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# 1 INTRODUCTION

The coastal area of SEA 3 contains a large number of nature conservation sites designated to protect habitats, plants, animals and birds (see SEA 3 Conservation Report). However, there are also sites which are protected or conserved for reasons other than nature conservation. These include sites of geological and archaeological importance as well as those that reflect or are designated to maintain a designated water quality for the purpose of shellfish production and bathing waters (Box 1.1). This report is a summary of these other designated sites and is intended as an underpinning report for the third DTI SEA.

<b>Box 1.1 - Number of sites of relevance to SEA 3</b>	
<b>Sites of geological importance</b>	
Geological Conservation Review sites (GCRs)	122
Geological Sites of Special Scientific Interest (SSSI)	57
Regionally Important Geological and Geomorphological Sites (RIGS)	-
<b>Sites of archaeological importance</b>	
Wrecks	6,391
Historic wrecks	8
Scheduled monuments	4
<b>Sites of designated water quality</b>	
Bathing waters	139
Bivalve production areas	19

The SEA 3 coast is a mosaic of different physical features shaped by a variety of geological processes. The Geological Conservation Review has identified many of these features as being of national or international importance and legal protection of many of these sites has followed.

The dependence on maritime trade, and the often treacherous waters that surround the UK have resulted in a huge number of ship wrecks in UK coastal and offshore waters. The locations of most of these wrecks are known although there is no legal protection of the sites. However, there are a number of wreck sites within the SEA 3 area that have been given legal protection, as they are deemed particularly important historically.

The most valuable form of protection for archaeological sites in England is scheduling which gives legal protection to nationally important archaeological sites. Within the SEA 3 coastal margin a number of sites have been scheduled

The SEA 3 area also contains a number of coastal sites which are designated as having a certain standard of water quality. These sites include designated bathing beaches and bivalve production areas in which bacteria levels are monitored and maintained below certain limits for human health reasons.

This report describes the various statutory and non-statutory conservation mechanisms that are in place to protect these sites and also gives a regional review of designated sites. For the purpose of this report, the coast bordering the SEA 3 region has been divided up into the same regional sections as the preceding Conservation Sites in the SEA 3 Area report(Box 1.2). The coastal designated sites are also described in geographical order, from north to south.

<b>Box 1.2 - SEA 3 regional sections and inclusive counties and unitary authorities (UA)</b>	
<b>SCOTTISH BORDERS AND NORTH EAST</b>	The Scottish Borders, Northumberland, Tyne and Wear, Durham, Hartlepool (UA), Stockton-on-Tees (UA), Redcar and Cleveland (UA).
<b>YORKSHIRE AND HUMBER</b>	North Yorkshire, East Riding of Yorkshire, City of Kingston upon Hull (UA), North Lincolnshire (UA) and North East Lincolnshire (UA).
<b>LINCOLNSHIRE, NORFOLK AND SUFFOLK</b>	Lincolnshire, Norfolk and Suffolk
<b>ESSEX AND KENT</b>	Essex, Southend-on-Sea (UA), Thurrock (UA), Medway (UA), Kent.

## 1.1 Sites of geological importance

Sites of geological importance within the SEA 3 area include Geological Conservation Review sites (GCRs), geological Special Sites of Scientific Interest (SSSI) and Regionally Important Geological and Geomorphological sites (RIGS). Information regarding these designations is presented below and details of the various sites are given in the regional sections of this report.

### 1.1.1 Geological Conservation Review sites (GCRs)

GCRs were identified through the Geological Conservation Review, a systematic site selection exercise carried out throughout the UK between 1977 and 1990 (Ellis *et al.* 1996). The aim of the review was to systematically identify the key geological sites in Britain.

Three distinct criteria were used to select GCR sites (Box 1.3)

<b>Box 1.3 - GCR site selection criteria</b>
<ul style="list-style-type: none"> <li>- Sites of international geological importance</li> <li>- Sites that are scientifically important because they contain exceptional features</li> <li>- Sites that are nationally important because they are representative of a geological feature, event or process which is fundamental to understanding Britain's geological history</li> </ul>

The GCR identified a network of nationally and internationally important Geological Conservation sites throughout Great Britain. The JNCC is responsible for coordination and publication of the results of the GCR – the *Geological Conservation Review Series*.

GCR sites form the basis of statutory geological and geomorphological site conservation in Britain. In England, more than 1,300 GCR sites have been safeguarded through designation as SSSIs. The results of the review have also helped instigate the development of a network of Regionally Important Geological Sites (RIGS).

GCR sites within the SEA 3 area are described in each regional section. The GCR block refers to the classification unit used to select and describe sites characteristic of UK geology. Many of these blocks correspond to the standard divisions of geological time or to major events within those periods.

#### Sources of information

English Nature website

<http://www.english-nature.org.uk/>

JNCC website

<http://www.jncc.gov.uk/search/default.htm>

### 1.1.2 Geological Sites of Special Scientific Interest

An SSSI is the designation by law of an area of Britain which is, in the opinion of the statutory agency concerned, of special scientific interest for its flora, fauna, geological or geomorphological features.

English Nature distinguishes between exposure and integrity sites for classifying geological SSSIs (Box 1.4).

<b>Box 1.4 - Classification of geological SSSIs</b>	
	<b>Exposure sites</b>
Definition:	Sites exhibit geological features which are relatively extensive underground.
Relevant examples:	Coastal cliffs and foreshore exposures.
Conservation focus:	Maintaining representative exposures of the features of interest.
Conservation threats:	Coastal defences which conceal outcrops in cliffs or foreshore.
	<b>Integrity sites</b>
Definition:	Sites exhibit geological features which are finite and irreplaceable if destroyed.
Relevant examples:	In situ mineral and fossil deposits.
Conservation focus:	Preservation, with restrictions against man-made changes which are likely to damage the feature of interest.
Conservation threats:	Irresponsible specimen collection and the direct or indirect effects of human developments on active geomorphological sites.

As a rule, exposure sites are more robust than integrity sites and can often tolerate the effects of human activities to a greater degree. However, site categories are not mutually exclusive and there are numerous examples where part of a site is classified as exposure and another part is classified as integrity.

#### Sources of information

English Nature website

<http://www.english-nature.org.uk/>

JNCC website

<http://www.jncc.gov.uk/search/default.htm>

### 1.1.3 Regionally Important Geological and Geomorphological Sites (RIGS)

Regionally Important Geological and Geomorphological Sites (RIGS) are currently considered the most important places for Earth science outside statutorily protected land such as Sites of Special Scientific Interest (SSSIs).

RIGS are equivalent to local Wildlife Sites and other non-statutory wildlife designations. They can be listed in local authorities' development plans and can be protected through the planning system if a RIGS group recommends sites to the local planning authority.

RIGS are important as an educational, historical and recreational resource and they are classified in a similar manner to SSSIs, as being either exposure and/or integrity sites. RIGS sites are selected on a local or regional basis according to the following criteria (Box 1.5).

<b>Box 1.5 - RIGS site selection criteria</b>	
-	The value of a site for educational purposes in life-long learning
-	The value of a site for study by both amateur and professional Earth scientists
-	The historical value of a site from an Earth science perspective

- The aesthetic value of a site from an Earth science perspective

The RIGS scheme relies almost entirely on volunteer support and actions in the regional and local communities. Many RIGS groups are affiliated to, or work closely with, other organisations such as local geological societies, local Wildlife Trusts, universities and museums. There are currently 56 RIGS groups in the United Kingdom with varying degrees of activity, 30 are members of the Association of United Kingdom RIGS Groups.

RIGS groups have already notified approximately 2,000 RIGS sites and recorded over 10,000 since their formation. There are plans for a national RIGS database within the next twelve months.

Until the completion of this database, information relating to RIGS can be obtained from the relevant local RIGS group or local authority.

#### Sources of information

UKRIGS Geoconservation Association website

<http://www.ukrigs.org.uk/index.html>

Pers. comm. J Reynolds, UKRIGS Executive

## 1.2 Sites of archaeological importance

English heritage is the main national body which identifies archaeological sites, develops policies to protect them and promotes the importance of archaeology.

The most valuable form of protection for archaeological sites is scheduling which gives legal protection to nationally important archaeological sites in England. Archaeological sites which are not scheduled monuments are protected by the planning process as developers are expected to make provision for carrying out archaeological investigation as part of their planning for all proposed developments. Important historical wrecks are protected by the Protection of Wrecks Act 1973.

The SEA 3 area contains a number of important archaeological sites, some protected by statutory mechanisms and the majority as part of the planning process. A review of coastal and submarine archaeology in the area is presented in the SEA 3 Technical Report - *The scope of Strategic Environmental Assessment of North Sea areas SEA3 and SEA2 in regard to prehistoric archaeological remains* (Flemming 2002).

The remit of this report is to identify archaeological sites within the SEA 3 area that have been protected through “scheduling” and/or under the Protection of Wrecks Act 1973.

### 1.2.1 Wrecks and historic wrecks

There are a large number of wrecks within the SEA 3 area although only a proportion of these are charted. Records from the UK Hydrographic Office reveal 6,391 confirmed wrecks within the SEA 3 area, of which 63% were chartered. The majority of the wrecks were found in coastal waters and in particular, the outer Thames Estuary where 1,812 wrecks were identified. The distribution of wrecks within the SEA 3 area is shown in Figure 1.2.

Important historic wrecks in UK waters are designated under the Protection of Wrecks Act 1973 which also controls activities on these sites. Wreck sites may comprise the remains of vessels, their accoutrements, armaments, cargo, and other associated objects or deposits, and restricted areas may include an area of surrounding seabed deemed necessary to secure protection of the wreck. Wrecks or wreck sites may be considered to merit designation if they contribute to the understanding of the past on the account of their historical, archaeological, or artistic importance.

The non-statutory criteria used to assess the importance of wrecks or the sites of wrecks, and for considering whether designation as a restricted area under the terms of the Protection of Wrecks Act 1973 is appropriate, are presented in Box 1.7.

<b>Box 1.7 - Criteria for assessing importance of wrecks</b>	
Period:	Wreck which characterise a category or period should be considered, wrecks should illustrate important aspects of our social, political, economic, cultural, military, maritime and technological history.
Rarity:	Some wrecks are so scarce that all surviving examples which retain some archaeological potential should be preserved.
Documentation:	Significance of a wreck may be enhanced by close historic association with documented important historical events or people, or by the supporting evidence of contemporary records.
Group value:	The value of a single vessel or its cargo may be greatly enhanced by its co-location with other similar vessels or by its association with other contemporary features such as port facilities or defensive sites.
Survival/condition:	The degree of survival of a wreck is a particularly important consideration. Vulnerable sites (fragile or commercially valuable) benefit from protective designation.
Fragility/vulnerability:	
Diversity:	Consideration should be given both to the diversity of forms in which a particular vessel type may survive and to the diversity of surviving features.
Potential:	Sites may be significant in terms of their potential to provide information on site formation and decay processes or through its potential for public education.

There are currently 48 sites designated under the 1973 Act, a small number compared to the hundreds of thousands of wrecks thought to be in the UK's territorial waters. A number of these historic wrecks lie within the SEA 3 region and are described in the relevant regional sections as well as shown on Figure 1.2.

## 1.2.2 Scheduled monuments

'Scheduling' is the process through which nationally important sites and monuments are given legal protection by being placed on a list, or 'schedule'. English Heritage takes the lead in identifying sites in England which should be placed on the schedule by the Secretary of State for Culture, Media and Sport. Scheduled monuments are protected by the Ancient Monuments and Archaeological Areas Act 1979, and scheduling is the only legal protection specifically for archaeological sites.

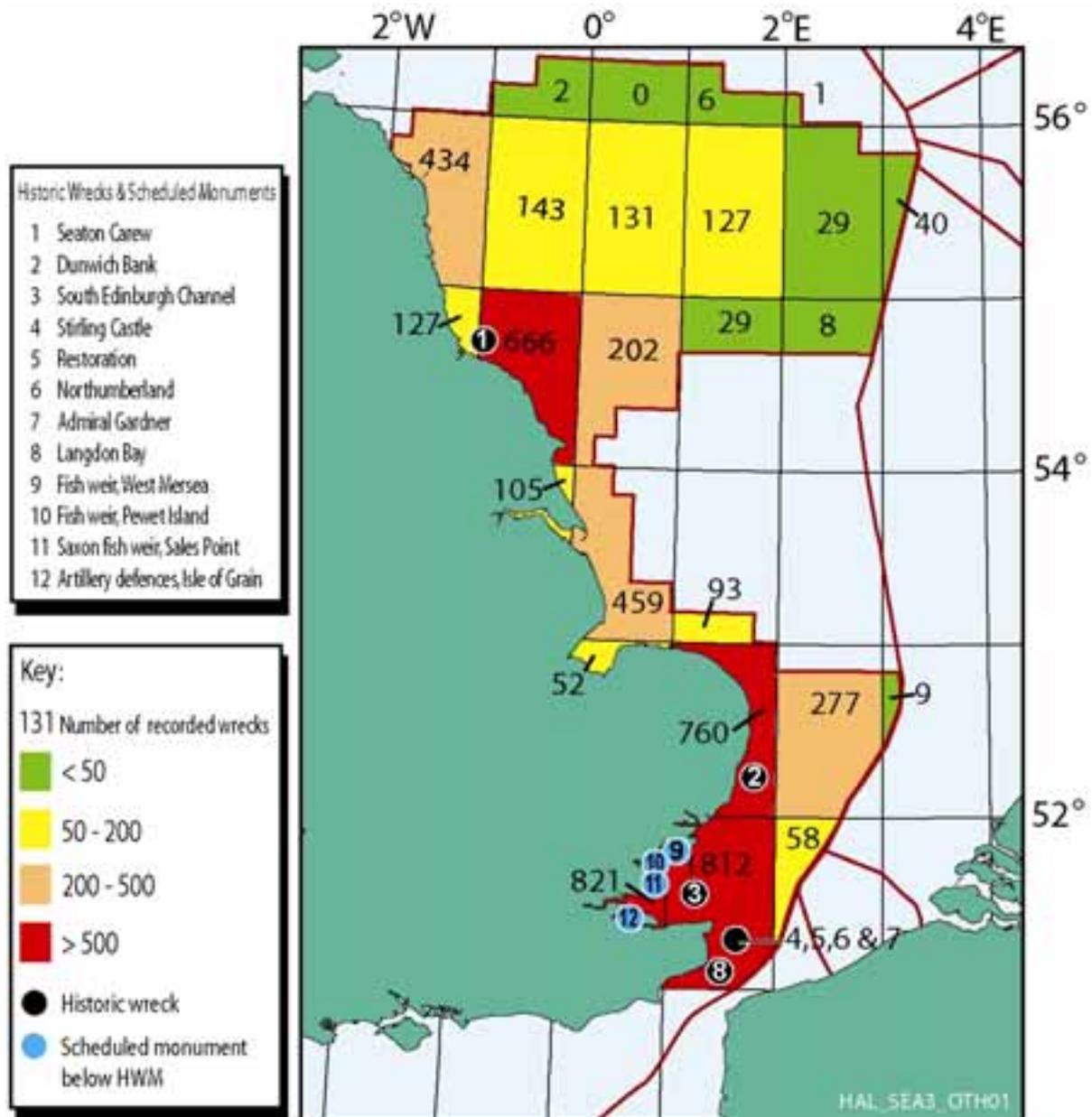
Scheduling is applied only to sites of national importance, and even then only if it is the best means of protection. Only deliberately created structures, features and remains can be scheduled. Decisions defining national importance are guided by criteria laid down by the Secretary of State for Culture, Media and Sport, covering the basic characteristics of monuments (Box 1.6)

**Box 1.6 - Basic characteristics of national monuments**

- Extent of survival
- Current condition
- Rarity
- Representivity, either through diversity or because of one important attribute
- Importance of the period to which the monument dates
- Fragility
- Connection to other monuments, or group value
- Potential to contribute to our information, understanding and appreciation
- Extent of documentation enhancing the monument's significance

The schedule now has about 18,300 entries (about 31,400 sites) of which a number are of relevance to SEA 3 as they are found below the high water mark. These are described in the relevant regional sections of this report and are also shown on Figure 1.2.

Figure 1.2 - Wrecks, historic wrecks and scheduled monuments



### Sources of information

Flemming N (2002) *The scope of Strategic Environmental Assessment of North Sea areas SEA 3 and SEA 2 in regard to prehistoric archaeological remains* (SEA 3 Technical Report).

Archaeological Diving Unit University of St Andrews website

<http://www.adu.org.uk/>

Pers. comm. Oliver Frankham, English Heritage.

Pers. comm. Steve Waring, Royal Commission on the Historical Monuments of England (RCHME), Maritime section.

## 1.3 Sites of designated water quality

### 1.3.1 Bathing waters

Under the EC Bathing Water Directive, eleven physical, chemical and microbiological parameters are measured including total and faecal coliforms. Samples of bathing water are taken at regular intervals two weeks before and then during the bathing season, which usually covers the period from mid-May to end-September in England and Wales, and from the beginning of June to mid-September in Scotland. In the UK a minimum of 20 samples are normally taken at each site and the Directive gives mandatory as well as more stringent guideline values for a number of the parameters (Box 1.8).

#### **Box 1.8 - EU bathing water bacteria standards**

Mandatory standards which should not be exceeded:

- 10,000 total coliforms per 100 ml of water
- 2,000 faecal coliforms per 100 ml of water

Guideline standards which should be achieved where possible:

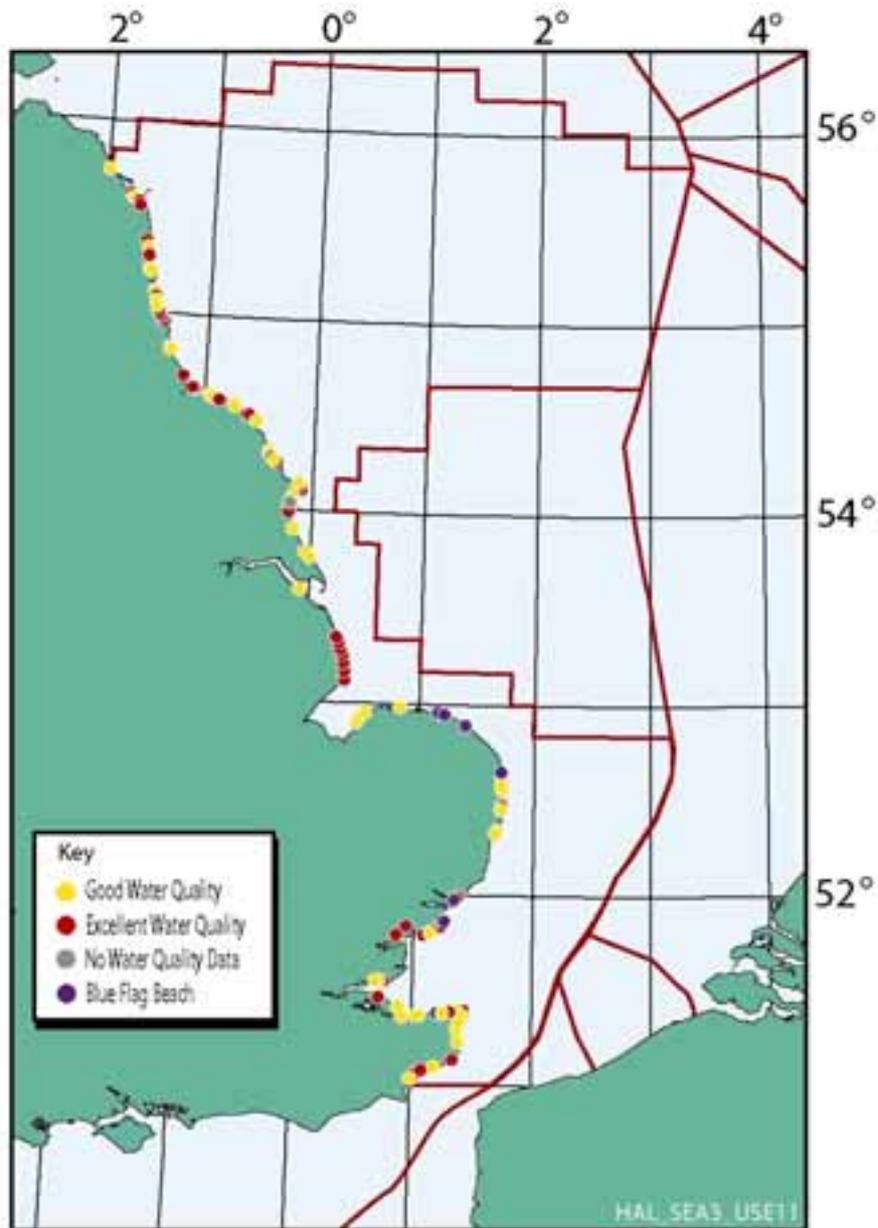
- No more than 500 total coliforms per 100 ml of water
- No more than 100 faecal coliforms per 100 ml of water in at least 80% of the samples
- No more than 100 faecal streptococci per 100 ml of water in at least 90% of the samples

The Environment Agency has classified Bathing Waters according to whether the bathing water is of excellent ('guideline'), good ('mandatory') or poor ('fail') quality. Within the SEA 3 area, there are a large number of bathing waters which are described in the relevant regional sections and are also shown on Figure 1.3.

The European Blue Flag Campaign was started in 1987 by the Foundation for Environmental Education in Europe and covers resort bathing beaches only. To qualify, bathing beaches have to meet certain guideline standards of the EC Bathing Water Directive as well as other criteria on beach facilities, cleanliness and safety. In 2001, 55 UK beaches were awarded the Blue Flag award and those within the SEA 3 area are described in the relevant regional sections as well as highlighted on Figure 1.3.

The ENCAMS Seaside Award scheme was launched by the Tidy Britain Group for resort and rural beaches, to complement the Blue Flag scheme and was based on similar management criteria to those used for Blue Flag but with fewer requirements for rural beaches. All applicants are required to have bathing waters which meet at least the mandatory coliform standards of the Bathing Water Directive. In 2001, 308 UK beaches won Seaside Awards and those within the SEA 3 area are described in the relevant regional sections.

Figure 1.3 – SEA 3 bathing waters and Blue Flag beaches



#### Sources of information

ENCAMS Seaside Awards website

<http://www.seasideawards.org.uk/sea2.htm>

Blue Flag Campaign website

<http://www.blueflag.org/>

DEFRA Digest of Environmental Statistics – Coastal and Marine Waters website

<http://www.defra.gov.uk/environment/statistics/des/coastwaters/ch040206.htm>

Environment Agency website

[http://216.31.193.171/asp/bwd\\_q\\_simple.asp?language=English](http://216.31.193.171/asp/bwd_q_simple.asp?language=English)

### 1.3.2 Bivalve production areas

In the UK, shellfish for human consumption must be harvested from designated production areas.

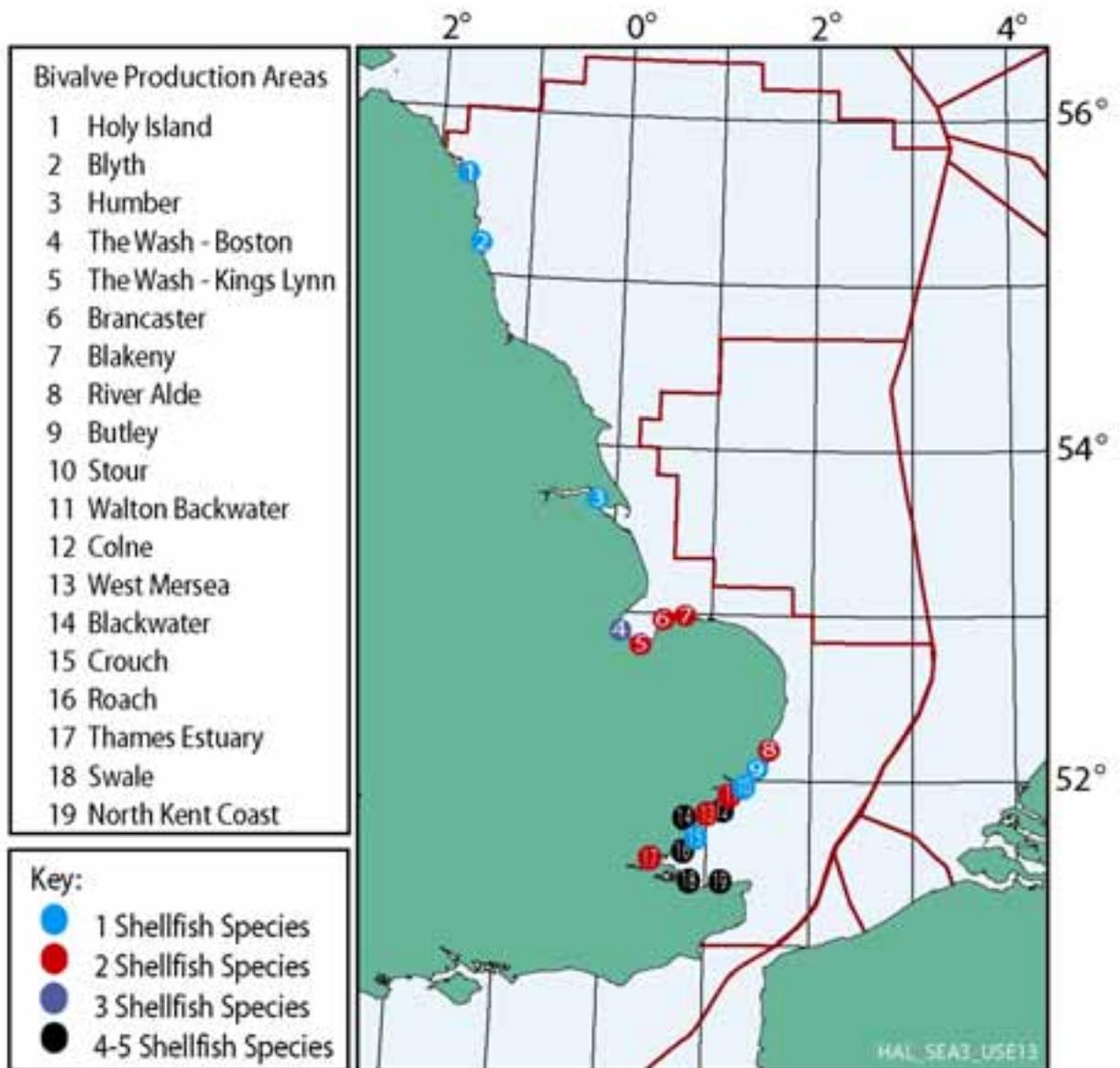
The classification of shellfish waters in England and Wales is compiled by CEFAS, (Fisheries Research Services in Scotland) and is required by EC Directive 91/492/EEC on the health conditions for the production and placing on the market of live bivalve molluscs. This Directive is now implemented in the UK by means of the 1998 Regulations which themselves were amended by the Food Safety (Fishery Products and Live Shellfish) (Hygiene) (Amendment) Regulations 1999.

The production areas have been classified according to the extent to which shellfish sampled from the area are contaminated with *E. coli*. The classification of a production area determines the treatment required before molluscs can be marketed (Box 1.9).

<b>Box 1.9 - Bivalve production area classification categories and criteria</b>		
<b>Category</b>	<b>Criteria</b>	<b>Treatment</b>
A	Less than 230 <i>E. coli</i> /100g flesh, or less than 300 faecal coliforms/100g flesh.	Molluscs can be harvested for direct human consumption
B	Less than 4,600 <i>E. coli</i> /100g flesh (in 90% of samples), or less than 6,000 faecal coliforms/100g flesh (in 90% of samples).	Molluscs can go for human consumption after purification in an approved plant or after relaying in an approved class A relaying area or after an EC approved heat treatment process
C	Less than 60,000 faecal coliforms/100g flesh.	Molluscs can go for human consumption only after relaying for at least 2 months in an approved relaying area followed, where necessary, by treatment in a purification centre, or after an EC approved heat treatment process
Prohibited	Above 60,000 faecal coliforms/100g flesh.	Unsuitable for production

Production areas within the SEA 3 area are described in the relevant regional sections of this report and are shown on Figure 1.4.

Figure 1.4 – SEA 3 Bivalve production areas



**Sources of information**

Food Standards Agency website  
<http://www.foodstandards.gov.uk/>

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## 2 SCOTTISH BORDERS AND NORTH EAST

### 2.1 Sites of geological importance

#### 2.1.1 Geological Conservation Review sites (GCRs)

There are a number of geological sites within the Scottish Borders and North East region which have been identified by the Geological Conservation Review (Table 2.1).

<b>Table 2.1 - Coastal GCR sites in the Scottish Borders and North East region</b>		
<b>Site name</b>	<b>Grid ref.</b>	<b>GCR block</b>
Cove	NT785716	Dinantian
Hawks Head	NT790714	Vertebrate Palaeontology
Old Cambus Quarry	NT806705	Llandoverly
Siccar Point	NT812709	Non-Marine Devonian
St Abb's Head	NT902690-917677	Coastal Geomorphology of Scotland
Pettico Wick to St Abb's Harbour	NT909690-920674	Old Red Sandstone Igneous
John's Road to Agate Point	NT953641	Caledonian Structures of The Southern Uplands
Burnmouth	NT97055885-95806150	Dinantian
Spittal Shore	NU010512-037479	Dinantian of N England and N Wales
Goswick - Holy Island - Budle Bay	NU035481-171362	Coastal Geomorphology of England
Holy Island	NU124416-143417	Carboniferous/Permian Igneous, Flandrian Sea-Level Changes
Budle Point to Harkess Rocks	NU163361-177359	Carboniferous/Permian Igneous
Cullernose Point to Castle Point	NU260187-259221	Carboniferous/Permian Igneous
Howick to Seaton Point	NU262173-264125	Namurian
Low Hauxley	NU283016	Quaternary N E England
Cresswell and Newbiggin Shores	NZ304855-301872, NZ315879-311897, NZ302916-292942	Westphalian
Sandy Bay	NZ305860	Quaternary N E England
Tynemouth to Seaton Sluice	NZ345760, 365717, 373693	Westphalian
Whitburn	NZ409612-383667	Marine Permian
Marsden Bay	NE400650	Coastal Geomorphology
Seaham Harbour	NZ430499-432494	Marine Permian
Hawthorn Quarry	NZ435463	Marine Permian
Yoden Village Quarry	NZ436417	Marine Permian
Warren House Gill	NZ436426	Quaternary N E England
Shippersea Bay, Easington	NZ443453	Quaternary N E England
Hartlepool	NZ520315	Flandrian Sea-Level Changes

#### Sources of information

Pers. comm. N Ellis, GCR Publications Manager, JNCC

#### 2.1.2 Geological SSSI

Sites of Special Scientific Interest designated for their geological features within the Scottish Borders and North East region are described in Table 2.2.

**Table 2.2 – Coastal geological SSSI in the Scottish Borders and North East region**

Site name	Grid ref	Geological features
Lindisfarne	NU105422	Coastal rivers and cliffs, foreshore exposures, active process geomorphological sites
Bamburgh Coasts and Hills	NU167357	Active process geomorphological sites
Castle Point to Cullernose Point	NU254215	Coastal rivers and cliffs, foreshore exposures
Howick to Seaton Point	NU268147	Foreshore exposures
Low Hauxley Shore	NU283017	Coastal rivers and cliffs
Cresswell and Newbiggin Shores	NZ300929	Foreshore exposures
Tynemouth to Seaton Sluice	NZ344759	Coastal rivers and cliffs, foreshore exposures
Durham Coast	NZ476382	Coastal rivers and cliffs, foreshore exposures
Hartlepool Submerged Forest	NZ519316	Foreshore exposures
Redcar Rocks	NZ610252	Foreshore exposures

**Sources of information**

Pers. comm. J Storey, English Nature

## 2.2 Sites of archaeological importance

### 2.2.1 Historic wrecks

Within the Scottish Borders and North East region there is one historic wreck site situated off the Durham coast, the details of which are given in Box 2.1, the map reference gives its location on Figure 1.2.

**Box 2.1 - Historic wrecks in the North East and Scottish Borders region**

Historic wreck:	<b>Seaton Carew</b>
Date of designation:	1997
Site description:	Seaton Carew, Durham. Partly exposed remains of a 19 <sup>th</sup> C. trading vessel.
Exclusion zone:	100m radius from position 54°39.50' N 01°10.71' W
Map reference:	1

**Sources of information**

Archaeological Diving Unit University of St Andrews website

<http://www.adu.org.uk/>

Pers. comm. Steve Waring, Royal Commission on the Historical Monuments of England (RCHME), Maritime section.

### 2.2.2 Scheduled monuments

There are no scheduled monuments found below the high water mark within the Scottish Borders and North East region.

**Sources of information**

Pers. comm. Oliver Frankham, English Heritage.

## 2.3 Sites of designated water quality

### 2.3.1 Bathing waters

Within the Scottish Borders and North East region there are a number of designated bathing waters, the majority of which are classified as having excellent water quality (Table 2.2 and Figure 1.3). A number of beaches have been awarded Seaside Awards but there are no Blue Flag beaches.

**Table 2.2 - Designated bathing waters in the region 2001**

Bathing waters	Water quality*			Beach award
	E	G	P	
Pease Bay	✓			
St. Abbs		✓		
Coldingham	✓			
Eyemouth		✓		
Spittal		✓		
Bamburgh Castle	✓			ENCAMS Seaside Award 2002
Seahouses North		✓		ENCAMS Seaside Award 2002
Beadnell	✓			ENCAMS Seaside Award 2002
Low Newton	✓			ENCAMS Seaside Award 2002
Warkworth	✓			ENCAMS Seaside Award 2002
Amble Links		✓		ENCAMS Seaside Award 2002
Druridge Bay	✓			
Newbiggin North		✓		
Newbiggin South	✓			
Blyth South Beach		✓		
Seaton Sluice		✓		
Whitley Bay	✓			ENCAMS Seaside Award 2002
Tynemouth Cullercoats	✓			ENCAMS Seaside Award 2002
Tynemouth Long Sands North		✓		
Tynemouth Long Sands South	✓			ENCAMS Seaside Award 2002
Tynemouth King Edwards Bay	✓			ENCAMS Seaside Award 2002
South Shields	✓			ENCAMS Seaside Award 2002
Marsden	✓			
Whitburn North	✓			ENCAMS Seaside Award 2002
Roker/ Whitburn South	✓			ENCAMS Seaside Award 2002
Seaham Beach		✓		
Seaham Hall Beach (Remand Home)	✓			
Crimdon	✓			
Seaton Carew North	✓			
Seaton Carew Centre	✓			
Seaton Carew North Gare	✓			
Redcar Coatham	✓			
Redcar Lifeboat Station	✓			ENCAMS Seaside Award 2002
Redcar Granville		✓		
Redcar Stray	✓			
Sea at Marske Sands	✓			
Saltburn	✓			ENCAMS Seaside Award 2002

\*Water Quality = E (Excellent), G (Good) and P (Poor). See Introduction for details.

#### Sources of information

ENCAMS Seaside Awards website

<http://www.seasideawards.org.uk/sea2.htm>

Blue Flag Campaign website

<http://www.blueflag.org/>

DEFRA Digest of Environmental Statistics – Coastal and Marine Waters website

<http://www.defra.gov.uk/environment/statistics/des/coastwaters/ch040206.htm>

Environment Agency website

[http://216.31.193.171/asp/bwd\\_q\\_simple.asp?language=English](http://216.31.193.171/asp/bwd_q_simple.asp?language=English)

Scottish Environment Protection Agency

<http://www.sepa.org.uk/data/bathingwaters/2001bathingseason/index.htm>

## 2.3.2 Bivalve production areas

Designated bivalve production areas within the Scottish Borders and North East region are described in Table 2.3 and the left-hand number identifies the site on Figure 1.4.

**Table 2.3 - Designated bivalve production areas in the region 2001**

	<b>Production area</b>	<b>Bed name</b>	<b>Species</b>	<b>Class</b>
1	Holy Island	Ross Links – R9	Pacific Oyster ( <i>Crassostrea gigas</i> )	B
2	Blyth	Blythburgh	<i>C. gigas</i>	B

### Sources of information

Food Standards Agency website

<http://www.foodstandards.gov.uk/>

### 3 YORKSHIRE AND HUMBER

#### 3.1 Sites of geological importance

##### 3.1.1 Geological Conservation Review sites (GCRs)

There are a number of geological sites within the Yorkshire and Humber region which have been identified by the Geological Conservation Review. These sites are listed in Table 3.1.

<b>Table 3.1 – Coastal GCR sites in the Yorkshire and Humber region</b>		
<b>Site name</b>	<b>Grid ref.</b>	<b>GCR block</b>
Boulby Quarries	NZ735200-757194	Toarcian
Staithe - Port Mulgrave	NZ784189-797175	Toarcian
Runswick Bay	NZ809170	Palaeobotany
Whitby – Saltwick	NZ901115-916109	Palaeobotany, Toarcian
Whitby	NZ901115-916109	Vertebrate Palaeontology
Hawsker Bottoms	NZ937080	Aalenian-Bajocian
Robin Hood's Bay	NE965030	Coastal Geomorphology
Castle Chamber - Maw Wyke	NZ941082-959067	Toarcian
Maw Wyke (Hawsker Bottoms)	NZ942082	Palaeobotany
Normandy Styre Batts - Miller's Nab	NZ952075-972025	Hettangian-Pliensbachian
Millers Nab - Blea Wyke	NZ968027-989014	Toarcian
Blea Wyke	NZ990013	Aalenian-Bajocian
Beast Cliff	TA002996-005988	Palaeobotany
Hayburn Wyke	TA011969	Palaeobotany
Iron Scar – Hundale	TA017964, 020957-027945	Aalenian-Bajocian
Cloughton Wyke	TA020951	Palaeobotany
Hundale Point - Scalby Ness	TA023949-037908	Bathonian
Scalby Ness	TA037911	Palaeobotany
North Bay, Scarborough	TA046892	Callovian
South Toll House Cliff	TA051888	Callovian
Cornelian Bay	TA064855	Oxfordian
Osgoodby Point	TA065854	Callovian
Red Cliff	TA078841	Callovian
Gristhorpe Bay	TA079841-093835	Aalenian-Bajocian
Red Cliff	TA083842	Palaeobotany
Yons Nab	TA085842	Bathonian
Filey Brigg	TA126816	Oxfordian
Speeton	TA146759	Quaternary of E England (North), Berriasian-Barremian
Speeton Sands	TA150757	Kimmeridgian
Speeton Beck to Red Cliff Hole	TA154754-166750	Aptian-Albian
Flamborough Head	TA258707	Coastal Geomorphology of England
Flamborough Head	TA154755-200685	Cenomanian-Maastrichtian

**Table 3.1 – Coastal GCR sites in the Yorkshire and Humber region**

Skipsea Withow	TA183546	Pleistocene/Quaternary of E England (North)
Sewerby	TA198683	Quaternary of E England (North)
Sewerby Cliff	TA199686	Vertebrate Palaeontology
Old Mere, Hornsea	TA208474	Pollen Stratigraphy of England
Dimlington	TA390220	Quaternary of E England (North)
Spurn Head	TA420130	Coastal Geomorphology (England)
South Ferriby	SE993204	Oxfordian + Kimmeridgian
South Ferriby Cliff	SE995220	Pleistocene/Quaternary of E England (South)

**Sources of information**

Pers. comm. N Ellis, GCR Publications Manager, JNCC

**3.1.2 Geological SSSI**

Sites of Special Scientific Interest designated for their geological features within the Yorkshire and Humber region are described in Table 3.2.

**Table 3.2 – Coastal geological SSSI in the Yorkshire and Humber region**

Site name	Grid ref	Geological features
Boulby Quarries	NZ746198	Disused quarries, pits and cuttings
Staithes-Port Mulgrave	NZ794181	Coastal rivers and cliffs, foreshore exposures
Runswick Bay	NZ809169	Coastal rivers and cliffs, foreshore exposures
Whitby-Saltwick	NZ911112	Coastal rivers and cliffs, foreshore exposures
Robin Hood's Bay: Maw Wyke to Beast Cliff	NZ962031	Coastal rivers and cliffs, inland outcrops and stream sections
South Ferriby Cliffs	SE992219	Coastal rivers and cliffs
Iron Scar and Hundale Point to Scalby Ness	TA023946	Coastal rivers and cliffs, foreshore exposures
North Bay to South Toll House cliff	TA048892	Coastal rivers and cliffs, foreshore exposures
Cayton, Cornelian and South Bays	TA059859	Coastal rivers and cliffs, foreshore exposures
Gristhorpe Bay and Red Cliff	TA081842	Coastal rivers and cliffs, foreshore exposures
Filey Brigg	TA128815	Coastal rivers and cliffs, foreshore exposures
Flamborough Head	TA258702	Coastal rivers and cliffs, foreshore exposures, maritime cliff and slope
Withow Gap, Skipsea	TA183545	Unique mineral, fossil or other geological sites
Dimlington Cliff	TA389220	Coastal rivers and cliffs
Humber Flats and Marshes: Spurn Head to Saltend Flats	TA344174	Active process geomorphological sites

**Sources of information**

Pers. comm. J Storey, English Nature

## 3.2 Sites of archaeological importance

### 3.2.1 Historic wrecks

Within the Yorkshire and Humber region there are no designated historic wrecks.

#### Sources of information

Archaeological Diving Unit University of St Andrews website

<http://www.adu.org.uk/>

Pers. comm. Steve Waring, Royal Commission on the Historical Monuments of England (RCHME), Maritime section.

### 3.2.2 Scheduled monuments

There are no scheduled monuments found below the high water mark within the Yorkshire and Humber region.

#### Sources of information

Pers. comm. Oliver Frankham, English Heritage.

## 3.3 Sites of designated water quality

### 3.3.1 Bathing waters

Within the Yorkshire and Humber region there are a number of designated bathing waters, the majority of which are classified as having good water quality (Table 3.2 and Figure 1.3). A number of beaches have been awarded Seaside Awards but there are no Blue Flag beaches.

**Table 3.2 - Designated bathing waters in the region 2001**

Bathing waters	Water quality*			Beach award
	E	G	P	
Staithes		✓		ENCAMS Seaside Award 2002
Runswick Bay		✓		ENCAMS Seaside Award 2002
Sandsend	✓			ENCAMS Seaside Award 2002
Whitby	✓			ENCAMS Seaside Award 2002
Robin Hoods Bay		✓		ENCAMS Seaside Award 2002
Scarborough North Bay	✓			ENCAMS Seaside Award 2002
Scarborough South Bay		✓		ENCAMS Seaside Award 2002
Cayton Bay	✓			ENCAMS Seaside Award 2002
Filey		✓		ENCAMS Seaside Award 2002
Reighton	✓			
Flamborough North Landing		✓		
Flamborough South Landing	✓			
Danes Dyke, Flamborough	✓			
Bridlington North Beach		✓		
Bridlington South Beach	✓			
Wilsthorpe		✓		
Fraisthorpe		✓		
Earls Dyke		Not Classified		
Barmston	✓			
Skipsea	✓			
Hornsea		✓		
Tunstall		✓		

**Table 3.2 - Designated bathing waters in the region 2001**

Bathing waters	Water quality*			Beach award
	E	G	P	
Withernsea		✓		
Cleethorpes		✓		

\*Water Quality = E (Excellent), G (Good) and P (Poor). See Introduction for details.

#### Sources of information

ENCAMS Seaside Awards website

<http://www.seasideawards.org.uk/sea2.htm>

Blue Flag Campaign website

<http://www.blueflag.org/>

DEFRA Digest of Environmental Statistics – Coastal and Marine Waters website

<http://www.defra.gov.uk/environment/statistics/des/coastwaters/ch040206.htm>

Environment Agency website

[http://216.31.193.171/asp/bwd\\_q\\_simple.asp?language=English](http://216.31.193.171/asp/bwd_q_simple.asp?language=English)

### 3.3.2 Bivalve production areas

Designated bivalve production areas within the Yorkshire and Humber region are described in Table 3.3 and the left-hand number identifies the site on Figure 1.4.

**Table 3.3 - Designated bivalve production areas in the region 2001**

	Production Area	Bed Name	Species	Class
3	Humber	Wonderland Horseshoe Point	Cockles ( <i>Cerastoderma edule</i> )	B

#### Sources of information

Food Standards Agency website

<http://www.foodstandards.gov.uk/>

## 4 LINCOLNSHIRE, NORFOLK AND SUFFOLK

### 4.1 Sites of geological importance

#### 4.1.1 Geological Conservation Review sites (GCRs)

There are a number of geological sites within the Lincolnshire, Norfolk and Suffolk region which have been identified by the Geological Conservation Review (Table 4.1).

<b>Table 4.1 - Coastal GCR sites in the Lincolnshire, Norfolk and Suffolk region</b>		
<b>Site name</b>	<b>Grid ref.</b>	<b>GCR block</b>
Chapel Point	TF560741	Holocene Sea Level
Gibraltar Point	TF568562-579623	Coastal Geomorphology of England
Heacham	TF679364	Berrasian-Barremian
Hunstanton Cliffs	TF672413-679424	Cenomanian-Maastrichtian, Aptian-Albian
North Norfolk Coast	TF673413-TG153437	Coastal Geomorphology, Saltmarsh Morphology
Wells Chalk Pit	TF929429	Pleistocene/Quaternary of East Anglia
Morston Cliff	TF990441	Pleistocene of East Anglia
Blakeney Esker	TG023433	Pleistocene/Quaternary of East Anglia
Weybourne Cliffs	TG111438-112435	Vertebrate Palaeontology, Pleistocene of East Anglia
Weybourne Town Pit	TG114431	Pleistocene of East Anglia
Beeston	TG167433-171433	Pleistocene of East Anglia
West Runton	TG182432-192430	Pleistocene of East Anglia, Vertebrate Palaeontology
East Runton	TG194430-205427	Pleistocene of East Anglia, Vertebrate Palaeontology
Overstrand to Trimingham	TG228420-396375	Cenomanian-Maastrichtian
Overstrand Cliff Section	TG247411	Pleistocene/Quaternary of East Anglia
Sidestrand	TG255405-259402	Pleistocene of East Anglia, Vertebrate Palaeontology
Trimingham	TG278390-297380	Mass Movement
Mundesley	TG315767-331352	Pleistocene of East Anglia
Happisburgh	TG379314-383311	Pleistocene of East Anglia
Winterton Ness	TG489216-506181	Coastal Geomorphology (England)
Corton	TM544971-547962	Pleistocene of East Anglia
Benacre Ness	TM538839	Coastal Geomorphology (Wales)
Easton Bavents	TM512772-517790, 524808-531823	Pleistocene of East Anglia, Vertebrate Palaeontology
Craig Pit Nursery	TM458580	Pliocene
Round Hill	TM444573	Pliocene
Aldeburgh Hall	TM453566	Pliocene
Richmond Farm	TM412492	Pliocene
The Cliff, Gedgrave	TM397486	Pliocene
Gedgrave Hall	TM405485	Pliocene
Orfordness	TM358400-462547	Coastal Geomorphology of England
Ferry Cliff	TM278486	Vertebrate Palaeontology
Ramsholt Cliff	TM298428	Pliocene
Buckanay Farm Pit	TM356424	Pleistocene/Quaternary East Anglia
Bawdsey Cliff	TM338380-352393	Pleistocene of East Anglia
Stutton	TM142332-151330	Pleistocene of East Anglia, Vertebrate Palaeontology

**Sources of information**

Pers. comm. N Ellis, GCR Publications Manager, JNCC

## 4.1.2 Geological SSSI

Sites of Special Scientific Interest designated for their geological features within the Lincolnshire, Norfolk and Suffolk region are described in Table 4.2.

**Table 4.2 – Coastal geological SSSI in the Lincolnshire, Norfolk and Suffolk region**

Site name	Grid ref	Geological features
Gibraltar Point	TF565595	Active process geomorphological sites
Hunstanton Cliffs	TF674419	Coastal rivers and cliffs
North Norfolk Coast	TF744446	Active process geomorphological sites
Morston Cliff	TF990441	Coastal rivers and cliffs
Weybourne Cliffs	TG134435	Coastal rivers and cliffs
Beeston Cliffs	TG169433	Coastal rivers and cliffs
West Runton Cliffs	TG187431	Coastal rivers and cliffs
East Runton Cliffs	TG199429	Coastal rivers and cliffs
Overstrand Cliffs	TG237414	Coastal rivers and cliffs, soft cliff
Sidestrand and Trimmingham Cliffs	TG280390	Coastal rivers and cliffs
Mundesley Cliffs	TG323358	Coastal rivers and cliffs
Happisburgh Cliffs	TG382312	Coastal rivers and cliffs
Corton Cliffs	TM546966	Coastal rivers and cliffs
Benacre to Easton Bavents	TM522808	Coastal rivers and cliffs, Active process geomorphological sites
Alde-Ore Estuary	TM442492	Coastal rivers and cliffs, Active process geomorphological sites
Bawdsey Cliffs	TM345385	Coastal rivers and cliffs

**Sources of information**

Pers. comm. J Storey English Nature

## 4.2 Sites of archaeological importance

### 4.2.1 Historic wrecks

Within the Lincolnshire, Norfolk and Suffolk region there is one designated historic wreck located on Dunwich Bank, the details of which are given in Box 4.1. The map reference refers to the location of the wreck on Figure 1.2.

**Box 4.1 - Historic wrecks in the Lincolnshire, Norfolk and Suffolk region**

Historic wreck:	<b>Dunwich Bank</b>
Date of designation:	1994
Site description:	Dunwich Bank, Suffolk. Submerged 16 <sup>th</sup> C. merchant vessel.
Exclusion zone:	100m radius from position 52°15.14' N 01°38.53' E
Map reference:	2

**Sources of information**

Archaeological Diving Unit University of St Andrews website

<http://www.adu.org.uk/>

Pers. comm. Steve Waring, Royal Commission on the Historical Monuments of England (RCHME), Maritime section.

## 4.2.2 Scheduled monuments

There are no scheduled monuments found below the high water mark within the Lincolnshire, Norfolk and Suffolk region.

### Sources of information

Pers. comm. Oliver Frankham, English Heritage.

## 4.3 Sites of designated water quality

### 4.3.1 Bathing waters

Within the Lincolnshire, Norfolk and Suffolk region there are a number of designated bathing waters, the majority of which are classified as having excellent water quality (Table 4.2). A large number of beaches have been awarded Seaside Awards and there are six Blue Flag beaches, the largest number found in any of the regional sections.

**Table 4.2 - Designated bathing waters in the region 2001**

Bathing waters	Water quality			Beach award
	E	G	P	
Lincolnshire				
Mablethorpe Town	✓			
Sutton-on-Sea	✓			
Moggs Eye	✓			
Anderby	✓			
Chapel St. Leonard	✓			
Ingoldmells South	✓			
Skegness	✓			
Norfolk				
Snettisham				ENCAMS Seaside Award 2002
Heacham, North				ENCAMS Seaside Award 2002
Heacham, South		✓		ENCAMS Seaside Award 2002
Hunstanton Main Beach		✓		ENCAMS Seaside Award 2002
Hunstanton Beach		✓		
Wells		✓		
Sheringham	✓			Blue Flag, ENCAMS Seaside Award 2002
Cromer	✓			Blue Flag, ENCAMS Seaside Award 2002
Mundesley		✓		Blue Flag, ENCAMS Seaside Award 2002
Sea Palling				ENCAMS Seaside Award 2002
Hemsby	✓			
Caister Point		✓		
Great Yarmouth North	✓			
Great Yarmouth Central		✓		Blue Flag, ENCAMS Seaside Award 2002
Great Yarmouth South			✓	
Gorleston Beach		✓		ENCAMS Seaside Award 2002
Suffolk				
Lowestoft, Gunton Denes				ENCAMS Seaside Award 2002
Lowestoft North	✓			ENCAMS Seaside Award 2002
Victoria Beach		✓		
Lowestoft South	✓			ENCAMS Seaside Award 2002
Kessingland				ENCAMS Seaside Award 2002
Southwold The Pier	✓			Blue Flag, ENCAMS Seaside Award 2002
Southwold The Denes		✓		ENCAMS Seaside Award 2002
Thorpeness				ENCAMS Seaside Award 2002
Aldeburgh				ENCAMS Seaside Award 2002
Felixstowe North	✓			

**Table 4.2 - Designated bathing waters in the region 2001**

Bathing waters	Water quality			Beach award
	E	G	P	
Felixstowe South				Blue Flag, ENCAMS Seaside Award 2002

\*Water Quality = E (Excellent), G (Good) and P (Poor). See Introduction for details.

#### Sources of information

ENCAMS Seaside Awards website

<http://www.seasideawards.org.uk/sea2.htm>

Blue Flag Campaign website

<http://www.blueflag.org/>

DEFRA Digest of Environmental Statistics – Coastal and Marine Waters website

<http://www.defra.gov.uk/environment/statistics/des/coastwaters/ch040206.htm>

Environment Agency website

[http://216.31.193.171/asp/bwd\\_q\\_simple.asp?language=English](http://216.31.193.171/asp/bwd_q_simple.asp?language=English)

### 4.3.2 Bivalve production areas

Designated bivalve production areas within the Lincolnshire, Norfolk and Suffolk region are described in Table 4.3 and the left-hand number identifies the site on Figure 1.4.

**Table 4.3 - Designated bivalve production areas in the region 2001**

	Production area	Bed name	Species	Class
4	The Wash - Boston	Toft Lays, Gat Sand, Maretail and Witham Bank	Mussels ( <i>Mytilus edulis</i> )	B
		Friskney and Wrangle	Cockles	B
		Butterwick	Cockles	B
		Clay Hole	C. gigas	B

**Table 4.3 - Designated bivalve production areas in the region 2001**

5	The Wash – Kings Lynn	Nene, Daseleys, Hunstanton, Stylemans, Thief Pandora and Scotsman’s Sled	Mussels	B
		Training Wall	Mussels	B
		Heacham	Cockles	B
		Breast Sand	Cockles	C
6	Brancaster	Brancaster	Mussels	B
		Brancaster	<i>C.gigas</i>	A
7	Blakeney	Simpool	Mussels	B
		Stiffkey	Cockles	B
8	River Alde	Home Reach,	<i>C. gigas</i>	B
		Westrow Reach, and Martello Tower	Mussels	B
		South Westrow	Mussels	B
9	Butley	Creek	<i>C. gigas</i> and Mussels	B
10	Stour	Callisters Creek	Native oyster ( <i>Ostrea edulis</i> )	B

**Sources of information**

Food Standards Agency website

<http://www.foodstandards.gov.uk/>

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## 5 ESSEX AND KENT

### 5.1 Sites of geological importance

#### 5.1.1 Geological Conservation Review sites (GCRs)

There are a number of geological sites within the Essex and Kent region which have been identified by the Geological Conservation Review (Table 5.1).

<b>Table 5.1 - Coastal GCR sites in the Essex and Kent region</b>		
<b>Site name</b>	<b>Grid ref.</b>	<b>GCR block</b>
Wrabness	TM172323	Palaeobotany
Harwich	TM263320	Palaeobotany
Little Oakley	TM223295	Pleistocene/Quaternary of Thames and Avon
Walton-on-the-Naze	TM263230-268245	Vertebrate Palaeontology & Pleistocene of East Anglia, Palaeobotany
Holland on Sea Cliff	TM211167	Pleistocene/Quaternary of the Thames
Clacton	TM146128-149128, 156135, 169139-174143	Thames Pleistocene
St Osyth Marsh, Colne Point	TM092143-131127	Saltmarsh Morphology
St Osyth	TM119170	Thames Pleistocene
East Mersea	TM064143-069147	Thames Pleistocene
Maylandsea	TL908035	Tertiary/Mesozoic `Fish/Amphibia`
Dengie	TM045030	Saltmarsh Morphology
Lion Pit	TQ598783	Thames Pleistocene
Burnham on Crouch	TQ920968-922966	Vertebrate Paleontology
Burnham on Crouch	TQ921967	Tertiary/Mesozoic `Fish/Amphibia`
Lower Upnor	TQ757712	Palaeogene
Sheppey	TQ955738-024717	Palaeobotany, Tertiary/Mesozoic `Fish/Amphibia`
Warden Point	TQ955738-TR024717	Vertebrate Palaeontology & Pleistocene of East Anglia, Vertebrate Palaeontology, Mass Movement
Herne Bay	TR185685-224693	Palaeobotany
Bishopstone Cliffs	TR193685-224693	Palaeogene
Herne Bay	TR217691-205687	Tertiary/Mesozoic `Fish/Amphibia`,
Thanet Coast	TR 399675-393657, 373641-353644; TR373713-400678; TR 296696-339706	Cenomanian-Maastrichtian
Foreness Point	TR383716-402696	Coastal Geomorphology of England
North Cliff, Broadstairs	TR399684	Quaternary S E England
Pegwell Bay	TR348640-350642, 354643-358642	Palaeogene
Pegwell Bay	TR348641-363642	Periglacial of S.E. England
Kingsdown - Dover	TR378460, TR356429	Coastal Geomorphology of England

**Table 5.1 - Coastal GCR sites in the Essex and Kent region**

Dover - Kingsdown Cliffs	TR242365-316402, 331418-381482	Cenomanian-Maastrichtian
Walpole Bay Cliffs and Grenham Bay Cliffs	TR293699, 366713	Alpine Structures of Southern England
East Wear Bay	TR243366	Vertebrate Palaeontology
Folkestone	TR235362-245370	Aptian-Albian
Folkestone Warren	TR255384	Mass Movement
Dungeness	TR050180	Coastal Geomorphology

**Sources of information**

Pers. comm. N Ellis, GCR Publications Manager, JNCC

**5.1.2 Geological SSSI**

Sites of Special Scientific Interest designated for their geological features within the Essex and Kent region are described in Table 5.2.

**Table 5.2 – Coastal geological SSSI the Essex and Kent region**

Site name	Grid ref	Geological features
Stour Estuary	TM171329	Coastal rivers and cliffs
Harwich Foreshore	TM263320	Foreshore exposures
The Naze	TM266236	Coastal rivers and cliffs
Holland-on-Sea Cliff	TM211166	Coastal rivers and cliffs
St. Osyth Pit	TM119170	Disused quarries, pits and cuttings
Blackwater Estuary	TL992116	Foreshore exposures
Dengie	TM043020	Active process geomorphological sites
Colne Estuary	TM059168	Foreshore exposures, active process geomorphological sites
Clacton Cliffs and Foreshore	TM157134	Coastal rivers and cliffs, foreshore exposures, static (fossil) geomorphological sites
Tower Hill to Cockham Wood	TQ760708	Disused quarries, pits and cuttings
Sheppey Cliffs and Foreshore	TQ992731	Coastal rivers and cliffs
Thanet Coast	TR317702	Coastal rivers and cliffs
Sandwich Bay to Hacklinge Marshes	TR354592	Coastal rivers and cliffs, hard cliff
Dover to Kingsdown Cliffs	TR360434	Coastal rivers and cliffs, foreshore exposures, maritime cliff and slope
Folkestone Warren	TR276385	Coastal rivers and cliffs, foreshore exposures
Dungeness	TR065181	Static (fossil) geomorphological sites, cultivated/disturbed land

**Sources of information**

Pers. comm. J Storey, English Nature

**5.2 Sites of archaeological importance****5.2.1 Historic wrecks**

Within coastal areas of Essex and Kent there are a number of designated historic wrecks, the details of which are given in Box 5.1. The map reference refers to location of the wreck on Figure 1.2.

**Box 5.1 - Historic wrecks in the Essex and Kent region**

Historic wreck:	<b>South Edinburgh Channel</b>
Date of designation:	1977
Site description:	Thames Estuary. Buried wreck of a late 18 <sup>th</sup> C. merchant ship.
Exclusion zone:	100m radius from position 51°31.73' N 01°14.88' E
Map reference:	3
Historic wreck:	<b>Stirling Castle</b>
Date of designation:	1980
Site description:	Goodwin Sands, Kent. 17 <sup>th</sup> C. warship sunk by Great Storm of 1703.
Exclusion zone:	50m radius from position 51°16.43' N 01°30.52' E
Map reference:	4
Historic wreck:	<b>Restoration</b>
Date of designation:	1989
Site description:	Goodwin Sands, Kent. 17 <sup>th</sup> C. warship sunk by Great Storm of 1703.
Exclusion zone:	50m radius from position 51°15.45' N 01°30.12' E
Map reference:	5
Historic wreck:	<b>Northumberland</b>
Date of designation:	1989
Site description:	Goodwin Sands, Kent. 17 <sup>th</sup> C. warship sunk by Great Storm of 1703.
Exclusion zone:	50m radius from position 51°15.45' N 01°30.12' E
Map reference:	6
Historic wreck:	<b>Admiral Gardner</b>
Date of designation:	1990
Site description:	Goodwin Sands, Kent. English East Indian trade vessel sunk in 1809.
Exclusion zone:	150m radius from position 51°12.00' N 01°30.56' E
Map reference:	7
Historic wreck:	<b>Langdon Bay</b>
Date of designation:	1978
Site description:	Langdon Bay, Dover. Range of bronze tools, weapons and ornaments made in France during the Middle Bronze Age. Thought to be part of a cargo of bronze scrap transported from mainland Europe to Britain in about 1100BC.
Exclusion zone:	150m radius from position 51°07.60'N 01°20.80' E
Map reference:	8

**Sources of information**

Archaeological Diving Unit University of St Andrews website

<http://www.adu.org.uk/>

Pers. comm. Steve Waring, Royal Commission on the Historical Monuments of England (RCHME), Maritime section.

## 5.2.2 Scheduled monuments

There are a number of scheduled monuments found below the high water mark within the Essex and Kent region that are described in Box 5.2 and the map reference indicates their position on Figure 1.2.

<b>Box 5.2 - Scheduled monuments in the Essex and Kent region</b>	
Scheduled monument no:	32402
Description:	Coastal fish weirs at West Mersea, 570m south east of St. Peter's Well
Parish:	West Mersea
County:	Essex
Grid reference:	TM01011193
Map reference:	9
Scheduled monument no:	32405
Description:	Coastal fish weir 440m north west of Pewet Island
Parish:	Bradwell-on-Sea
County:	Essex
Grid reference:	TL98580798-TL98880828
Map reference:	10
Scheduled monument no:	29427
Description:	Saxon coastal fish weir at Sales Point
Parish:	Bradwell-on-Sea
County:	Essex
Grid reference:	TM03360937
Map reference:	11
Scheduled monument no:	34297
Description:	Coastal artillery defences on the Isle of Grain, immediately east and south east of Grain village.
Parish:	Isle of Grain
County:	Medway
Grid reference:	TQ89087648, TQ88977640, TQ89197655, TQ89267612, TQ89587604, TQ89247575
Map reference:	12

### Sources of information

Pers. comm. Oliver Frankham, English Heritage.

## 5.3 Sites of designated water quality

### 5.3.1 Bathing waters

Within the Essex and Kent region there are a number of designated bathing waters, of which the majority are classified as having good water quality (Table 5.2 and Figure 1.3). A large number of beaches have been awarded Seaside Awards and there are two Blue Flag beaches.

<b>Table 5.2 - Designated bathing waters in the region 2001</b>				
<b>Bathing waters</b>	<b>Water quality*</b>			<b>Beach award</b>
	<b>E</b>	<b>G</b>	<b>P</b>	
Dovercourt	✓			Blue Flag, ENCAMS Seaside Award 2002
Walton		✓		
Frinton		✓		
Holland	✓			
Clacton	✓			ENCAMS Seaside Award 2002
Clacton (Groyne 41)		✓		

**Table 5.2 - Designated bathing waters in the region 2001**

Bathing waters	Water quality*			Beach award
	E	G	P	
Jaywick	✓			
Brightlingsea	✓			ENCAMS Seaside Award 2002
West Mersea	✓			
Southend, Shoebury East	✓			ENCAMS Seaside Award 2002
Southend, Shoebury Common				ENCAMS Seaside Award 2002
Southend, Three Shells				ENCAMS Seaside Award 2002
Southend Thorpe Bay		✓		
Southend Westcliff Bay		✓		
Leigh on Sea, Bell Wharf				ENCAMS Seaside Award 2002
Sheerness	✓			ENCAMS Seaside Award 2002
Leysdown		✓		ENCAMS Seaside Award 2002
West Beach		✓		
Herne Bay Central		✓		ENCAMS Seaside Award 2002
Herne Bay, West		✓		ENCAMS Seaside Award 2002
Reculver				ENCAMS Seaside Award 2002
Minnis Bay, Birchington	✓			Blue Flag, ENCAMS Seaside Award 2002
Westgate Bay		✓		
St Mildred's Bay		✓		
Westbrook Bay		✓		ENCAMS Seaside Award 2002
Margate The Bay			✓	
Margate Fulsam Rock	✓			
Walpole Bay		✓		
Botany Bay	✓			
Joss Bay	✓			
Stone Bay		✓		
Broadstairs		✓		ENCAMS Seaside Award 2002
Ramsgate Main Sands		✓		ENCAMS Seaside Award 2002
Ramsgate		✓		
Sandwich Bay		✓		
Deal Castle		✓		
St Margaret's Bay	✓			
Folkestone		✓		
Sandgate	✓			
Hythe	✓			
Dymchurch		✓		ENCAMS Seaside Award 2002
St. Mary's Bay		✓		
Littlestone		✓		

\*Water Quality = E (Excellent), G (Good) and P (Poor). See Introduction for details.

### Sources of information

ENCAMS Seaside Awards website

<http://www.seasideawards.org.uk/sea2.htm>

Blue Flag Campaign website

<http://www.blueflag.org/>

DEFRA Digest of Environmental Statistics – Coastal and Marine Waters website

<http://www.defra.gov.uk/environment/statistics/des/coastwaters/ch040206.htm>

Environment Agency website

[http://216.31.193.171/asp/bwd\\_q\\_simple.asp?language=English](http://216.31.193.171/asp/bwd_q_simple.asp?language=English)

### 5.3.2 Bivalve production areas

Designated bivalve production areas within the Essex and Kent region are described in Table 5.3 and Figure 1.4.

<b>Table 5.3 - Designated bivalve production areas in the region 2001</b>				
	<b>Production area</b>	<b>Bed name</b>	<b>Species</b>	<b>Class</b>
11	Walton Backwater	Twizzle, Kirby Creek and Mill Lane	<i>C. gigas, O. edulis</i>	B
12	Colne	Peewit Island, Pyefleet Spit Pyefleet Channel The Wreck Marker	<i>C. gigas, O. edulis</i> Cockles	B B
13	West Mersea	Brightlingsea Harbour and Colne Point Strood Channel, The Nothe, Tollesbury and Freeground Salcott and Little Ditch	Mussels <i>Mussels</i> <i>O. edulis</i>	C B
14	Blackwater	Batchelor Spit Buxey Sands, Dengie Flats and Ray Sands The Nass	<i>O. edulis, C. gigas</i> <i>C. gigas</i> Mussels <i>O. edulis</i> <i>O. edulis</i> Cockles	B B B A A B
15	Crouch	Althorne Creek, Purleigh Shawl, Outer Crouch	<i>O. edulis</i>	B
16	Roach	Paglesham Pool  Paglesham Reach, Quay Reach, Dunhopes and Pond Lays Middleway and Devils Reach All beds Pond Lays	<i>C. gigas</i> Manila clams ( <i>Tapes philippinarum</i> ) <i>O. edulis</i> <i>C. gigas</i> Mussels Hard-shelled clams ( <i>Mercenaria mercenaria</i> )	A B B C B
17	Thames Estuary	Mid and NE Maplin Sands, The Barrows and East Shoebury Beacon Leigh Foreshore Foulness Sands Chapman Sands, Southend Flats Scrapsgate Yanlet Flats, Grain and Sheppey	Cockles Cockles and mussels Cockles Cockles and mussels Cockles Mussels	B C B C B B
18	Swale	Swale River (bed 4) Swale River (beds 6, 7 and 8) Swale River (beds 1 and 2)	<i>O. edulis</i> and <i>C. gigas</i> Cockles and mussels Mussels	B B B
19	North Kent Coast	The south Oaze, Whitstable, Herne Hampton, Beltinge Bay and Herne Reculver Swalecliffe Pollard	Mussels Mussels <i>C. gigas, T. philippinarum</i> and cockles	B B A

**Sources of information**

Food Standards Agency website  
<http://www.foodstandards.gov.uk/>

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<http://www.adu.org.uk/>
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<http://www.blueflag.org/>
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- ENCAMS Seaside Awards website  
<http://www.seasideawards.org.uk/sea2.htm>
- English Nature website  
<http://www.english-nature.org.uk/>
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## APPENDIX 1: GLOSSARY AND ABBREVIATIONS

Term	Definition
Bathing waters	Bathing waters designated under the EC Bathing Water Directive
Bivalve production areas	Production areas classified according to the extent to which shellfish sampled from the area are contaminated with <i>E. coli</i> .
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
Coliform	Bacteria
E	Excellent
<i>E. coli</i>	<i>Escherichia coli</i> bacteria
EC	European Community
EN	English Nature
ENCAMS	Environmental Campaigns – operating company for Tidy Britain Group and Going for Green environmental charities
EU	European Union
Exposure sites	Sites exhibit geological features which are relatively extensive underground
G	Good
GCR	Geological Conservation Review
GCR block	Classification unit used to select and describe sites characteristic of UK geology
Geological Conservation Review	Systematic site selection exercise carried out between 1977 and 1990 to identify the key geological sites in Britain.
Geomorphology	The study of the landforms and the processes that formed them
Historic wreck	Important historic wrecks in UK waters are designated under the Protection of Wrecks Act 1973
HWM	High Water Mark
Igneous	Rocks formed from a molten (magma source). The group is subdivided into Igneous rocks associated with ‘big’ geological events occurring at certain ages.
Integrity sites	Sites exhibit geological features which are finite and irreplaceable if destroyed
JNCC	Joint Nature Conservation Committee
Mineralogy	Rocks important for yielding interesting or rare minerals
ml	millilitre
Orogeny	Mountain building episode (see Structural geology). Some subdivisions are brought in to represent different types of features seen in different areas of Britain.
P	Poor
Palaeontology	Rare types of fossils: vertebrates (fish, birds, mammals and reptiles), arthropods (excluding trilobites but including spiders, insects etc) and plants
Quaternary	‘Ice age’ features of the landscape and sediments
RCHME	Royal Commission on the Historical Monuments of England
RIGS	Regionally Important Geological and Geomorphological Sites
Scheduled monument	Scheduled monuments are protected by the Ancient Monuments and Archaeological Areas Act 1979
SEA	Strategic Environmental Assessment
SSSI	Site of Special Scientific Interest
Strategic Environmental Assessment	An appraisal process through which environmental protection and sustainable development is considered in decisions on policy, plans and programmes

Stratigraphy	Relates to sedimentary rocks laid down during geological ages (which have names like Oxfordian Age, Westphalian etc)
Structural geology	Relates to 'mountain building' episodes in geological history and the tectonic (faulting/folding and rock movement) features.
UA	Unitary Authority
UK	United Kingdom