PL022	Closed
19	WESTON MILL LAKE	PL025	Closed
20	LANTIC BAY	PL060	Closed
21	FALMOUTH BAY	PL075	Current
22	MOUNTS BAY	PL100	Closed
23	PADSTOW BAY	LU010	Closed
24	WATCHETT HARBOUR	LU055	Closed
25	R PARRETT	LU057	Closed
26	PORTISHEAD	LU070	Closed
27	AVONMOUTH INNER	LU080	Closed
28	ROYAL PORTBURY ENTRANCE	LU083	Closed
29	ROYAL PORTBURY PIER	LU084	Closed
30	ROYAL EDWARD ENTRANCE	LU085	Closed
31	BRISTOL CITY DOCKS ENTRANCE	LU086	Closed
32	CARDIFF GROUNDS	LU110	Current
33	CARDIFF OUTFALL TEMPORARY DEPOSIT	LU111	Closed
34	MERKUR BOUY	LU115	Closed
35	SWANSEA BAY (OUTER)	LU130	Closed
36	MILFORD HAVEN 2	LU168	Current
37	MILFORD HAVEN 3	LU169	Current
38	MILFORD HAVEN	LU170	Current

**Table 9-2: Former sewage sludge disposal sites in the SEA 8 area**

SITE NAME	Latitude	Longitude
NAB TOWER	50° 35' N	00° 59' W
EXETER	50° 25' N	3° 15' W
PLYMOUTH	50° 15' N	4° 10' W
BRISTOL CHANNEL	51° 25' N	4° 00' W

### 9.2.2 Munitions disposal sites

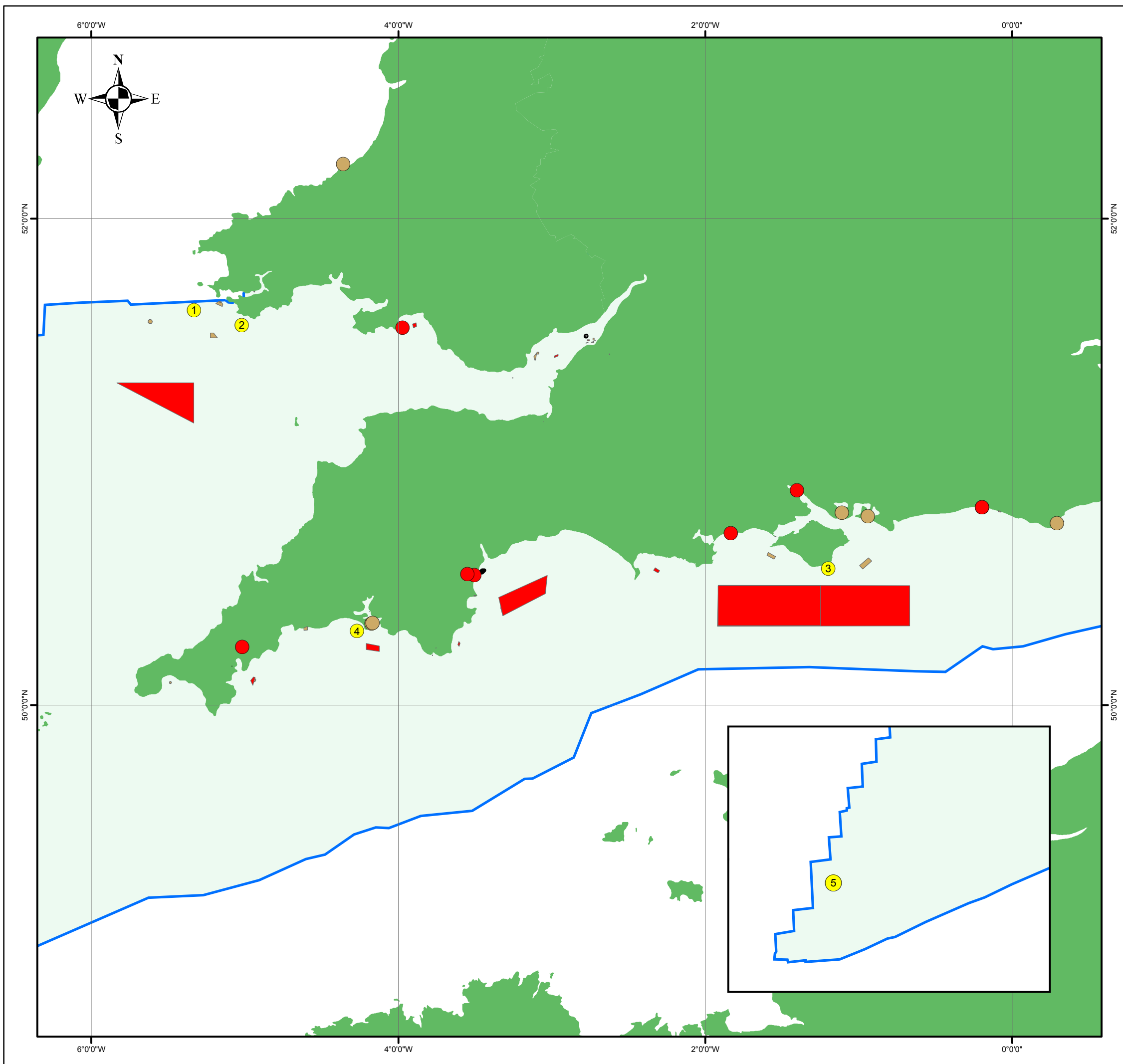
Dumping of chemical weapons and munitions at sea has been carried out since the end of the First World War. Under the OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic which entered into force in 1998, countries that have ratified the Convention have supplied available information to determine the location and extent of dumped weapons.

Unfortunately, the full extent of munitions on the seabed will never be known due mainly to inadequate documentation of operations at the time of dumping and the subsequent loss or destruction of records that may have been taken.

Munitions and chemical weapons can be disturbed by activities such as fishing, sand and gravel extraction and the drilling and placement of offshore structures by the oil and gas industry and other marine industries. It is therefore essential that the location and extent of dump sites and areas where munitions have been detected are recorded and maintained. Known (official) munitions dump sites are charted, but surveys have shown that munitions can be discarded or migrate over a wide area and outside of charted areas (FRS, 1996).

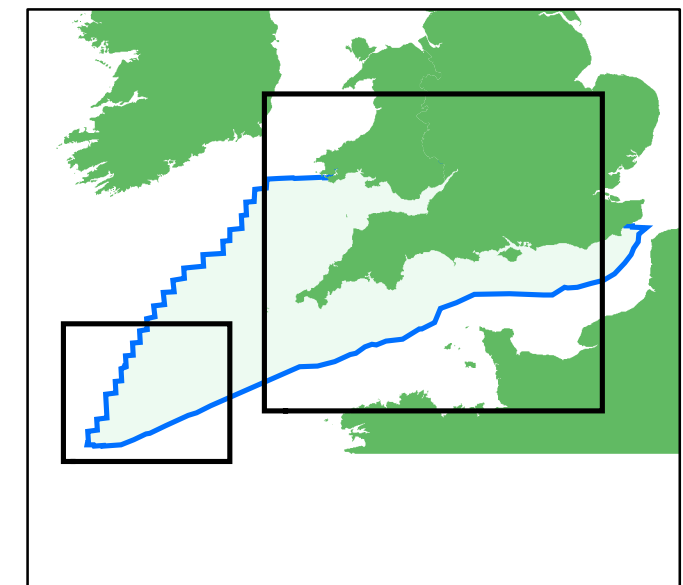
There are five disused (since 1960's) munitions disposal sites marked on the Admiralty Charts within the SEA 8 area (see **Figure 9-3** below). There is also a scuttled vessel containing chemical munitions near the extreme western end of SEA 8. Live and unarmed munitions associated with wartime wrecks may also be present in the area. The recovery of dumped munitions is not considered to be technically feasible at present. The presence of munitions would, at present, prevent oil and gas operations at these locations.

**Figure 9-1: Waste and munitions disposal sites in SEA 8 area**



**Legend**

- Munitions dumpsites (OSPAR)
- Current disposal sites
- Closed disposal sites
- Current disposal sites
- Closed disposal sites
- Disused sites
- SEA8 area



Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	OSPAR Commission 2005, CEFAS	
File Reference	P939/GIS/MXD/draft report/ Figure 9-1 Waste disposal.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager





**Table 9-3: Marine munitions dump sites in the SEA 8 area**

Map Ref.	Type and description	Latitude	Longitude
1	Conventional SW of Milford Haven	51° 37.8' N	5° 19.8' W
3	Conventional Off Linney Head	51° 34.2' N	5° 01.2' W
3	Conventional Off St Catherine's Point	50° 34.2' N	1° 12.0' W
4	Conventional Off Plymouth	50° 18.6' N	4° 16.2' W
5	Chemical (Scuttled ship) Dora Oldendorf, 1947	48° 30' N	9° 0' W

Source: OSPAR Commission (2005)

## 9.3 RELEVANCE TO SEA 8

### 9.3.1 Marine disposal sites

Currently used marine disposal sites in the SEA 8 area are all in nearshore areas. Most marine disposal comes from sediment from port and harbour maintenance dredging operations. These sediments may contain levels of contamination above background levels that could be mobilised by any oil and gas activity in the vicinity, with subsequent impacts on marine biota. There are three disused sludge dumping sites, all of which were sited in dispersive areas and are considered to have a low risk of continuing seabed contamination. The possibility of adverse environmental effects would need to be assessed prior to the approval of activities impinging on dumping sites.

In principle any disposal site that has potential to be re-licensed in the future would constitute a restriction on oil and gas development in the immediate vicinity. However, the location of these disposal sites and nature of the material deposited on the seabed means that they are unlikely to have a direct effect on any proposed increase in oil and gas activity as a result of SEA 8 licensing.

### 9.3.2 Munitions disposal sites

Remediation of marine chemical weapons and munitions dumpsites is technically challenging because of the nature of the material dumped and the uncertainty surrounding the quantities, type, locations and the present condition or stability of these materials. There are also serious concerns over the safety of personnel who may be involved in any such operations. Thus it is a widely held view that recovery of dumped munitions is not technically feasible at present (OSPAR Commission, 2005). At present, therefore, oil and gas activity at munitions dump sites is not possible. Oil and gas exploration and production undertaken in the vicinity of the five munitions disposal sites in the SEA 8 area should be subject to a full seabed survey and assessment of the potential risk prior to the approval. Outside the recorded munitions dump sites the possibility exists of encountering sunken vessels or aircraft with munitions on board.

## 9.4 SOURCES OF INFORMATION

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<http://www.marlab.ac.uk/FRS.Web/Uploads/Documents/AE08Beauforts.FH10.pdf>

Jones J., Rowlatt S.M., Rees H.L. and Portmann J. E., 1997 Seventh Report of the Group Co-ordinating Sea Disposal Monitoring, Sci. Ser., Aquat. Environ. Monit. Rep., CEFAS, Lowestoft, (50): 44pp

OSPAR Commission 2005 Overview of Past Dumping at Sea of Chemical Weapons and Munitions in the OSPAR Maritime Area.

MCEU,  
[http://www.mceu.gov.uk/MCEU\\_LOCAL/fepa/FEPA-WASTE-DISPOSAL-sites.htm](http://www.mceu.gov.uk/MCEU_LOCAL/fepa/FEPA-WASTE-DISPOSAL-sites.htm)

## 10 MARICULTURE

### 10.1 INTRODUCTION

Mariculture is the cultivation of marine species in coastal waters. There are two general types of mariculture practiced involving the culture of:

- Finfish in cages, or land-based tanks with pumped seawater;
- Shellfish either on trestles on the seabed, attached to vertical 'dropper' ropes suspended from horizontal longlines or rafts, or grown directly on the seabed without equipment.

Whilst shellfish harvesting, requiring monitoring of waters under the Shellfish Directive (79/923/EEC) is widespread along the coast of SEA 8, mariculture as such is only of minor importance.

### 10.2 MARICULTURE IN THE SEA 8 AREA

#### 10.2.1 Shellfish

Shellfish farming is largely characterised by smaller scale operations with an environmentally benign reputation because it depends solely on natural feed supplies from the ecosystem rather than feed from external sources. Thus the borderline between mariculture (farming) and harvesting (fishing) remains difficult to define. Through ease of access and its 'low-tech' nature shellfish farming offers alternative income and employment opportunities for those seeking a change of career or to supplement their income. Where mariculture is extensive, the additional income benefits many small isolated communities, with local shops and small businesses benefiting significantly from fish farms and their support requirements (Scottish Coastal Forum, 2002).

There are two sites listed as actively engaged in mariculture within SEA 8, the Camel Estuary in Cornwall and Burry Inlet in South. Wales. Pacific oysters (*Crassostrea gigas*) are cultivated on racks on the foreshore of the Camel Estuary although due to poor water quality they have to be re-laid in the Helford River before they are suitable for consumption. The status of the Burry Inlet is uncertain, but some mussel cultivation is apparently carried out, although the main interest is in harvesting of cockles. There is also some borderline activity (dependent on natural spatfall but employing ropes as a substrate for mussels, *Mytilus edulis*, and trays for native oysters, *Ostrea edulis*) in the Fal Estuary.

In addition to the above, there are a number of sites shown in **Table 10-1** where shellfish production contributes to the local economy. At these sites cultivation either is, or has been, carried out or is suitable for shellfish mariculture (Laing and Spencer, 2006). Species harvested at these and other sites listed in **Table 10-1** include:

*Cerastoderma edule* (Common Cockle)

*Crassostrea gigas* (Pacific Oyster)

*Ensis spp* (Razor Shell)

*Mercenaria Mercenaria* (Hard Shell Clam)

*Pecten maximus* (Great Scallop)

*Spisula solida* (Surf Clam)

*Tapes decussates* (Chequered Carpet Shell)

*Tapes philippinarum* (Manila Clam)

**Table 10-1: Sites registered for production of shellfish in SEA 8 (2006/7)**

Site	Species	Cultivation <sup>1</sup>
Stour Estuary	<i>Cardium Edulis</i>	
Chichester Harbour	<i>Ostrea edulis</i>	Yes
Langstone Harbour	<i>Ostrea edulis M.Mercenaria</i>	Yes
Portsmouth Harbour	<i>Ostrea edulis M.Mercenaria</i>	Yes
Southampton Water	<i>Ostrea edulis M.Mercenaria</i> <i>Cardium edule</i>	
Solent	<i>Ostrea edulis M.Mercenaria</i> <i>Cardium edule</i>	Yes
Medina	<i>Ostrea edulis</i>	
Newtown	<i>Ostrea edulis M.Mercenaria</i>	
Totland Bay	<i>Ostrea edulis</i>	
Beaulieu	<i>Ostrea edulis</i>	
Lymington R	<i>Ostrea edulis</i>	
Keyhaven	<i>Ostrea edulis</i>	
Poole	<i>C. gigas, Ostrea edulis, Mytilus edulis, Cardium edule, T. philippinarum T. decussates Spisula solida Ensis spp</i>	Yes
Portland	<i>Mytilus edulis P. maximus C. gigas</i>	Yes
Exe	<i>Mytilus edulis C. gigas</i>	Yes
Teign	<i>Mytilus edulis C. gigas</i>	Yes
Brixham	<i>Mytilus edulis</i>	
Dart	<i>Mytilus edulis C. gigas</i>	Yes
Start Bay	<i>S. solida</i>	
Salcombe	<i>Mytilus edulis C. gigas</i>	Yes
Yealm	<i>Mytilus edulis C. gigas</i>	Yes
Plymouth	<i>Ostrea edulis Mytilus edulis</i>	Yes
Fowey	<i>C. gigas Mytilus edulis Cardium edule T. philippinarum</i>	
Truro River	<i>Ostrea edulis Mytilus edulis</i>	
Tresillian R	<i>Mytilus edulis</i>	
Fal	<i>Ostrea edulis Mytilus edulis</i>	Yes
Percuil	<i>Ostrea edulis C. Gigas</i>	
Helford	<i>Ostrea edulis Mytilus edulis</i>	

Site	Species	Cultivation <sup>1</sup>
St Ives Bay	<i>Mytilus edulis</i>	
Camel	<i>Mytilus edulis C. gigas Cardium edule</i>	Yes
Taw/Torridge	<i>Mytilus edulis C. gigas</i>	Yes
Swansea Bay	<i>Mytilus edulis</i>	
Burry Inlet	<i>Mytilus edulis Cardium edule</i>	Yes
Three Rivers	<i>Mytilus edulis Cardium edule</i>	

Source: FSA, 2005

<sup>1</sup> Cultivation indicates that the site is considered suitable for shellfish cultivation (Laing and Spencer 2006)

### 10.2.2 Finfish

Whilst there is no current marine finfish farming within SEA 8, there is interest, within the UK, in the possibility of development of offshore cage farming of high value finfish species (James and Slaski, 2006).

## 10.3 MANAGEMENT ISSUES AND INITIATIVES

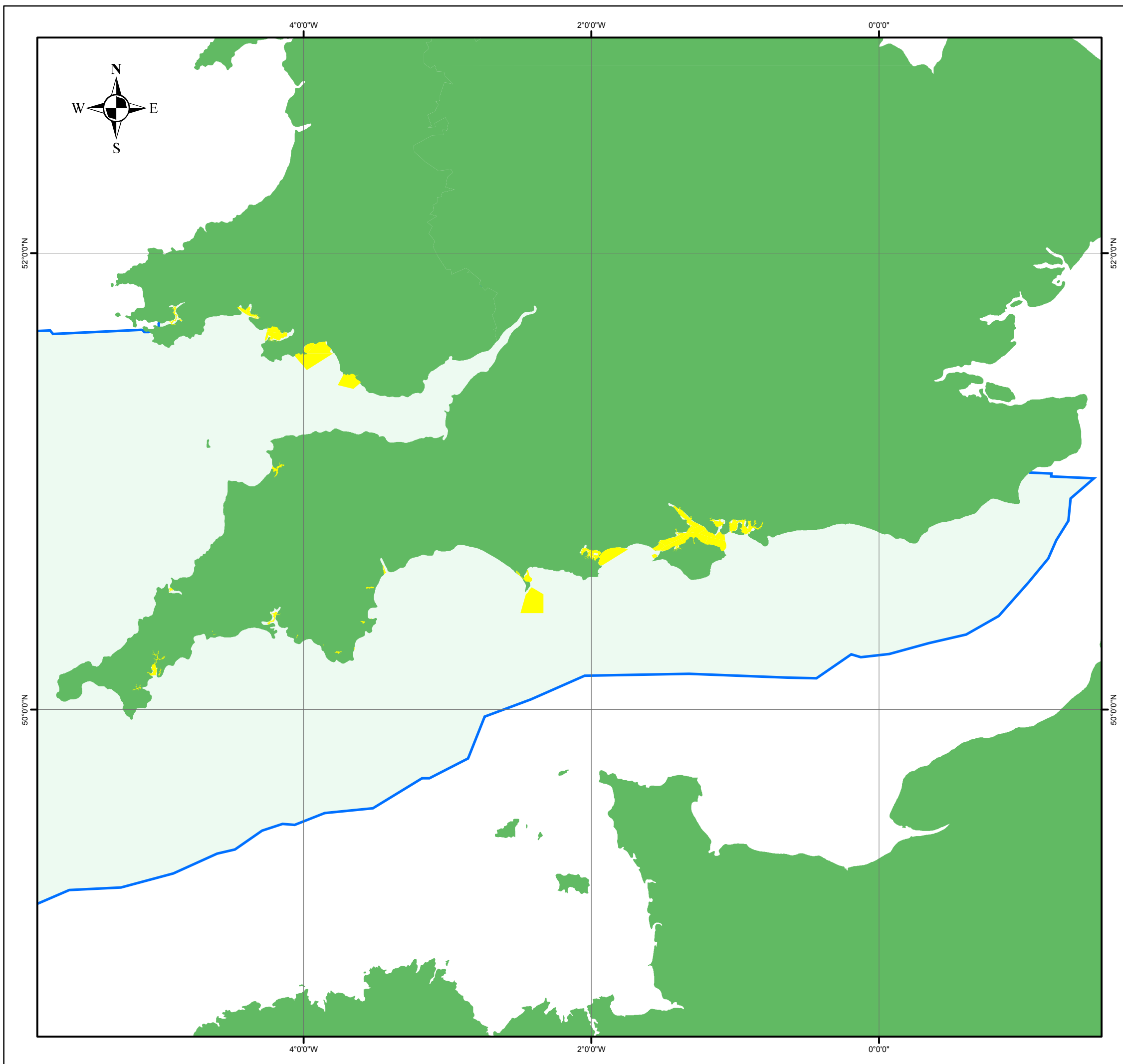
### 10.3.1 Shellfish

Shellfish cultivation is a low-tech industry that relies on the productivity of the existing marine ecosystem with shellfish filtering nutrients brought to them in currents. Any coastal pollution will have direct impacts on the quality of the product and its suitability for human consumption.

Environmental water quality standards for shellfish cultivation are prescribed by the EC Shellfish Waters Directive 79/923/EEC. The Shellfish Waters Directive is administered in England by the Department for Environment, Food and Rural Affairs (Defra) and in the rest of the UK by the relevant Devolved Administration. Shellfish water enquiries in Wales should be directed to the Welsh Assembly Government ([www.wales.gov.uk](http://www.wales.gov.uk)) The Directive is implemented by the Environment Agency in both England and Wales. Shellfish waters in SEA 8 area are shown in **Figure 10-1**.

Contamination avoidance of shellfish themselves is regulated under the EC Shellfish Hygiene Directive 91/492/EEC and associated UK legislation (The Food Safety (Fishery Products and Live Shellfish) (Hygiene) Regulations (1998)). The shellfish production areas designated under the Shellfish Hygiene Directive are shown in **Figure 10-2** for SEA 8 area. One of the responsibilities of the competent authority in each Member State is to classify shellfish production areas according to the degree of contamination by faecal indicator bacteria, namely *Escherichia coli*, in samples of shellfish flesh.

**Figure 10-1: Shellfish waters in SEA 8 area**



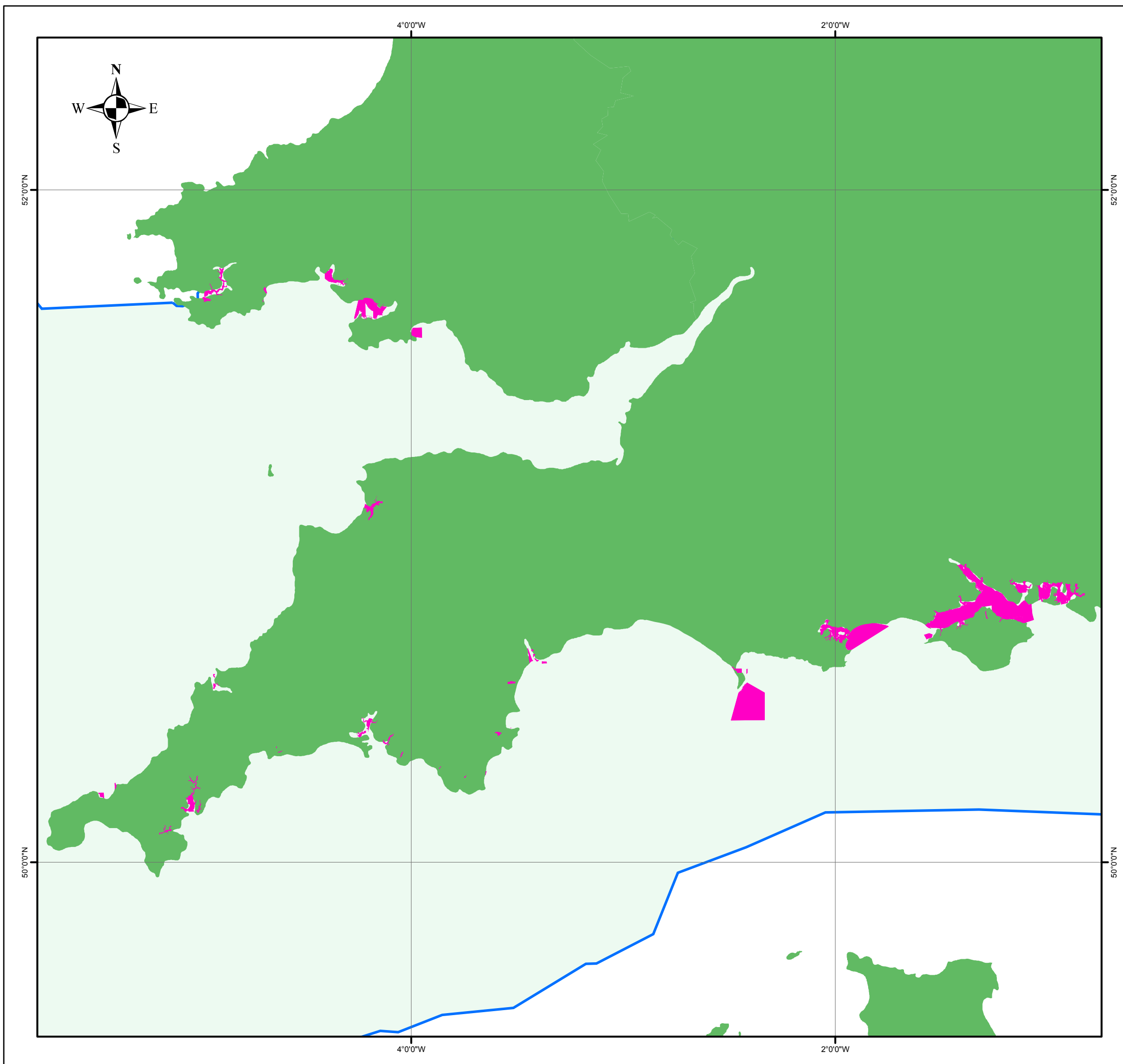
**Legend**

- Shellfish waters
- SEA 8 area

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	Food Standards Agency, Scottish Executive	
File Reference	P939/GIS/MXD/draft report/ Figure 10-1 Shellfish Waters.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager



**Figure 10-2: Shellfish production areas in SEA 8 area**



**Legend**

- Shellfish production areas
- SEA 8 area

Note: The shellfish production areas depicted in this figure are from the best available data at the time of writing, which is from September 2005 classification data.

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	CEFAS	
File Reference	P939/GIS/MXD/draft report/ Figure10-2 shellfish production.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager



## 10.4 RELEVANCE FOR SEA 8

Mariculture, in the strict sense, is a minor industry in the SEA 8 area but provides income and employment to local communities. In addition there are a number of sites where shellfish are allowed to grow naturally and are harvested as part of the local fishing industry where shellfish form an important part of the total landings.

At present, mariculture developments are restricted to sheltered coastal waters and are unlikely to conflict with oil and gas developments within the SEA 8 area. Whilst there is some interest in offshore finfish mariculture as a possibility, which could lead to interaction with oil and gas activity in the SEA 8 area, it is unlikely that this will be a practical problem in the foreseeable future.

Any increased risk of pollution associated with new oil and gas exploration, production, and transport in the area would be of concern to the mariculture and harvesting industry. For example, the Braer spill had severe impacts on the fish farming industry in the Shetland Islands. Similarly, within the SEA 8 region the Sea Empress oil spill presented very considerable difficulties for the shellfishing industry within the region. The Government imposed a blanket ban on all forms of fishing across the region during the early days of the incident. An intensive sampling programme was undertaken to test commercially harvested species for evidence of oil contamination. Fortunately, offshore species and the important shellfish beds along the South Welsh coast were declared safe and the bans affecting those groups of fish were lifted quite early on. Bans remained in place for certain shore species for longer periods of time. (Dyrynda and Symberlist, 2000).

## 10.5 SOURCES OF INFORMATION

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Shellfish Hygiene Directive 91/492/EEC

The Food Safety (Fishery Products and Live Shellfish) (Hygiene) Regulations (1998)



# 11 TOURISM AND RECREATION

## 11.1 INTRODUCTION

Tourism and recreational activities are major industries within the SEA 8 region, with a wide variety of facilities and attractions of all types, many relying on the high quality of the coastal environment. However, there is a lack of reliable statistical information on coastal activities. What statistics do exist tend to be national or for administrative regions and include information for inland areas. It is difficult to obtain participation figures for coastal recreational activities because of their informal nature, the range of sites used and the lack of affiliation of participants to clubs or governing bodies of sport.

Accordingly the presented statistics regarding tourism and recreational activity and revenue should be treated with caution when applying them to the coastal and marine area. Boating (e.g. yachting, dinghy sailing, wind surfing, surfing, canoeing, rowing, and power boating), which forms one of the most important recreational activities in the SEA 8 area, is the subject of a separate report by the Royal Yachting Association. It is therefore not discussed further in this section.

## 11.2 ACTIVITY IN SEA 8 AREA

### 11.2.1 Coastal Tourism

The natural coastline of the SEA 8 area, particularly to the west of the region is in itself a major tourist attraction and recreational facility, with activities ranging from abseiling to zoology. The coastal landscapes vary from low marshes and dunes to towering, rocky cliffs and in between there are mobile, shingle beaches, deep estuaries and lower, softer cliffs (Enjoy England, 2007). There is also a wide variety of holiday accommodation to choose from including farm holidays, camping and caravan sites. However, throughout the region there are many other tourist attractions which depend on the proximity to the sea either for their existence (e.g. The Historic Dockyard complex at Portsmouth; the National Marine Aquarium, Plymouth; fishing villages such as Clovelly and Mousehole) or as an important secondary feature (Tintagel Castle; Brighton Seafront, and Eastbourne Pier).

Public access to the coastline is nationally considered to be extremely important, (Natural England, 2007<sub>a</sub>) with particular attention being paid to pedestrian Rights of Way (Natural England, 2007<sub>b</sub>). About 60% of England's Heritage Coastline is located in the south western tourist region, (mainly in Cornwall, Devon and Dorset), including the "Jurassic Coast" World Heritage Site, stretching for 155 km between Exmouth and Swanage. Similarly, the coast of south west Wales and the Gower Peninsula are in themselves important attractions. To the east of England's south coast, while there are important stretches of natural coastline such as that at Beachy Head, the main tourist interest is likely to be focussed on human artefacts rather than the natural environment.

Altogether the southern English tourist regions attract some 20% of the foreign tourists' expenditure in England (**Table 11-1**). There is no indication; however, of where this money was spent and substantial non-marine related attractions

(e.g Glastonbury, Bath, Stonehenge, Oxford and Canterbury) are included. The major regional income is, however, through internal tourism (**Table 11-2**). The relatively small amounts spent in non-coastal counties of the south west (12.8%) and the relatively large contribution of Devon and Cornwall (56%) to the total expenditure indicates the importance of the coastline to tourism. A further indication of the regional importance of coastal tourism is the overall proportion of visitors who stayed at seaside locations (39% for the southwest and 26% for the southeast, StarUK, 2004).

The situation is broadly similar in Wales, with a regional contribution of 46% of the total UK tourists spend in Wales. Tourism to the south west is likely to have been largely coastal, with 56% of UK visitors staying at seaside locations; however, this does not appear to apply to the south east where only 8% of visits were to the seaside (Welsh Assembly Government, [new.wales.gov.uk](http://new.wales.gov.uk)).

**Table 11-1: Residence and spending in the UK by overseas visitors**

Tourist Board Regions		Number of nights (thousands)	Spending <sup>1</sup> (£ millions)
United Kingdom <sup>2</sup>		189,516	11,167
England <sup>3</sup>		166,964	9,922
Wales		5,816	248
Scotland		14,999	757
Northern Ireland		1,311	100
	Northumbria	3,761	172
	Cumbria	937	40
	North West	8,250	396
	Yorkshire	6,250	262
	East of England	12,079	525
	Heart of England	16,316	675
	London	76,061	5,845
	Southern	16,222	849
	South East	15,017	674
	South West	11,627	462

Source: StarUK 2004

<sup>1</sup> Spending by residents of the Channel Islands and transit passengers is excluded from this table.

<sup>2</sup> Includes nights and spending in the Channel Islands, Isle of Man, unknown areas, and nights spent travelling.

<sup>3</sup> Includes nights and spending in England not assigned to a specific region.

**Table 11-2: UK resident visitors to coastal regions in the SEA 8 area**

Region	Trips (Millions)	Nights (Millions)	Spending (£ Millions)
<b>ENGLAND</b>	<b>121.3</b>	<b>371.9</b>	<b>20,560</b>
<b>SOUTH WEST <sup>1</sup></b>	<b>22.8</b>	<b>92.1</b>	<b>4,265</b>
Cornwall	4.9	25.8	1,158
Devon	6.4	27.3	1,228
Somerset	2.0	7.5	293
Avon	2.7	6.9	411
West Dorset	1.3	5.2	181
East Dorset	2.9	10.1	470
<b>SOUTH EAST <sup>2</sup></b>	<b>20.7</b>	<b>60.1</b>	<b>2,999</b>
Hants.	3.7	9.4	543
Isle of Wight	0.9	4.6	170
East Sussex	3.4	9.6	434
West Sussex	2.4	6.4	355
<b>WALES</b>	<b>11.6</b>	<b>45.7</b>	<b>1,766</b>
SE Wales	3.0	9.0	435
SW Wales	2.4	nd	386

Source: StarUK 2004

<sup>1</sup> Includes data for Wiltshire and Gloucestershire

<sup>2</sup> Includes data for Berkshire, Buckinghamshire, Kent, Oxfordshire and Surrey

## 11.2.2 Recreational Activities

### 11.2.2.1 Beaches and bathing

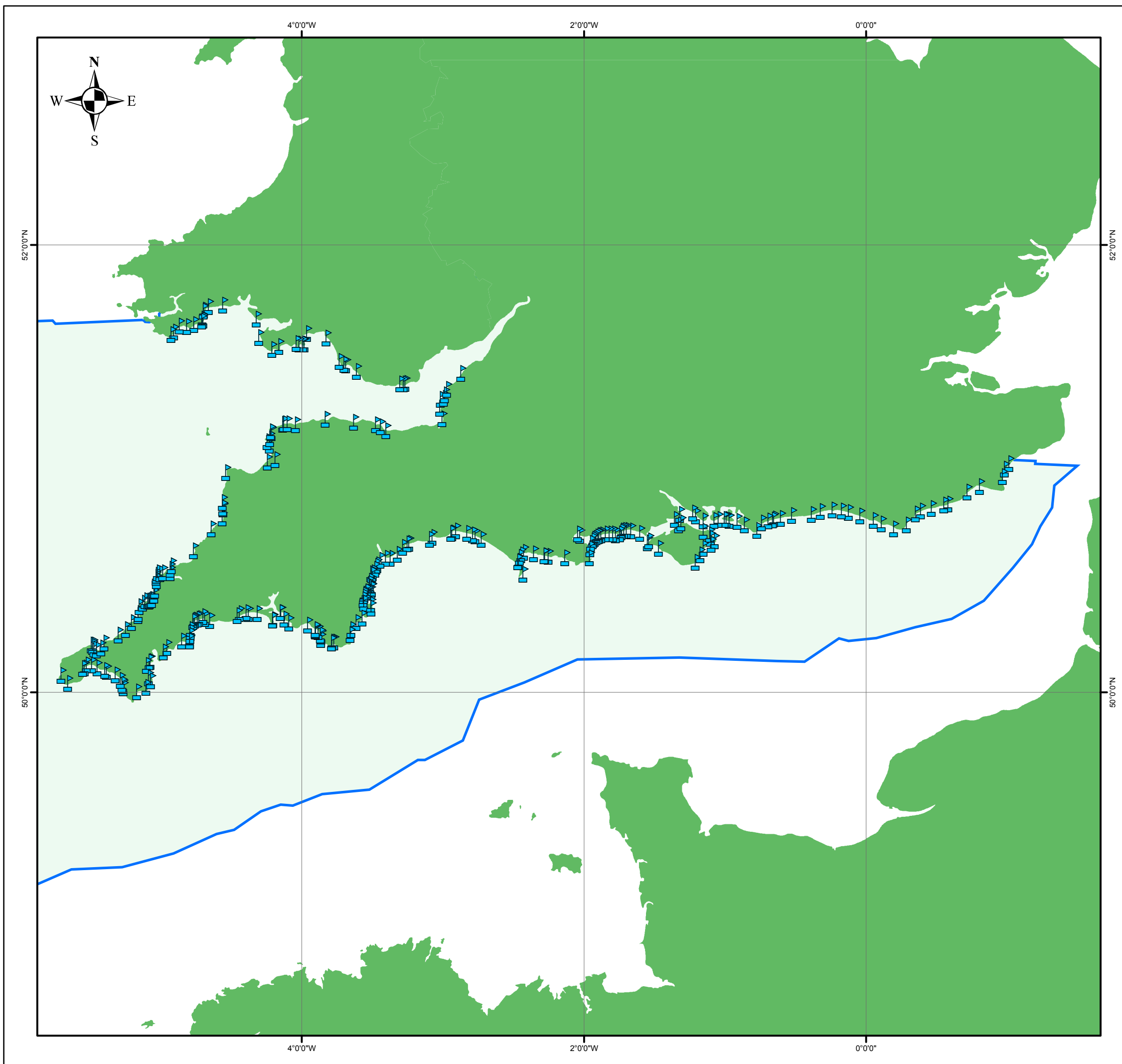
Beach tourism and leisure is extremely well developed throughout the SEA 8 coastline, and it is unusual to be more than 5 km from a designated Bathing Water (EC Bathing Waters Directive; 76/160/EEC) at any point on the coast (**Figure 11-1**). Considerable efforts have gone into achieving the standards required for EC Bathing Waters and in 2006 of the 272 designated bathing waters within SEA 8 only one failed to meet the mandatory guidelines for water quality (Environment Agency, 2007)

### 11.2.2.2 Walking, cycling and riding



It is estimated that the 1014 km long South West Coast Path (SWCP, [www.swcp.org.uk](http://www.swcp.org.uk)), extending from Minehead in Somerset to the shores of Poole Harbour in Dorset, is worth around £300 million to the South West region's economy (Natural England 2003). Residents living in the four counties of Cornwall, Devon, Dorset and Somerset take some 23 million walks on the South West Coast Path every year and 27.6% of visitors to the southwest were solely attracted by the SWCP (Natural England, 2003). Thus, it is arguable that the path is the most popular attraction in England. Whilst the SWCP is the

longest of SEA 8's continuous walks, many Rights of Way give access to or views of the coast and part of the Pembrokeshire Coastal Path (Pembrokeshire Coast National Parks Authority, [www.pcnpa.org.uk](http://www.pcnpa.org.uk)) is within SEA 8. Whilst many Rights of Way are restricted to walkers, Bridle Paths and Byways Open to All Traffic provide access to the countryside and coastline to a wider range of users (Natural England, 2007<sub>b</sub>).

**Figure 11-1: Designated bathing waters in SEA 8 area**



**Legend**

-  Bathing waters within SEA 8
-  SEA 8 area

Note: Boating (e.g. yachting, dinghy sailing, wind surfing, surfing, canoeing, rowing, and power boating) is the subject of a separate report by the Royal Yachting Association.

Date	March 2007	
Projection	World Mercator	
Spheroid	WGS84	
Datum	WGS84	
Data Source	Environment Agency	
File Reference	P939/GIS/MXD/Draft report/ Figure 11-1 bathing waters.mxd	
Checked	AM	GIS Specialist
	JH	Project Manager



### 11.2.2.3 Other Sports

Sea angling, either from the shore or from boats is carried out around the entire SEA 8 coastline. Sub aqua diving and snorkelling are important minority sports, particularly to the west of the SEA 8 area, where there are rocky coastlines and clear water, with abundant marine life. A large number of wrecks add interest to the region, including that of HMS Scylla, the first UK vessel purposely placed on the seabed as a reef (National Marine Aquarium, 2002).

### 11.2.3 Wildlife Tourism

Wildlife attracts visitors to rural areas, where they spend money on local goods and services, providing income and employment. In many areas, this has a larger impact than conservation organisations' employment and expenditure. A study in 1997 estimated that tourists' spending in the English countryside was £9 billion per year, supporting 350,000 jobs (RSPB, 1997). Whilst much of this is not specifically coastal, cliffs and salt marshes provide valuable habitats adding to the overall attractions of the SEA 8 region. Among the main attractions for visitors specifically interested in marine and coastal wildlife is the Lundy Island Marine Nature Reserve (Lundy Field Society, [www.lundy.org.uk](http://www.lundy.org.uk))

## 11.3 RELEVANCE TO SEA 8

The coastal environment provides a major attraction for visitors to the south of England and Wales. The South West's environment is a key factor in attracting visitors and tourists to the region (South West Observatory, 2006). The assets of the SEA 8 coastline include:

- A diverse and high quality natural environment;
- 12 complete Areas of Outstanding Natural Beauty (AONBs) and two partly within the region's boundaries as well as Exmoor and Dartmoor National Parks - accounting for 38% of the region;
- More than two-thirds (638 km) of England's heritage coast (totalling 1,027 km);
- Over 1,000 kilometres of coastline (including estuaries);
- 46 National Nature Reserves, 978 Sites of Special Scientific Interest (SSSIs), RAMSAR sites (wetland sites of international importance) and many more; and
- A high proportion of some of the UK's rarest and most endangered habitats.

It follows that protection and enhancement of the environment is necessary for sustainable tourism. Potentially or actually polluting incidents such as the Sea Empress grounding, which heavily impacted some 60 km of the SEA 8 coastline in south west Wales, with some impact as far away as Lundy Island (Dyrynda and Symberlist, 2000), and the recent grounding of the MSC Napoli (BBC News, 2007) which threatened to impact the Jurassic coastline of South Devon, demonstrate the vulnerability of tourism to external incidents. Any future oil and gas development in the SEA 8 area should give due consideration to environmental impacts and given the region's high landscape value, any

visual impacts on the coastal landscape as a result of visible oil and gas infrastructure should be considered.

## 11.4 SOURCES OF INFORMATION

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EC Bathing Waters Directive; 76/160/EEC

Enjoy England 2007, <http://www.enjoyengland.com/ideas/inspirational-ideas/nature-and-wildlife/landscape-and-scenery/english-countryside.aspx>

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## 12 OTHER LOCALLY IMPORTANT ACTIVITIES

### 12.1 INTRODUCTION

There are a variety of local industries within the SEA 8 region which may have a significant coastal 'footprint' although this may be co-incidental to the primary activity. These include industries such as quarrying, construction, agriculture and education. There are also a number of nuclear and conventional power stations along the SEA 8 coastline.

### 12.2 ACTIVITY IN SEA 8 AREA

#### 12.2.1 Coastal quarrying

Mining, either of metals in the south west or of coal in South Wales is not currently a major employer within the SEA 8 area. Reserves of coal and metals are, however, still present with limited coal mining in Wales. By contrast, mineral extraction, in the form of quarrying, remains a significant factor in local economies throughout the region, employing a total of around 9,300 people (NSO, [neighbourhood.statistics.gov.uk](http://neighbourhood.statistics.gov.uk)). The availability of transport by sea improves the economic viability of coastal quarrying sites. Important resources are:

- Cornwall: Granite, slate, sandstone, gritstone, limestone, sand and gravel, china clay;
- Devon: Sandstone, sand and gravel, ball clay;
- Dorset: Limestone, ball clay;
- South east: Sand, gravel, brick clay; and
- South Wales: Sandstone, limestone, coal.

(BGS, [www.bgs.ac.uk](http://www.bgs.ac.uk))

The majority of constructional minerals are used locally; however, there are wider markets for granites and limestone (particularly Portland stone) frequently used as facings over other building materials.

#### 12.2.2 Coastal Agriculture and Seaweed collection

The nature of the coastline through much of the SEA 8 area precludes coastal agriculture; however, there are a number of locally important salt marsh grazing areas (MAGIC, [www.magic.gov.uk](http://www.magic.gov.uk)) producing high quality meat, often for the export market (e.g. Levels' Best, [www.levelsbest.co.uk](http://www.levelsbest.co.uk))

Many seaweed products are used in the food and cosmetics industries; however, due to the highly competitive international market relatively little seaweed harvesting takes place today in Britain (EFTEC *et al* 2006) Laver (*porphyra umbilcalis*) is harvested and eaten as Laver bread or Bara lawr, mainly in south Wales ([www.laverbread.org](http://www.laverbread.org)). There is also a potential to use seaweed as an agricultural fertiliser.



### 12.2.3 Power generation

There are 16 coastal power stations in the SEA 8 area (see **Table 12-1**), with a total electricity generating capacity of 7.7 GW, around 10% of the total UK power generation (Janes and Ewins, 2006) Three of these generators are nuclear powered: two sited at Dungeness and one at Hinkley Point. Advantages of coastal sites include ease of delivery of fuel and a secure source of cooling water. Cooling water supplies are vulnerable to contamination by hydrocarbons.

**Table 12-1: Coastal power stations in the SEA 8 area**

Station Name	Fuel	Installed Capacity(MW)
<b>South East</b>		
Dungeness B	nuclear	1,090
Dungeness A	nuclear	450
Fawley (3)	oil	484
Fawley GT	gas oil	34
Shoreham	CCGT	400
Cowes	gas oil	70
<b>South West</b>		
Hinkley Point B	nuclear	1,220
Seabank 1	CCGT	812
Seabank 2	CCGT	410
Chickerell	gas	45
Lynton	gas oil	2
<b>Wales</b>		
Aberthaw B	coal	1,455
Aberthaw GT	gas oil	51
Baglan Bay	gas turbine	575
Uskmouth	coal	393
Barry	CCGT	250

Source: Janes and Ewins, 2006

### 12.2.4 Education and research

There are contributions to education at all levels, dependant on the opportunities offered by the SEA 8 coastline. Tourist information centres and museums feature displays on the history, ecology, geography and geology of the region aimed at the general public. Field Study and Outdoor Education Centres offer residential and day courses in a wide variety of subjects, including adventure training, tailored to the needs of the national curriculum and of individuals or groups. Universities located on the SEA 8 coastline offer a range of courses leading to qualifications in marine-oriented subjects at first and higher degree level. In addition, Plymouth and Southampton host major marine research institutes (the Plymouth Marine Laboratories and the National

Oceanography Centre, respectively), with expertise in seabed and water column conditions throughout the SEA 8 area. The National Oceanography Centre at Southampton is also host institute for the UK Research Vessel fleet.

## **12.3 RELEVANCE TO SEA 8**

All of the activities discussed above provide local employment and facilities. Vessel movements associated with quarrying, the power generation industry and the Research Vessel base contribute to overall shipping activity levels in the area, but are unlikely to restrict oil and gas development. Coastal agriculture, including the collection of seaweed is minor; however, it is sensitive to coastal oil contamination. Some educational activities are also likely to be sensitive to any deterioration in environmental quality resulting from offshore oil and gas exploitation.

## **12.4 SOURCES AND INFORMATION**

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## **13 COASTAL AND MARINE MANAGEMENT INITIATIVES**

### **13.1 INTRODUCTION**

Coastal and marine management in the UK is currently carried out under a range of legislation, largely developed to meet the needs of town and country planning authorities. Draft and discussion documents suggest that future legislation will take a holistic approach to marine and coastal development and strengthen requirements for environmental protection over economic development.

The SEA 8 area includes the south and south west coasts of England and the south coast of Wales. It supports a range of important habitats and species, and provides an important resource for a variety of different coastal and maritime users.

A number of management initiatives and schemes seek to balance the environmental sensitivity of the coastal and marine area with its resource development potential. These initiatives apply to a range of coastal users rather than the more specific management initiatives described previously and include:

- Integrated Coastal Zone Management initiatives;
- Coastal planning initiatives;
- Coastal water quality initiatives; and
- Coastal and marine nature conservation initiatives.

### **13.2 THE MARINE FRAMEWORK DIRECTIVE AND MARINE BILL**

Both the EU and the UK legislatures have expressed a wish to achieve a vision of “clean, healthy, safe, productive and biologically diverse oceans and seas” (Europa, [ec.europa.eu](http://ec.europa.eu)) and are currently preparing legislation towards this end.

The EU Commission launched the Marine Strategy Directive in October 2005, establishing a Framework for Community Action in the field of Marine Environmental Policy. The key element in the strategy is the Marine Framework Directive (MFD), with the objective to “promote sustainable use of the seas and to conserve marine ecosystems” (CEE, 2005). Under the strategy priority will be given to achieving good environmental status in the Community’s marine environment within a defined time period. Implementation of this objective will be organised in ecosystem-based regions (CEE, 2005). Political agreement on the MFD was reached by the Environment Council of the European Parliament in December 2006, following consultation in 2005 (European Parliament 2006).

Concurrently the UK Government has been preparing the Marine Bill (Defra [www.defra.gov.uk](http://www.defra.gov.uk)). It is intended that this will put in place a better system for delivering sustainable development of the marine and coastal environment and will address both the use and protection of our marine resources. The need for

a new approach to managing marine activities has been highlighted by a number of recent reports including the Marine Stewardship report in 2002 and the "Seas of Change" Government response in 2003.

The Marine Bill consultation closed on the 23rd June 2006. The consultation covered the following areas:

- how to take forward Marine Nature Conservation proposals;
- possible reform of Marine Licensing regimes;
- what shape Marine Planning could take; and
- whether there is a case for a new Marine Management Organisation and, if so, what functions it could undertake.

Introduction to Parliament will be dependent on the availability of Parliamentary time, but is expected to be sometime during 2007 (Defra, [www.defra.gov.uk](http://www.defra.gov.uk)). Note that on 15 March 2007 DEFRA launched the Marine Bill White Paper.

### **13.3 INTEGRATED COASTAL ZONE MANAGEMENT**

To date, coastal management policies and decisions in the UK have been made with reference to individual sectoral interests such as aquaculture, environment, waste management and tourism. Integrated coastal zone management (ICZM) initiatives aim to replace this piecemeal planning with a holistic approach. The concept of ICZM is fundamental in the current development of all coastal planning initiatives underpinning the planned Marine legislation in both Europe and the UK.

The objective of ICZM is to establish sustainable levels of economic and social activity in our coastal areas while protecting the coastal environment. It brings together all those involved in the development, management and use of the coast within a framework that facilitates the integration of their interests and responsibilities (Defra [www.defra.gov.uk](http://www.defra.gov.uk)).

Successful integrated coastal zone management is likely to involve adopting the following principles:

- A long-term view;
- A broad holistic approach;
- Adaptive management;
- Working with natural processes;
- Support and involvement of all relevant administrative bodies;
- Use of a combination of instruments;
- Participatory planning; and
- Reflecting local characteristics.

### **13.4 COASTAL DEVELOPMENT PLANNING**

The SEA 8 area coast is a mixture of rural areas (including heritage coastline and National Parks) and centres of industry, shipping and population. Coastal planning is essential to managing and maintaining the current character of the

coastal environment and to this end, a number of statutory and non-statutory mechanisms guide development within the coastal zone.

Following new legislation (Planning and Compulsory Purchase Act 2004) planning in England and Wales exists at two levels:

- Regional Spatial Strategies (RSSs); and
- Local Development Plans (LDPs).

Regional bodies, i.e. Southwest and Southeast England and Wales in the SEA 8 area, are responsible for determining the RSS, which deal with issues such as:

- The scale and distribution of new housing and employment;
- Priorities for the environment, such as countryside enhancement;
- Key infrastructure to support development; and
- How waste will be dealt with.

(The Planning Inspectorate, [www.planning-inspectorate.gov.uk](http://www.planning-inspectorate.gov.uk))

The three SEA 8 regions have submitted draft RSS during 2006.

Local Planning Authorities (LPAs) at County and District level are responsible for producing LDPs in order to achieve the objectives of the RSS. Within their boundaries, National Parks are the sole planning authority. It is government policy that major developments should only take place in National Parks in exceptional circumstances. Each National Park Authority acts as the planning authority for its area and therefore determines all planning applications submitted within the National Park boundary, as well as preparing the local planning policy framework. If a planning application is made outside the National Park boundary but the development would have an impact on the National Park, the National Park Authority may decide to comment (Council for National Parks, [www.cnp.org.uk](http://www.cnp.org.uk)).

There are: 28 coastal LPAs in the southwest region (including Exmoor National Park); 20 in the southeast region (including the New Forest National Park); and 10 in Wales (including Pembroke Coast National Park). There is also a proposal for a new National Park extending from mid-Hampshire to the East Sussex / Kent border (the Southdowns National Park), which will impinge on the coastline between Brighton and Eastbourne. The LDPs set out the local authority's policies and proposals for the development and use of land in their area.

**Table 13-1** lists the LPAs in the southwest, southeast and Welsh regions.

**Table 13-1: Local planning in the SEA 8 area**

Regional or National Assembly	County or Unitary Authority	Local Authority
SOUTH WEST	Cornwall	Isles of Scilly
		Penwith
		Kerrier
		Carrick
		Restormel
		Carradon
		North Cornwall
	Devon	South Hams
		Teignbridge
		Exeter
		East Devon
		Torridge
		North Devon
	Plymouth	
	Torbay	
	Exmoor National Park	
	Somerset	West Somerset
		Sedgemoor
	North Somerset	
	City of Bristol	
	South Gloucestershire	
	Dorset	West Dorset
		Weymouth and Portland
Purbeck		
Christchurch		
Poole		
Bournemouth		
SOUTH EAST	Hampshire	New Forest
		Eastleigh
		Fareham
		Gosport
		Havant
	Isle of Wight	
	Southampton	
	Portsmouth	
	New Forest National Park	
	West Sussex	Chichester
Arun		

Regional or National Assembly	County or Unitary Authority	Local Authority
		Worthing
		Adur
	Brighton and Hove	
	East Sussex	Lewes
		Wealden
		Eastbourne
		Rother
		Hastings
	Kent	Shepway
WALES	Pembrokeshire	
	Carmarthenshire	
	Swansea	
	Neath and Port Talbot	
	Bridgend	
	Vale of Glamorgan	
	Cardiff	
	Newport	
	Monmouthshire	
	Pembroke National Park	

## 13.5 COASTAL PROTECTION

Flood and coastal erosion risk management in the UK is a devolved responsibility. In England, the Department for Environment, Food and Rural Affairs (Defra) has overall policy responsibility. Defra funds most of the Environment Agency's flood related work and grant aids individual projects carried out by local authorities. However, Defra does not build or maintain defences.

Maritime local authorities are empowered to carry out works in their area to protect the coast from erosion; they may also undertake works to protect against sea flooding.

The Environment Agency (EA, 2001) is the principal flood defence operating authority with responsibility for managing flood risk from designated main rivers and the sea. The Environment Agency is also responsible for public awareness campaigns, flood forecasting and warning (Direct Gov, [www.direct.gov.uk](http://www.direct.gov.uk)).

### 13.5.1 Shoreline Management Plans (SMPs)

Shoreline management plans (SMP) are well established throughout England and Wales. SMPs provide large scale assessment of the risks associated with the coastal processes of erosion and flooding and present a policy framework to reduce these risks. They set out to define a strategy for coastal defence for a specified length of coast, taking account of natural coastal processes and human and other environmental influences and needs (Defra, [www.defra.gov.uk](http://www.defra.gov.uk)).

Much of the south coast of England is subject to a combination of erosion, related to the regional geology, and rising sea level as a result of isostatic rebound since the last glaciation. This is likely to be exacerbated by the effects of global warming and current estimates suggest a rise in sea level of around 30 cm over the next 50 years, although the uncertainty in this estimate is necessarily large (IPCC, 2007). Current planning increasingly acknowledges the requirement to manage the effects of, rather than to prevent, changes in the coastal environment.

For the purposes of SMPs, the shoreline has been divided into lengths called major sediment cells, the boundaries of which are based on natural coastal process. There are 11 major sediment cells around the coast of Wales and England and these have been sub-divided into sediment sub cells.

Sediment sub-cells represent practical subdivisions of the coastline into lengths that follow sediment cell principles while enabling suitably sized groups to be formed to consider coastal defence issues at the strategic level (Defra, 2001). There are eight coastal groups within the SEA 8 area (**Table 13-2**), responsible for 20 SMPs.



**Table 13-2: Shoreline Management Plans for the SEA 8 area Coastline and Coastal Water Status**

Coastal Group	SMP	Environmental Quality <sup>1</sup>
South East	South Foreland to Beachy Head	At Risk
South Downs	Beachy Head to Selsey Bill	At Risk
SCOPAC	East Solent	At Risk
	Isle of Wight	At Risk/ Probably At Risk
	Western Solent and Southampton Water	At Risk
	Poole Bay and Christchurch Bay	Probably At Risk
	Portland Bill to Durlston Head	Probably At Risk
South Devon and Dorset Coastal Authorities group	Portland Bill to Dawlish Warren	At Risk/ Probably At Risk
	Dawlish Warren to Start Point	Probably At Risk
	Start Point to Rame Head	At Risk/ Probably At Risk
Cornwall and Isles Of Scilly Coastal Group	Rame Head to Lizard Point	At Risk/ Probably At Risk
	Lizard Point to Land's End	At Risk/ Probably At Risk
	Land's End to Trevoze Head	At Risk
	Trevoze Head to Hartland Point	At Risk
North Devon and Somerset Coastal group	Hartland Point to Morte Point	At Risk/Probably Not At risk
	Morte Point to Brean Down	At Risk
Severn Estuary Coastal Group	Brean Down to Sharpness	At Risk
	Well House to Lavernock Point	At Risk
Swansea and Carmarthen Bay Coastal group	Worms Head to Lavernock Point	At Risk
	Worms Head to St Govan's head	At Risk/Probably At Risk

Source: Defra, [www.defra.gov.uk/fed/hltarget/hlt8report1.htm](http://www.defra.gov.uk/fed/hltarget/hlt8report1.htm)

<sup>1</sup> The terms At Risk, Probably At Risk and Probably Not At Risk refer to the likelihood of coastal waters not achieving Water Framework Directive objectives by 2015 (EA, 2007).

## 13.6 COASTAL WATER QUALITY INITIATIVES

### 13.6.1 OSPAR Marine Protected Areas programme

The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR) was adopted in Paris in September 1992 and entered into force in March 1998. It replaced the Oslo and Paris Conventions, with the intention of addressing the problem of marine pollution. The convention also aims to conserve the ecosystems and biodiversity of the Northeast Atlantic and in 2003 the Biodiversity Committee published recommendations for a network of Marine Protected Areas (MPAs) for adoption by the commission by 2010.

### 13.6.2 The UK National Marine Monitoring Programme

The UK National Marine Monitoring Programme (NMMP) was established to provide a coordinated approach to environmental monitoring in coastal and estuarine waters around the UK (CEFAS, [www.cefas.co.uk](http://www.cefas.co.uk)). The programme brings together the statutory marine monitoring agencies throughout the UK to provide reliable and comparable information for the UK coastal area.

The NMMP meets the UK's commitments to contribute to the Joint Assessment and Monitoring Programme of the Oslo and Paris Commission OSPAR/JAMP, and the need to carry out monitoring programmes to meet the requirements of a range of EC Directives, including:

- Dangerous Substances (76/464/EEC);
- Shellfish Waters (79/923/EEC);
- Shellfish Hygiene (91/492/EEC); and
- Fisheries Products (91/493/EEC).

### 13.6.3 EC Water Framework Directive

The Water Framework Directive (2000/60/EC) (WFD) establishes a new legal framework for the protection, improvement and sustainable use of the water environment. It introduces new, broader ecological objectives designed to protect and, where necessary, restore the structure and function of aquatic ecosystems. It also introduces management at the river basin/catchment level, ensuring integration of freshwater, groundwater, transitional and coastal waters. The WFD defines coastal waters as those within one nautical mile of the coast. However, the UK has voluntarily expanded implementation of the Directive out to the three nautical mile limit.

The WFD is transposed into UK law through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. In managing the water environment, UK agencies will assess the health of the aquatic environment as a whole. This means that, in addition to pollution monitoring, factors such as quality, quantity and physical structure, and ecological indicators such as health of animals and plants will be important.

Existing assessment and monitoring programs will be amended and expanded where necessary to meet the new requirements of the WFD. A partnership of the UK environment and conservation agencies, the United Kingdom Technical Advisory Group (UKTAG) provides coordinated advice on technical aspects of

the implementation of the Directive (UKTAG, [www.wfduk.org](http://www.wfduk.org)). Implementation is ongoing. Much work has been completed on designing protocols for identifying and characterising water bodies (including coastal and transitional waters) according to their physical characteristics and assessing the risk of these water bodies failing to achieve the WFD's environmental objectives. Work on a revised monitoring framework and environmental objectives were due for completion in 2006.

The most recent information on estuarine water quality in England and Wales (EA, 2000) indicates that all the estuarine waters in the SEA 8 area were of fair or good quality, the lower status (fair) being largely restricted to sites within the Severn Estuary. However, this information precedes the implementation of the WFD. The majority of coastal water within the SEA 8 area are considered to be "at risk" or "probably at risk" of failing the WFD quality standards at the target date for compliance in 2015. This does not, however, imply that their water quality is currently poor (EA, 2007)

### 13.6.4 Other Water Quality Initiatives

A number of specific, targeted water quality initiatives, associated with European directives, exist in England and Wales. These include:

- **The Urban Wastewater Treatment Directive (91/271/EEC)** - deals with the general standards for collecting, treating and disposing of waste water into rivers, estuaries and coastal waters and requires secondary treatment of waste water into such waters;
- **EC Bathing Waters Directive (76/160/EEC)** - requires the identification, monitoring and reporting of compliance with the mandatory standards set by the EU for bathing waters;
- **EC Shellfish Waters Directive (76/923/EEC)** - Coastal and brackish waters that support shellfish harvested for human consumption are designated and protected to maintain water quality standards. These waters are called Shellfish Harvesting Areas; and
- **The Nitrates Directive (91/676/EEC)** - has the objectives of reducing water pollution caused or induced by nitrates from agricultural sources and preventing further such pollution. Nitrates are a health hazard in waters which are used as sources of drinking water and contribute to eutrophication, especially in coastal and marine waters.

The WFD (and for marine waters the MFD) will eventually integrate or replace these Directives. It is unlikely that the WFD will have a significant effect on the oil and gas industries, although MFD is likely to do so. Few wells have been drilled in the past within 3 nm of the coast (i.e. within the WFD remit) and there are no current production installations within this limit. Development projects are already subject to stringent environmental standards, under the Offshore Petroleum Production and Pipelines (EIA) Regulations 1999.

## **13.7 COASTAL AND MARINE NATURE CONSERVATION INITIATIVES**

Coastal and marine nature conservation is delivered primarily through the designation of areas for the protection of valued habitats and species. Designated sites usually have management plans to meet their nature conservation objectives. They may consider human use and involve community involvement. In the planning of new developments and activities, consideration must be given to any potential negative impacts on nature conservation sites. Coastal and marine nature conservation initiatives are further discussed elsewhere in the SEA 8 area report.

## **13.8 IMPLICATIONS FOR SEA 8 DEVELOPMENT**

It is likely that with the current legislative development the need for awareness of other users of marine resources and facilities is going to increase. The record of the offshore oil and gas industry has been good in this respect, thus the new legislation will probably serve to assist development planning by improving the chains of communication.

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## **Appendix A Telecommunications Cables in the SEA 8 Area**

**Table A- 1: Telecommunications cables in the SEA 8 area**

Map Ref	Cable	Route	Operator	Status
<b>Southwest approaches cables</b>				
1	Apollo North	Crooklets to 20° West	Apollo	Active
2	Apollo South	France to 20° West	Apollo	Active
3	Atlantic Crossing 1	Sennen to Beverwijk	Global Crossing	Active
4	Atlantic Crossing 1 (AC1)	Brookhaven to Sennen Cove	Global Crossing	Active
5	Celtic	Sennon to Kilmore	BT	Active
6	ESAT 1	Kilmore to Whitesands	ESAT	Active
7	Flag	Porthcurno to Med	Flag Ltd	Active
8	Flag Atlantic Interlink	Porthcurno to Rohan	Flag Ltd	Active
9	Flag Atlantic North	Whitesands Bay to 20° West	Flag Ltd	Active
10	Flag Atlantic South	Le Palus to 20° West	Flag Ltd	Active
11	Gemini North Seg 1	US to UK	Cable and Wireless	Out of service
12	Gemini North Seg 2	US to UK	Cable and Wireless	Out of service
13	Gemini North Seg 3	US to UK	Cable and Wireless	Out of service
14	Gemini North Seg 4	US to UK	Cable and Wireless	Out of service
15	Gemini South Seg 1	US to UK	Cable and Wireless	Out of service
16	Gemini South Seg 2	US to UK	Cable and Wireless	Out of service
17	Gemini South Seg 3	US to UK	Cable and Wireless	Out of service
18	Gemini South Seg 4	US to UK	Cable and Wireless	Out of service
19	Hibernia D	Sutton, UK to 20° West	CVC	Active
20	Hugo Seg 1	Porthcurno to Guernsey	C&W	Active
21	Hugo Seg 2	Porthcurno to Guernsey	C&W	Active
22	PTAT 23	23° West to Brean, UK	C&W	Out of service
23	PTAT Irish Branch	US to Ireland	C&W	Out of service
24	Rioja 1	Santander to Porthcurno	BT	Active
25	Rioja 2	Porthcurno, UK to Belgium	BT	Out of service
26	SEA-ME WE3 SEG 10.1	Penmarche to Goonhilly	BT	Active
27	SEA-ME WE 3 Seg 10.2	Goonhilly to Germany	BT	Active
28	SOLAS	Kilmore to Port Eynon	C&W	Active
29	Swansea/Brean	Oxwich to Brean	C&W	Active
30	TAT 8	US to Europe	BT	Out of service
31	TAT 8 North	US to UK	BT	Out of service
32	TAT 8 North Piece	US to UK	BT	Out of service
33	TAT 8 France	US to France	BT	Out of service
34	TAT 9	Spain to UK	BT	Out of service
35	TAT 11	Oxwich to US	C&W	Out of service
36	TAT 12	20° West to Sennen Cove	BT	Active
37	TAT 12 Interlink	Penmarch to Porthcurno	BT	Active
38	TAT13	Penmarch to USA	BT	Active

39	TAT14 (G)	20° W to Crooklets	BT	Active
40	TAT14 (H)	ST.Valery to Megavissey	BT	Active
41	UK Ch Islands 7	UK to Channel Islands	BT/Guernsey Telecoms	Active
42	UK Ch Islands 8	Kennack to St.Ouens Bay	BT/Jersey Telecoms	Active
43	UK Ireland Crossing 1	Ballygran to Whitesands	Global Crossing	Active
44	UK Ireland Crossing 2	Ballinsker to Crooklets Bay	Global Crossing	Active
45	UK Spain 4 Seg 1	UK to Spain	BT	Out of service
46	UK Spain 4 Seg 2	UK to Spain	BT	Out of service
47	UK Spain 4 Seg 3	UK to Spain	BT	Out of service
48	VSNL Atlantic North	20° West to Unity Farm, UK	VSNL Telecoms	Active
49	VSNL Atlantic South	20° West to Saunton Sands, UK	VSNL Telecoms	Active
50	VSNL W Europe UK to Portugal	Unity Farm, UK to Portugal	VSNL Telecoms	Active
51	VSNL W Europe UK to Spain	Saunton Sands UK to Bilbao	VSNL Telecoms	Active
52	Yellow	19° W to Crooklets Beach, UK	Level 3 Global Submarine	Active
<b>English Channel cables</b>				
53	Circe South	Pevensey Bay to Cayeux	VTL (UK) Ltd	Active
54	UK France 3	Dieppe to Brighton	C & W	Active

## **Appendix B Military Activity Areas (PEXAs) in the SEA 8 Area**

**Table B- 1: Military Activity areas (PEXAs) in the SEA 8 area**

Authority	Serial Number*	Name	Activities
Air Force Depart	D001	Trevose Head	Helicopter Exercises
Air Force Depart	D118	Pembrey	ASF,B,Ordnance demolition within on-shore area
Army Depart	D026	Lulworth	Sur,Firing,Amphibious
Army Depart	D044	Lydd Ranges	Firing, Demolition Firing
Army Depart	D110	Braunton Burrows	Firing/ Demolition Firing
Army Depart	D113A	Castlemartin	Firing
Army Depart	D113B	Castlemartin	Firing
Army Depart	D115A	Manorbier	Firing
Army Depart	D115B	Manorbier	Firing
Army Depart	D141	Hythe Ranges	Firing, Demolition Firing
Army Depart	X5009	Tregantle	Rifle
Army Depart	X5018	Chickerell	Rifle
Army Depart	X5052	Newtown	Rifle
Army Depart	X5104	Penally	Rifle
Army Depart	X5105	Braunton Burrows	Amphibious
Army Depart	X5108	Rogiet Moor	Rifle
MOD(PE)	D117	Pendine	Firing
MOD(PE)	D121	St Thomas Head	Underwater Explosions-Trials,6
Navy Depart	D003	Plymouth (India One, India Two)	AA, Air, ATT, Firing, GP, PTA, SU, Sub, SS, Sur, T
Navy Depart	D004	Plymouth (Juliatt One)	AA, Air, ATT, Firing, GP, PTA, SU, SS, Sur, TT
Navy Depart	D006	Falmouth Bay	Air, ASF, AT, Sub, Sur
Navy Depart	D006A	Falmouth Bay North	Air, AT, Firing, NGS, Sur, TT
Navy Depart	D007	Fowey Inner	Air, Sur
Navy Depart	D007A	Fowey	Air, Firing, NGS, Sur, TT
Navy Depart	D007B	Fowey Outer	Air, Firing, NGS, Sur, TT
Navy Depart	D008	Plymouth (E1,F1,F2,G1,G2,H1,H2)	AA, Air, ATT, Firing, GP, GW, PTA, SS, SU, Sub, Su
Navy Depart	D008A	Plymouth (E2,F3,G4)	Air, Firing, GP, PTA, Sub, Sur, TT
Navy Depart	D008B	Plymouth (Golf Three, Hotel Three)	AA, Air, Firing, GP, PTA, SS, SU, Sub, Sur, TT
Navy Depart	D009	Wembury A	ATT, Firing, TT
Navy Depart	D009A	Wembury	AA, Firing, PTA, SS, SU, Sur, TT
Navy Depart	D012	Lyme Bay North	AAF, B, TRIALS
Navy Depart	D013	Lyme Bay (K1,K2,K3)	AA, AAF, Air, ASF, B, FI, GI, GP, GW, MS, PTA, RP
Navy Depart	D014	Portland (Chesil Bank)	Air,AS,ASF,MS,PB,RP,Sur
Navy Depart	D017	Portland (L1,L2,L3)	AA,Air,AS,ASF,AT,Firing,FI,GI,GP,GW,MS,PTA,Sm,ST,S
Navy Depart	D021	Portland (Mike Two)	Air,AS,AT,FI,GP,MS,NGS,Sm,ST,Sub,Sur
Navy Depart	D023	Portland (M3,M4,M5)	AA,Air,AS,ASF,AT,Firing,FI,GI,GP,GW,MS,PTA,Sm,ST,S



Authority	Serial Number*	Name	Activities
Navy Depart	D031	Portland (November One)	Air, MG, NGS, SU, Sur
Navy Depart	D036	Portsmouth (Papa Four/Five)	AA,GP,PTA,SU,Sub,Sur
Navy Depart	D037	Unspecified	AA,GP,SU,Sur
Navy Depart	D038	Portsmouth (Quebec Three/Four)	AA,GP,PTA,SU,Sub,Sur
Navy Depart	D039	Portsmouth (Romeo Two/Three)	AA,GP,PTA,SU,Sub,Sur
Navy Depart	D040	Portsmouth (Sierra One/Two)	AA,GP,SU,Sur
Navy Depart	D119	Bridgwater Bay	AAF,B
Navy Depart	X4917	Start	A/C, FI, GP, S/M
Navy Depart	X4918	Lima Seven	A/S, S/M, T
Navy Depart	X4919	Mounts Bay	A/C, GP, S/M
Navy Depart	X4920	Alpha One	A/C, GP, S/M
Navy Depart	X4921	Bravo One	A/C, GP, S/M
Navy Depart	X4922	Charlie One	A/C, GP, S/M
Navy Depart	X4923	Charlie Two	A/C, GP, S/M
Navy Depart	X4924	Delta One	A/C, GP, S/M
Navy Depart	X4925	Alpha Two	A/C, GP, S/M
Navy Depart	X4926	Bravo Two	A/C, GP, S/M
Navy Depart	X4927	Charlie Three	A/C, GP, S/M
Navy Depart	X4928	Delta Two	A/C, GP, S/M
Navy Depart	X4929	Alpha Three	A/C, GP, S/M
Navy Depart	X4930	Bravo Three	A/C, GP, S/M
Navy Depart	X4931	Charlie Four	A/C, GP, S/M
Navy Depart	X4932	Charlie Five	A/C, GP, S/M
Navy Depart	X4933	DElta Three	A/C, GP, S/M
Navy Depart	X4934	Echo Four	GP, S/M
Navy Depart	X4935	Hotel Five	GP, S/M
Navy Depart	X4936	India Three	GP, S/M
Navy Depart	X4937	Juliett Two	GP, S/M
Navy Depart	X5001	Fleet Exercise Area	Fleet Exercises
Navy Depart	X5008	Whitsand Bay	A/C, GP, S/M
Navy Depart	X5010	Cawsand	DG
Navy Depart	X5014	Dart	S/M, HM Ships
Navy Depart	X5015	Lympstone	Rifle
Navy Depart	X5016	Bexington	MS Test, Sur
Navy Depart	X5020	Mike One	Air, GP, MS, Sur, MH
Navy Depart	X5021A	Harbour	GP, Sur

Authority	Serial Number*	Name	Activities
Navy Depart	X5023	Oscar One	GP, Sub
Navy Depart	X5024	Oscar Two	GP
Navy Depart	X5025	Oscar Three	GP
Navy Depart	X5026	Oscar Four	GP, Sub
Navy Depart	X5028	Papa One	GP, Sub
Navy Depart	X5029	Papa Two	GP
Navy Depart	X5030	Papa Three	GP
Navy Depart	X5037	Romeo One	Explosives Trials
Navy Depart	X5039	Quebec One	GP, MS
Navy Depart	X5047	Dart North	S/M, HM Ships
Navy Depart	X5050	Unspecified	MS
Navy Depart	X5051	Langstone Harbour	GP
Navy Depart	X5053	Tipner	Rifle
Navy Depart	X5054	November Three	Air,AS,FI,GP,MS,Sm,Sub,Sur,TA
Navy Depart	X5055	November Four	Air,AS,FI,GP,MS,Sm,Sub,Sur,TA
Navy Depart	X5057	November Two	AS, FI, GP, MG, Sm, Sub, Sur
Navy Depart	X5058	Unspecified	Minelaying
Navy Depart	X5059	Unspecified	MS Gear Streaming
Navy Depart	X5060E	Unspecified	MS
Navy Depart	X5060W	Unspecified	MS
Navy Depart	X5061	Sandown Bay	MH
Navy Depart	X5062	Unspecified	MD
Navy Depart	X5063	Mortar	Mortar Firing
Navy Depart	X5064	Plymouth (Fost)	MCM
Unspecified	(X5037)	(X5037)	Mine-Laying Practice Area
Unspecified	D 003	D 003	Firing Danger Area
Unspecified	D 004	D 004	Firing Danger Area
Unspecified	D 008	D 008	Firing Danger Area
Unspecified	D 013	D 013	Firing Danger Area
Unspecified	D 017	D 017	Firing Danger Area
Unspecified	D 023	D 023	Firing Danger Area
Unspecified	D 036	D 036	Firing Danger Area
Unspecified	D 036	D 036	Firing Danger Area
Unspecified	D 038	D 038	Firing Danger Area
Unspecified	D 039	D 039	Firing Danger Area
Unspecified	D 040	D 040	Firing Danger Area
Unspecified	D001	(D001) Trevoise Head	Firing Danger Area
Unspecified	D001	D001	Firing Danger Area
Unspecified	D001	D001	Firing Danger Area
Unspecified	D003	D003	Firing Danger Area

Authority	Serial Number*	Name	Activities
Unspecified	D003	D003	Firing Danger Area
Unspecified	D004	D004	Firing Danger Area
Unspecified	D004	D004	Firing Danger Area
Unspecified	D006	D006 Falmouth Bay	Firing Danger Area
Unspecified	D006	D006 Falmouth Bay	Submarine Exercise Area
Unspecified	D006	D006	Firing Danger Area
Unspecified	D006	D006	Firing Danger Area
Unspecified	D006A	D006A	Firing Danger Area
Unspecified	D006A	D006A	Firing Danger Area
Unspecified	D006A	D006A	Firing Danger Area
Unspecified	D006A	D006A	Firing Danger Area
Unspecified	D006A	D006A	Firing Danger Area
Unspecified	D007A	D007A	Firing Danger Area
Unspecified	D007B	D007B	Firing Danger Area
Unspecified	D008	D008	Firing Danger Area
Unspecified	D008	D008	Firing Danger Area
Unspecified	D008	D008	Firing Danger Area
Unspecified	D008	D008	Firing Danger Area
Unspecified	D008	D008	Firing Danger Area
Unspecified	D008	D008	Firing Danger Area
Unspecified	D008A	D008A	Firing Danger Area
Unspecified	D008A	D008A	Firing Danger Area
Unspecified	D008A	D008A	Firing Danger Area
Unspecified	D008B	D008B	Firing Danger Area
Unspecified	D009	Wembury Firing Range (D009)	Firing Danger Area
Unspecified	D009	Wembury Firing Range (D009)	Firing Danger Area
Unspecified	D009	Wembury Firing Range (D009)	Firing Danger Area
Unspecified	D009	Wembury Gunnery Range (D009)	Firing Danger Area
Unspecified	D009	Wembury Gunnery Range (D009)	Firing Danger Area
Unspecified	D009	Wembury Gunnery Range (D009)	Firing Danger Area
Unspecified	D009	Wembury Gunnery Range (D009)	Firing Danger Area
Unspecified	D009	D009	Firing Danger Area
Unspecified	D009A	Wembury Firing Range (D009A)	Firing Danger Area
Unspecified	D009A	Wembury Gunnery Range (D009A)	Firing Danger Area

Authority	Serial Number*	Name	Activities
Unspecified	D009A	D009A	Firing Danger Area
Unspecified	D009A	D009A Wembury	Firing Danger Area
Unspecified	D009A	D009A	Firing Danger Area
Unspecified	D009A	D009A	Firing Danger Area
Unspecified	D009A	D009A	Firing Danger Area
Unspecified	D012	D012	Firing Danger Area
Unspecified	D012	D012	Firing Danger Area
Unspecified	D013	D013	Firing Danger Area
Unspecified	D014	D014	Firing Danger Area
Unspecified	D014	D014	Firing Danger Area
Unspecified	D017	D017	Firing Danger Area
Unspecified	D017	D017	Firing Danger Area
Unspecified	D021	D021	Firing Danger Area
Unspecified	D021	D021	Firing Danger Area
Unspecified	D021	D021 Mike Two	Submarine Exercise Area
Unspecified	D023	D023	Firing Danger Area
Unspecified	D026	D026 Lulworth Gunnery Range	Firing Danger Area
Unspecified	D026	D026 Lulworth	Firing Danger Area
Unspecified	D026	D026 Lulworth Gunnery Range	Firing Danger Area
Unspecified	D026	D026 Lulworth Gunnery Range	Firing Danger Area
Unspecified	D036	D036	Firing Danger Area
Unspecified	D037	D037	Firing Danger Area
Unspecified	D037	D037	Firing Danger Area
Unspecified	D038	D038	Firing Danger Area
Unspecified	D039	D039	Firing Danger Area
Unspecified	D044	(D044) Lydd Firing Ranges	Firing Danger Area
Unspecified	D044	D044 Lydd Ranges	Unspecified
Unspecified	D064A	Unspecified	Unspecified
Unspecified	D064B	Unspecified	Unspecified
Unspecified	D064C	Unspecified	Unspecified
Unspecified	D110	Firing Practice Area (D110)	Firing Danger Area
Unspecified	D113	Castlemartin (W) D113	Firing Danger Area
Unspecified	D113	D113 Castlemartin Range	Firing Danger Area
Unspecified	D113	D113 Castlemartin Range	Firing Danger Area

Authority	Serial Number*	Name	Activities
Unspecified	D113	D113 Castlemartin Range	Firing Danger Area
Unspecified	D113	(D113) Castlemartin Range	Firing Danger Area
Unspecified	D113	Castlemartin (W) D113	Firing Danger Area
Unspecified	D113	Castlemartin (W) D113	Firing Danger Area
Unspecified	D113	Unspecified	Firing Danger Area
Unspecified	D114	Castlemartin (E) D114	Firing Danger Area
Unspecified	D114	Castlemartin (E) D114	Firing Danger Area
Unspecified	D115A	Manorbier D115A	Firing Danger Area
Unspecified	D115B	Manorbier D115B	Firing Danger Area
Unspecified	D115B	Manorbier D115B	Firing Danger Area
Unspecified	D117	Pendine D117	Firing Danger Area
Unspecified	D117	Pendine D117	Firing Danger Area
Unspecified	D117	Pendine D117	Firing Danger Area
Unspecified	D118	Pembrey D118	Firing Danger Area
Unspecified	D118	Pembrey D118	Firing Danger Area
Unspecified	D119	D119 Lilstock Naval Bombing Range	Firing Danger Area
Unspecified	D119	D119 Lilstock Naval Bombing Range	Firing Danger Area
Unspecified	D121	(D121) Saint Thomas's Head Firing Range	Firing Danger Area
Unspecified	DO37	DO37	Firing Danger Area
Unspecified	DO39	DO39	Firing Danger Area
Unspecified	DO39	DO39	Submarine Exercise Area
Unspecified	DO40	DO40	Firing Danger Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Hythe Firing Ranges	Firing Danger Area
Unspecified	Unknown	Lydd Firing Ranges	Firing Danger Area
Unspecified	Unknown	Tipner Small Arms Firing Range	Small Arms Firing Range
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area

Authority	Serial Number*	Name	Activities
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Oscar One	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Unspecified
Unspecified	Unknown	Newtown Rifle Range (X5052)	Small Arms Firing Range
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	Unknown	Unspecified	Submarine Exercise Area
Unspecified	X 4918	X 4918	Firing Danger Area
Unspecified	X 5063	X 5063	Firing Danger Area
Unspecified	X4920	X4920 Alpha One	Submarine Exercise Area
Unspecified	X4920	X4920	Submarine Exercise Area
Unspecified	X4921	X4921	Submarine Exercise Area
Unspecified	X4921	X4921 Bravo One	Unspecified
Unspecified	X4922	X4922	Submarine Exercise Area
Unspecified	X5001	X5001 Fleet Exercise Area	Unspecified
Unspecified	X5001	X5001	Submarine Exercise Area
Unspecified	X5009	Tregantle Rifle Ranges (X5009)	Firing Danger Area
Unspecified	X5015	(X5015) Lympstone Rifle Range	Firing Danger Area
Unspecified	X5015	X5015 Lympstone	Small Arms Firing Range
Unspecified	X5018	X5018	Firing Danger Area
Unspecified	X5023	X5023 Oscar One	Submarine Exercise Area
Unspecified	X5037	(X5037)	Mine-Laying Practice Area
Unspecified	X5052	Newtown Rifle Range (X5052)	Small Arms Firing Range
Unspecified	X5053	X5053 Tipner	Small Arms Firing Range
Unspecified	X5057	X5057	Firing Danger Area
Unspecified	X5057	X5057 November Two	Submarine Exercise Area
Unspecified	X5062	X5062	Firing Danger Area
Unspecified	X5063	X5063	Firing Danger Area
Unspecified	X5105	Firing Practice Area	Firing Danger Area

Authority	Serial Number*	Name	Activities
		(X5105)	
Unspecified	X5108	(X5108) Rogiet Moor Firing Range	Firing Danger Area

\*The prefix D (Danger) on the site serial number is used for areas that extend above ground/sea level. Whilst the prefix X is used for areas in which activities carried out are at surface or sub-surface level.

Note: The information contained in the above table includes the best publicly available data, where there are gaps in the data the term unspecified has been used.

**Table B- 2: List of activities associated with PEXA areas**

Abbreviation	Activity	Old Activity/Obsolete Term
A	Amphibious	
AA	Anti Aircraft (ground to air)	
A/A	High and low angle gunnery (ground to ground)	
AAF	Air to air firing	
ACT	Air combat training	
ADT	Air dropped torpedo	T/A torpedo from aircraft AT air dropped torpedo
AIR	Air general	A/C
ASF	Air to surface firing	
ASW	Anti submarine warfare exercises	A/S
AT	Acoustic trials	(note AT was air dropped torpedo. Amend on pexa chts)
ATT	Air tactical training	
B	Bombing	PB, LB, LABS
D	Diving	
DC	Depth charge dropping/diring, (including rocket/mortar fired DC)	Includes demolition firing, ordnance demolition
DG	Degaussing	
DUO	Demolition of unexploded ordnance	Includes demolition firing, ordnance demolition
ET	Explosive trials	
F	Firing	Includes MG machine gun, rifle, light proof firing
FI	Flares	
GI	Glowworm	
GP	General Practice	Includes misc fleet exercises
GW	Guided weapons (air flight)	
H	Helicopter exercises	
HEM	High energy manoeuvres	
HMS	HM Ships	
(non firing exercises, practices and trials)	Sur	
MCM	Mine counter measures	MH, ML, MS, MW
MD	Mine disposal	Includes MDW, mine disposal weapons firing
MI	Missile firing	Includes rocket projectiles
MO	Mortar firing	
NGS	Naval gunfire support	



Abbreviation	Activity	Old Activity/Obsolete Term
NR	Noise ranging	Includes ship & submarine noise ranging
P	Parachute dropping	
PTA	Pilotless target aircraft	
RTB	Radar training buoy	
SE	Submarine exercises	SM
Sm	Smoke	
SD	Sonobuoy dropping	Sonobuoy
SS	Starshell	
STT	Surface target towing	
SU	Surface to surface firing	Includes firing at surface target, Su
Sub	Submarine general	
(non ifring exercises, practices, trials)		
SX	Surface explosions	
T	Torpedo firing area	Includes surface/sub surface launched torpedoes ST
TA	Towed Array	Includes gear streaming
TT	Aerial towed target or target towing aircraft	
WT	Weapon training	Includes trials

Source: UKHO, 2006