Report No: 2011R014

Historic Seascape Characterisation
Bristol Channel and Severn Estuary

Section 2
Applications Review and Case Studies

Historic Environment Projects

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Historic Seascape Characterisation Bristol Channel and Severn Estuary

Section 2
Applications Review and Case Studies

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Checked by	**Peter Rose**
Approved by	**English Heritage**

Report Structure

The project report for the Bristol Channel and Severn Estuary Historic Seascape Characterisation (HSC) is divided into three sections for ease of use. The first section documents the project's implementation. This, the second section, contains the Application Review and Case Studies, while the third contains the HSC Character Type text descriptions.

This document comprises Section 2 of the Bristol Channel and Severn Estuary Historic Environment Characterisation Project Report.

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The Project Manager for SeaZone Solutions Ltd was Olivia Merritt. Within Historic Environment Projects the Project Manager was Charles Johns, the Project Officer was Sean Taylor and the GIS advisor was Bryn Tapper.

The views and recommendations expressed in this report are those of Historic Environment Projects and are presented in good faith on the basis of professional judgement and on information currently available.

Freedom of Information Act

As Cornwall Council is a public authority it is subject to the terms of the Freedom of Information Act 2000, which came into effect from 1st January 2005.

Historic Environment, Cornwall Council is a Registered Organisation with the Institute for Archaeologists

Cover illustration

Big wind farm by D M Coffin

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1 Introduction

The Applications Review is designed to identify and demonstrate some of the capabilities of Historic Seascape Characterisation (HSC) and its potential for application to a range of planning and outreach scenarios. The review seeks to illustrate how HSC can enable the historic character of our present coastal and marine seascapes to play its full part in shaping culturally distinctive and comprehensible seascapes for the future, using two case-study scenarios to support the discussion.

2 Aims and objectives

The review of HSC applications has been approached in two stages. The first stage is a review of the potential applications of HSC. During the second stage two case-study scenarios were identified, to illustrate roles for HSC in processing offshore wind farm licence applications and in the selection and designation process for Marine Conservation Zones (MCZs).

The Application Review also considers applications of HSC to a range of wider themes:

Management and Planning

- Landscape and Seascape Management
- Meeting English Heritage Management Requirements
- Cross-disciplinary Marine Environmental Management

Resourcing

- Data access
- Research planning

Education and Outreach

- Industrial outreach
- Adult education and training
- Children's education
- Public awareness raising

In order to contextualise the discussion, the review looks at the background to these roles in the development of HSC and national and international policy and legislative frameworks.

- UK policy and legislative frameworks
- EU Marine Policy
- European Landscape Convention
- Climate Change and the Historic Environment

3 Background

3.1 HLC and HSC

Characterisation is designed to be a constructive and effective method for informing the management of change in the whole environment, whether historic or natural. It can provide frameworks for informed conservation and management at many levels and scales, from local to national, complementing rather than replacing methods of selective designation and protection but capable of giving context to designation decision-making too (English Heritage 2009).

Historic Landscape Characterisation (HLC) and Historic Seascape Characterisation (HSC) are both based on a process of creating a comprehensive and generalised, largely neutral and descriptive understanding of the cultural and historic character of an area or a topic. The approach involves bringing together existing, often unconnected, knowledge, normally at a high level of generalisation, to create a broad understanding of the essential characteristics of parts of the historic environment such as the townscape, the rural landscape, the military heritage, or coastal and marine seascapes (English Heritage 2009).

Focusing at the scale of the landscape/seascape carries many particular advantages. Among these it:

- promotes new perspectives relating to the individual records of the historic environment;
- enables and justifies a proactive approach focussing on historic processes and extending beyond the limits of sites already known; and
- corresponds with the scale of analysis already used by most agencies and spatial planners concerned with the natural environment, allowing the historic environment to take its place within an integrated approach to sustainable environmental management.

The HLC methodology has now been implemented extensively across England and in multiple contexts. Much coverage is by county-wide HLCs but there area also urban HLCs of towns and the larger metropolitan conurbations, while others focus on the areas of AONBs and National Parks. Undertaken predominantly by local authority planning departments, to date, HLCs are completed or underway for over 80% of England's land area.

The National Heritage Act (2002) extended English Heritage's statutory curatorial responsibilities to English territorial waters. English Heritage's initial policy for the transition of responsibility under the 2002 Act was set out in '*Taking to the Water: English Heritage's Initial Policy for the Management of Maritime Archaeology in England*' (English Heritage 2002). Within this policy document's priorities for research and development was identified the need for 'national evaluation studies to characterise poorly recorded or little understood elements of the seamless maritime cultural landscape. Such studies are a proactive way of identifying sites and site types or related activities and industries likely to merit protection and management, including sites and landscapes not currently represented in the record' (*ibid*, 24).

Historic Seascape Characterisation will fulfil this need for characterisation, with comprehensive coverage across the marine cultural landscape, placing its attributes and understanding of its special features in their wider context and enabling the better-informed management of the whole marine historic environment.

English Heritage aims to discover, enhance and make more widely available knowledge about our maritime culture, whether it is in the form of discrete remains such as shipwrecks, harbours, coastal defences, fish-traps etc or extensive areas of seascapes and landscapes. In order to relate to our maritime cultural heritage and understand how it has shaped our perceptions today it is necessary to identify and understand the imprints of maritime activity in the coastal and marine environment. This needs to be done in a way which integrates seamlessly with our understanding derived from terrestrial investigations and initiatives.

Based on the same principles, HSC is designed to integrate fully with the national land-based HLC programme. By April 2011 it will have been implemented across over 60% of England's coasts, seas and adjacent UK Controlled Waters, available to meet management requirements for the coastal and marine environment across a range of government and others' needs. Character Type texts linked to the HSC GIS databases facilitate communication of the HSC to workers in other professions and disciplines, but

is also readily adaptable to build a user-friendly resource for public engagement and awareness raising about the coastal and marine landscape.

3.2 UK policy and legislative frameworks

3.2.1 UK Coastal and Marine Policy 1990s to 2009

Since the 1990s, EU and UK Governments have sought better understanding of coastal and marine environments and their processes to provide the necessary information base for prospective strategic planning and long-term management of the marine environment (English Heritage 2009*)*.

From the late 1990s, European and UK legislation for the management of coastal and marine environmental resources has focused increasingly on an integrated spatial approach to marine planning. A series of reviews and reports dating from the Marine Stewardship Report 'Safeguarding our Seas' in 2002 and the 'Seas of Change' Government response in 2003 indicated that a new approach to managing activities in the marine environment was needed. In particular, better integration and more effective spatial management of conflicting pressures were identified as prerequisites for conservation and sustainable development and have subsequently become crucial aspects of delivering the UK Vision for the marine environment characterised by '**clean, healthy, safe, productive and biologically diverse oceans and seas**' (UK Government *et al* 2009).

3.2.2 The Marine and Coastal Access Act 2009

The Marine and Coastal Access Act was enacted on 12 November 2009 (UK Government 2009). It provides for a new system of marine planning that will fulfil the UK Government's marine objectives and priorities for the future, and direct decision-makers and users towards more efficient, sustainable use and protection of our marine resources. In '*The Coalition: our programme for government*', published in May 2010, the government confirmed it will take forward the Marine and Coastal Access Act and make sure its conservation measures are implemented effectively.

The Act's key features are:

- Establishment of the Marine Management Organisation (MMO)
- Preparation of a Marine Policy Statement (MPS)
- Provision for a Marine Planning System
- Provision for a streamlined marine licensing system
- Designation of Marine Conservation Zones (MCZs)
- Implementation of the coastal access duty

The MMO started work on 1 April 2010, and will deliver UK marine policy objectives for English territorial waters and adjacent UK Controlled Waters through a series of statutory Marine Plans and other measures. The Marine Policy Statement was published on 18 March 2011 (UK Government 2011).

Historic Seascape Characterisation is designed to inform the objective of a long-term and sustainable system for managing our marine environment expressed within the Marine and Coastal Access Act by providing a strategic scale characterisation of human activity across English and adjacent UK Controlled Waters. The resulting HSC can be applied to marine planning contexts well beyond heritage management, informing a broad range of applications concerned with planning our distinctive future seascapes and coastal landscapes. The pertinence of HSC to the implementation of the Marine and Coastal Access Act 2009 is discussed below in section 4.2.3.4.

3.3 European frameworks and legislation

European marine planning policy closely mirrors the UK approach to seeking more sustainable management of the seas (EC 2007a; EU 2008; Defra 2008), giving a broader EU context for area-focussed GIS databases to convey historic cultural character at a strategic level (Hooley forthcoming).

The key policy documents which reflect EU marine planning direction include the EC Integrated Maritime Policy (EC 2007a) and the Marine Strategy Framework Directive (EU 2008) which provides the environmental pillar in support of the Policy.

The Action Plan for the EU Integrated Maritime Policy (EC 2007b), seeks to coordinate the management of maritime activity using common principles for marine spatial planning and ICZM to achieve an integrated approach to meeting economic, social and environmental commitments. This approach is fundamental to achieving sustainable development and meeting the aims of the Marine Strategy Framework Directive.

EU Maritime Policy (EC 2007a, 3.2.3), recognises the need for comprehensive and interoperable mapped information to optimise the effectiveness of marine spatial planning. The outputs from the HSC programme are fully in accord with that. It is also recognised the need for integration and involvement of coastal communities in the sustainable management of the marine and coastal environment (EC 2007a, 4.3). In this regard, the HSC Character Type texts will provide an excellent base from which to build a flexible and accessible resource for engaging coastal communities.

The Marine Strategy Framework Directive aims to provide the framework for achieving good environmental status for Europe's marine environment by 2020 (EC 2008), tackling the deterioration of Europe's marine environment, the poor knowledge base about that environment and the institutional barriers to addressing these problems that exist at European level.

Implementation of the European Landscape Convention (ELC) which came into force in the UK on 1 March 2007 highlights the Council of Europe's recognition of the need to take account of cultural landscape during the development of EU marine strategy. (www.coe.int/t/e/Cultural_Cooperation/Environment/Landscape/)

The ELC is underpinned by a requirement 'to recognise landscapes in law as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity' (*ibid*, Article 5). In emphasising the central roles of human perception in defining landscapes and of human activity in creating them, the ELC embodies concepts already at the heart of all historic landscape and seascape characterisation work (*Conservation Bulletin* **47**; Clark *et a*l 2004, Hooley 2007).

English Heritage published an Action Plan for implementing ELC (English Heritage 2009) which seeks better recognition of the historic dimension of landscape in the marine zone through the promotion of HSC and the development of new legislation and procedures.

4 Applications Review

4.1 Introduction

Historic Seascape Characterisation (HSC) is designed to inform the management of change affecting our landscape through the provision of an archaeologist's perspective of the character of the historic dimension of the coastal and marine environment. It uses the same principles and complements the application of Historic Landscape Characterisation (HLC) to terrestrial landscapes.

The application review's discussions below consider how the HSC can inform the following areas:

Management and Planning

- Landscape and Seascape Management
- Meeting English Heritage Management Requirements
- Cross-disciplinary Marine Environmental Management

Resourcing

- Data access
- Research planning

Education and Outreach

- Industrial outreach
- Adult education and training
- Children's education
- Public awareness raising

4.2 Management and planning

4.2.1 Introduction

The current HSC programme was designed to meet English Heritage's requirements to inform the management of change in the marine environment on multiple scales through a broad range of applications.

English Heritage is the UK Government's statutory adviser on all aspects of the historic environment, including the English area of the UK Territorial Sea, as provided for under the National Heritage Act 2002. English Heritage is an Executive Non-Departmental Public Body sponsored by the Department for Culture, Media and Sport (DCMS) and reports to Parliament through the Secretary of State for Culture, Media and Sport. In the delivery of its duties English Heritage works in partnership with central government departments, local authorities, voluntary bodies and the private sector. It aims to carry out its duties within the framework of a set of *Conservation Principles* (English Heritage 2008). These principles can be summarised as follows (English Heritage 2010):

- The historic environment is a shared resource;
- Everyone should be able to participate in sustaining the historic environment;
- Understanding the significance of places is vital;
- Significant places should be managed to sustain their values;
- Decisions about change must be reasonable, transparent and consistent; and
- Documenting and learning from decisions is essential.

The management of change in the historic environment ties in to a broad range of policies and legislative structures, designed to meet the needs of the UK Government and the EU to understand the impacts of pressures on the marine environment, assessing whether those impacts are of significance, and evaluating alternative management strategies (Defra 2009). But English Heritage's roles in the management of change extend well beyond the negative and concerns over impacts; they include using an understanding of historic character of places to inform the positive management of change, retaining cultural distinctiveness and legibility for future generations and quality of life.

As the historic environment extends everywhere and up to the present, it is a dimension of the whole, as is its character. With that comprehensive expression, it is inevitable that management of the historic environment also falls within the scope and remit of many other policy makers than English Heritage, other curators of the marine and coastal environment as well industrial stakeholders through the implementation of UK and EU laws, agreements and policies, such as the European Landscape Convention (Council of Europe, 2000) and the Marine and Coastal Access Act 2009 (UK Government 2009; Defra 2009c). The applications review discusses the potential roles of the HSC in fulfilling their objectives too.

4.2.2 Landscape and seascape management

The national HSC Method Statement (Tapper 2008 and 2010) details the historic characterisation principles underpinning HSC, principles already applied in Historic Landscape Characterisation.

The HSC methodology allows for the interpretation of character to take place, combining the sensory and the cognitive, across different levels of the marine and coastal environment, allowing an understanding, for example, of the dominant cultural processes taking place in the water column, to be differentiated from or compared to those taking place on the sea surface. The assessment of historic character at each level allows the user to differentiate the complex relationships between those tiers in respect of the cultural and historic activities characterised.

Historic characterisation approaches, including HSC, have found considerable application as a result of the European Landscape Convention (ELC), one of the Council of Europe conventions on natural and cultural heritage, spatial planning and the environment. The ELC was adopted on 20 October 2000 in Florence (Italy), entering into force in the UK on 1 March 2007. It concerns the protection, management and planning of European landscapes and organises European co-operation on landscape issues. It is the first international treaty to be exclusively concerned with all dimensions of the European landscape. Both HSC and HLC substantially contribute towards fulfilling UK commitments under the Convention.
(http://www.coe.int/t/dg4/cultureheritage/Conventions/Landscape/ , Council of Europe, 2004, Treaty Series no. 176).

The ELC defines landscape as '*an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors*' (Council of Europe, 2000, Article 1): the recognition of landscape as a matter of people's perception and the human cultural roles in creating it have considerable resonance with historic characterisation approaches (*Conservation Bulletin* **47**; Clark *et al* 2004; Hooley 2007, 2011, forthcoming). The ELC also recognises landscape as a reflection of the diversity of shared cultural and natural heritage, and a foundation of their identity (*ibid*, Article 5).

The ELC requires us to engage in the understanding and management of our dynamic landscapes everywhere in a manner which recognises them as diverse as the human perspectives which consider them and the complexities of cultural and natural forces

apparent to those perspectives. Again, the concepts underpinning HLC and HSC strongly mirror the principles upon which ELC is founded.

The scope of the ELC specifically includes 'marine areas' as well as 'land' and 'inland water' and, in common with HLC and HSC, it takes a holistic approach, concerning 'landscapes that might be considered outstanding as well as everyday or degraded landscapes': the commonplace and poorly regarded as well as the special (Council of Europe 2000, Article 2).

The ELC requires each party where it is in force 'to identify its own landscapes throughout its territory' and 'to analyse their characteristics' (*ibid*, Article 6): those are fundamental tasks of any HLC and HSC (see App. A, 1 above) and the applications which HLC/HSC are designed to inform (see Clark et al 2004) are directly aligned with the requirements in the ELC to analyse 'the forces and pressures transforming [those characteristics]' (Council of Europe 2000, Article 6) and 'to establish and implement landscape policies aimed at landscape protection, management and planning' (*ibid*, Article 5).

Methodologies embodying the principles of HLC provide effective tools giving that necessary comprehensive understanding at landscape scale, capable of accommodating a range of perspectives and queries, beyond those of historic environment specialists, and inter-operable with natural environment datasets (Fairclough 2002; 2007a and b). In demonstrating the practicability of such a methodology for England's coastal and marine zones, HSC makes a substantial contribution towards meeting our commitments under the ELC (Hooley 2007, 2011, forthcoming).

4.2.3 Meeting English Heritage management requirements

4.2.3.1 Policy requirements

English Heritage and local planning authorities represent a first point of contact for advice on many proposals for change affecting the historic environment. The provision of that advice is dependent on a sound information base from which to formulate it.

The National Heritage Act (OPSI, 2002) extended English Heritage's statutory curatorial responsibilities to the 12nm limit of England's share of UK Territorial Waters. Across most of that area, English Heritage is the sole statutory advisor regarding the historic environment. Beyond that, to the full extent of UK Controlled Waters, English Heritage's Maritime Archaeology Team and Marine Planning Unit also provides historic environment advice on a 'without prejudice' basis to Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) of plans, programmes, licence and development proposals as required by EU Directives.

Historic Seascape Characterisation contributes substantially towards the needs of English Heritage to manage and advise on the marine historic environment in the following respects:

- Addressing the priorities published in 'Taking to the Water' (English Heritage 2002)
- Meeting the research themes and strategy objectives as set out by English Heritage in 'Discovering the Past, Shaping the Future, Research Strategy 2005 - 2010' (English Heritage, 2005)
- Providing a basis for accounting for the historic environment during marine planning, meeting the requirements of the UK Marine and Coastal Access Act 2009
- Supporting the development of a European marine planning infrastructure to support sustainable management and development of the marine environment (EC 2007)

- Meeting the obligations on the UK in respect of the European Landscape Convention (http://www.coe.int/t/dg4/cultureheritage/Conventions/Landscape)
- Contributing towards the policies for Integrated Coastal Zone Management (ICZM) (Defra 2008)

'*Taking to the Water*' (English Heritage 2002) outlined a strategic approach and recommendations for managing maritime archaeology in England. It highlighted the need for an approach which was tailored to the needs of the marine environment to be adopted, beyond the legislative and planning regime regarded as routine in terrestrial heritage. HSC contributes towards that by providing a strategic level framework for its understanding and management underpinned by the same historic characterisation principles as applied on land in HLC.

4.2.3.2 Marine Planning

The Marine and Coastal Access Act 2009 is creating a strategic marine planning system that will clarify our marine objectives and priorities for the future, and direct decision-makers and users towards more efficient, sustainable use and protection of our marine resources. Of particular relevance to the historic environment and HSC is section 54 of the Act which imposes a duty to keep certain matters under review within the marine plans, described in sub-section 54 (2) and 54 (5):

'the physical, environmental, social, cultural and economic characteristics of the authority's region and of the living resources which the region supports'.

'the cultural characteristics of the authority's region includes a reference to the characteristics of that region which are of a historic or archaeological nature'.

The Marine Policy Statement

The Marine Policy Statement UK (MPS), published on 18 March 2011 (UK Government 2011a), is the first part of new system of marine planning being introduced around the UK. It is designed to provide the strategic level policy direction within which Marine Plans will be developed, and set the direction for marine licensing and other relevant authorisation systems. The Marine Policy Statement UK will be the overarching policy framework for the UK marine area. The Marine and Coastal Access Act 2009 gives the MPS a legal effect on decision-making by Public Authorities. This means that licensing (or other authorisation) of activities which affect or might affect the marine areas and enforcement of licensing conditions will need to be in accordance with the MPS, unless relevant considerations indicate otherwise.

Historic Seascape Characterisation is directly relevant to Section 2.6.6 of the MPS 'Historic environment', in particular:

Section 2.6.6.6 Marine activities have the potential to result in adverse effects on the historic environment both directly and indirectly, including damage to or destruction of heritage assets. In developing and implementing Marine Plans, the marine plan authority should take into account the available evidence, including information and advice from the relevant regulator and advisors, in relation to the significance of any identified heritage assets (or the potential for such assets to be discovered), and consider how they are managed. It should also take into account the historic character of the plan area, with particular attention paid to the landscapes and groupings of assets that give it a distinctive identity.

The Marine Planning System Consultation

The Marine Planning System consultation (England) (Defra 2010d), which ran concurrently with the MPS consultation (Defra 2010a), was intended to provide a context for the Marine Policy Statement by outlining the framework of the marine planning system for England as whole.

The Marine and Coastal Access Act 2009 divides UK waters into marine regions with an inshore (0-12 nautical miles) and offshore region (12 – *c*200 nautical miles) under each of the four Administrations (England, Northern Ireland, Scotland and Wales). In November 2009 Defra published the consultation on marine plan areas within the English Inshore and English Offshore Marine Regions. In July 2010, a document with recommended revised Marine Plan areas for the English Offshore and English Inshore marine regions in the light of the consultation (Defra 2010c) (Fig 1).

The Bristol Channel / Severn Estuary HSC area lies within the South West Offshore and South West Inshore marine planning areas (Figs 2 and 3). The South West Offshore covers an area of approximately 89,500 km^2, and the South West Inshore an area of approximately 16,000 km^2.

The Marine Plans will have relevance to a wide range of issues relating to human activities, their associated infrastructure, and their impacts on the natural resources, features and processes in the marine and coastal environment. This gives considerable potential for HSC to be deployed in the proposed marine planning system. As a comprehensive area-based database, inter-operable with analogous databases for the marine natural environment, HSC has relevance far beyond the traditional concerns of historic environment curators. It can demonstrate the relationships between historic human activities and processes and the present expressions of the natural environment, informing our knowledge of the latter by a better understanding of the impact of man's activities through time. It enables the historic environment to contribute to the full to our understanding of how and why the environment as a whole has its present form, an understanding necessary if we are to address successfully the many concerns and imbalances which marine planning is designed to resolve.

In the management of the historic environment itself, HSC will convey the typical historic processes that have borne upon any given area, setting into broader context the known locations of the rare and the special, thereby guiding the development of conservation strategies, guidelines and decision-making on the attachment of status (designations) and zoning based on archaeological potential. The understanding of those typical historic processes through HSC will also allow estimation of the typical forms of material remains likely to be revealed in any given area, of considerable value to those planning development in areas previously poorly explored.

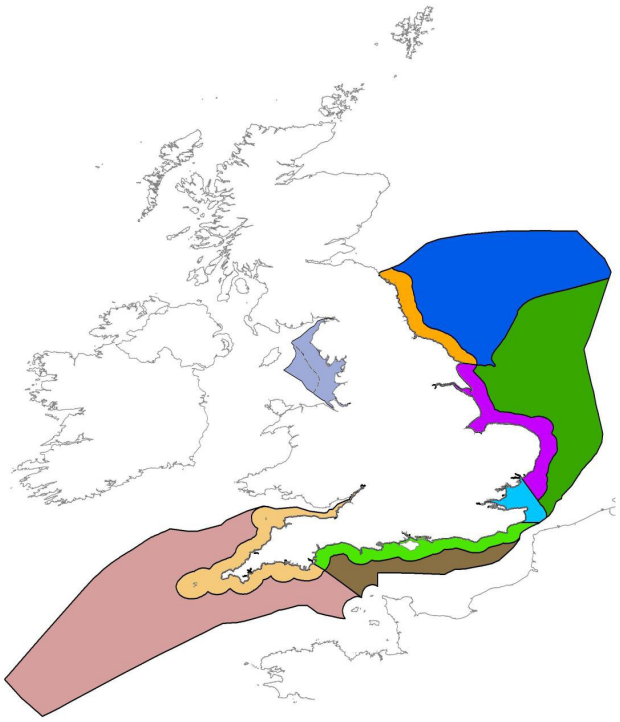

Fig 1: The ten proposed Marine Plan Areas as at July 2010 (Defra)

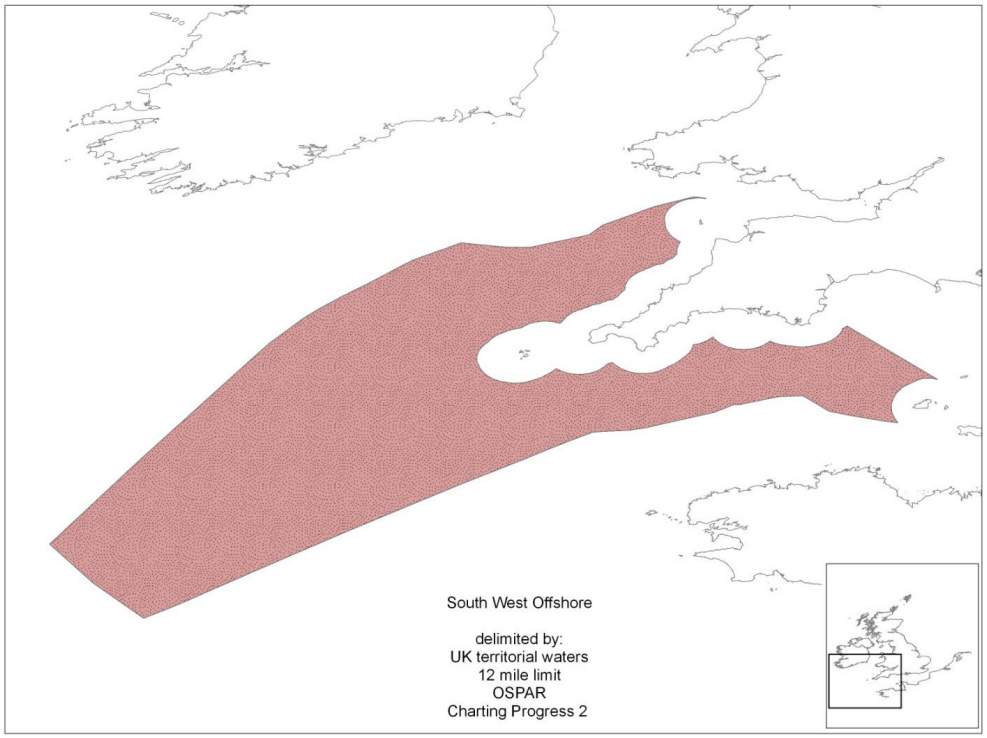

Fig 2: South West Offshore Proposed Marine Planning area as at July 2010 (Defra)

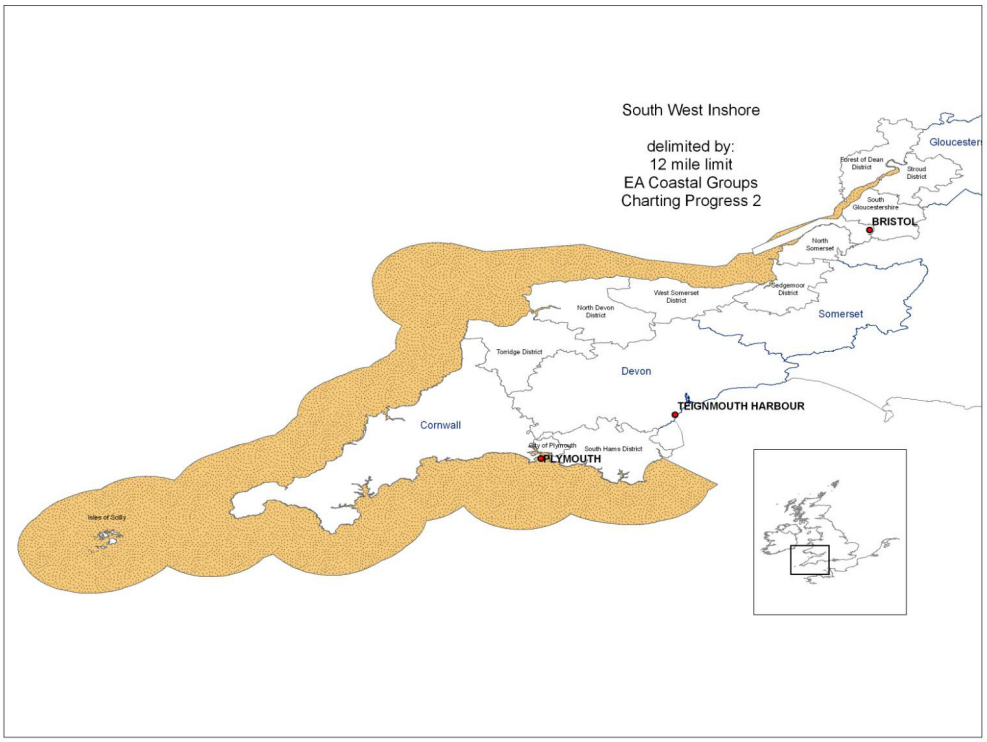

Fig 3: South West Inshore Proposed Marine Planning area as at July 2010 (Defra)

Of particular relevance to the historic environment is section 54 of the Act which imposes a duty to keep certain matters under review within the marine plans, described in sub-section 54 (2) and 54 (5):

'the physical, environmental, social, cultural and economic characteristics of the authority's region and of the living resources which the region supports'.

'cultural characteristics of the authority's region includes a reference 'to the characteristics of that region which are of a 'historic or archaeological nature'.

In the management of the historic environment itself, HSC will convey the typical historic processes that have borne upon any given area, setting into broader context the known locations of the rare and the special, thereby guiding the development of conservation strategies, guidelines and decision-making on the attachment of status (designations) and zoning based on archaeological potential. The understanding of those typical historic processes through HSC will also allow estimation of the typical forms of material remains likely to be revealed in any given area, of considerable value to those planning development in areas previously poorly explored.

The area based character assessment provided by HSC is well placed to provide a secure archaeological and historical evidence base for input into marine plans.

4.2.3.3 Development control

Planning Policy Statement 5 (PPS5)

The Department of Communities and Local Government published the new Planning Policy Statement on 23rd March 2010. Re-numbered as PPS5, this high level policy document replaced Planning Policy Guidance Nos. 15 and 16 (Historic Environment and Archaeology) with immediate effect. It is supported by best practice guidance prepared by English Heritage entitled 'Historic Environment Planning Practice Guide'.

PPS5 is a streamlined, high level policy document designed to simplify heritage protection and management. It separates out the key policies from the previous PPGs 15 and 16 from the mass of detailed best practice. It is endorsed and underpinned through an accompanying Government statement which set out a vision: 'that the value of the historic environment is recognised by all who have the power to shape it; that Government gives it proper recognition and that it is managed intelligently and in a way that fully realises its contribution to the economic, social and cultural life of the nation'.

PPS5 requires developers to undertake desk-based assessments and evaluations ahead of submitting a planning application. The significance of the heritage asset has to be established and an understanding provided of the impact of development on that significance. This will allow archaeological remains to be properly identified and built into planning proposals at an early stage, reducing the risk of uncertainty for the applicant.

In cases heard under PPS5 to date, an appeal decision on the Sandford Parks Lido in Cheltenham dated 21 July 2010 highlighted the need to consider the inherited character and context of historic assets and how they are used and experienced, rather than exclusive reliance upon expert judgements of their significance or conventional methods of objectifying heritage, such as describing viewpoints across and towards assets within conservation areas.

HSC and HLC are well placed to contribute to this type of appraisal because they are designed to achieve an understanding of the historical and cultural origins and development of the current seascape and landscape in an inclusive manner that can inform and be informed by other's perspectives.

Marine Licensing

A new Marine Licensing System introduced by the Marine and Coastal Access Act 2009 will be launched in spring 2011. The July – October 2010 consultation (England only) set out policy proposals for the implementation of the new system, covering key aspects including the application process, appeals against licensing decisions, and exemptions.

The new marine licensing system will replace and update the existing consenting regimes (the main ones being Part 2 of the Food and Environment Protection Act 1985 (FEPA) and Part 2 of the Coast Protection Act 1949 (CPA). These have developed piecemeal over time and as a result, overlaps can be confusing for people who use them. The new system is intended to provide a more streamlined, coherent and transparent system, which is designed to protect the environment, human health and prevent interference to other users of the sea (Defra 2010e).

The MMO will deliver the new licensing system for England's seas and adjacent UK Controlled Waters and will also be involved in consenting for those nationally significant projects formerly to have been handled by the Infrastructure Planning Commission (IPC) which are partly or wholly in the sea or may impact on the marine area (Defra 2010e).

In the formulation of appropriate marine heritage advice to the MMO by EH, HSC would be the most appropriate starting point as it provides extensive coverage of areas otherwise containing little point data relating to the more traditionally understood marine historic environment. HSC's evidence for the historic processes that have shaped its study area and produced the present expression of its cultural environment also provides an indication of the historic environment potential of any area within it and contextualises other datasets such as the UKHO or NMR wreck records, in a similar way to that which HLC has been used in Cornwall to contextualise HER point data (cf Herring 1998).

Environmental Impact Assessment (EIA)

The Government currently (March 2011) controls most development applications in UK waters, for example for marine aggregate extraction, through the non-statutory Government View procedure. This will change radically from April 2011 as the marine planning system becomes fully implemented and Marine Plans are compiled, in line with the provisions of the Marine and Coastal Access Act 2009. However both Government View and the forthcoming marine planning process are bound to observe the requirements of European Community EIA Directive 85/3337/EEC and the European Habitats Directive 92/43/EEC. This requires all such applications to be accompanied by and environmental statement.

As stipulated in the 'Guidance on the Historic Environment for the Offshore Renewable Energy Sector' published by COWRIE (Wessex Archaeology, 2007), developers of offshore renewable energy schemes are under the same obligation to undertake EIA as the aggregate industry. The guidance specifies the need to review baseline information as part of this process, recommending a broad study area encompassing sources such as SEAs and Historic Landscape Characterisation (Wessex Archaeology, 2007).

The COWRIE Guidance was published before several significant developments affecting landscape and seascape considerations for EIA. As a result, of the various EIA Environmental Statement (ES) input themes, the Guidance's consideration of the historic environment for EIA is exclusively under the 'Cultural Heritage' input (as noted on p28). It makes brief passing references to 'landscape' at 5.12 but does not note 'Landscape' as a separate environmental theme for Environmental Statement input. The Guidance makes no reference to the ELC (ratified by UK in 2007) and while mentioning HLC, it touches only briefly on 'seascape': its publication pre-dated finalisation of the HSC method and only anticipates HSC as a future development. With the ELC now in force in the UK and both HLC and HSC coverage now extensively in place across England's land, coast and seas, there is ample opportunity now to complement the COWRIE guidance with EIA ES inputs on the 'Landscape' theme for marine development proposals, informed by use of HLC and HSC accompanied by visual impact assessment and the Seascape Character Assessment (SCA) approach currently being developed by Natural England (Dave Hooley pers. comm.)

Such a broader approach, in conjunction with the COWRIE Guidance, would provide a valuable addition in meeting the offshore renewable industry's requirements for information on a regional scale, and is discussed below in Case Study 1 (Section 5.1).

In addition to informing English Heritage's own responsibilities to advise during the production of Environmental Statements, HSC at the strategic level produced by this project could be utilised by developers as initial baseline information for informing scoping studies, with more detailed HSC assessment as appropriate, as already happens with HLC for some developments on land. In similar manner, HSC can inform curators and archaeological contractors in preparation for desk-based assessments, briefs and evaluations for development proposals such as offshore wind farms, aggregate license areas, coastal defences or harbour developments.

The HSC Character Type text descriptions provide an overview of coastal and marine historic cultural character in a consistently structured format and comprehensible language designed to communicate readily with planners and other specialists. As such, they provide a good basis for providing positive engagement, advice and comment on proposed development and mitigation schemes. For most development proposals it is likely that compilation of a more detailed HSC for the development area will be necessary, probably as a planning requirement but in the interests of the developer anyway to inform their own forward planning for the historic environment considerations their proposed development will generate.

4.2.3.4 Coastal management

Coastal access

The Marine and Coastal Access Act 2009 provides for the creation of a continuous long-distance walking route around the English coast and public access on foot to certain types of land including areas of open land comprising mountain, moor, heath, down, and registered common land, It also increases protection for Sites of Special Scientific Interest (SSSI) and strengthens wildlife enforcement legislation, and provides for better management of Areas of Outstanding Natural Beauty (AONB). The Act is designed so that some forms of land are exempt from the rights of access, depending on the nature of their usage, such as railways, golf courses quarries and aerodromes. Before the right of access can come into force Natural England will submit a coastal access report to the Secretary of State setting out its proposals for access on a particular stretch of coast (Defra 2011).

The coastal access provision is a major awareness-raising opportunity and ties in to the public accountability needs of marine planning in the rest of the Act, allowing it to be accountable to a more informed public.

Historic Seascape Characterisation provides a valuable resource both in planning the coastal access route and in informing the information provision for the route's users. The HSC GIS, used in conjunction with baseline data required for route-planning, will highlight the breadth of character through which the route is being planned, provide information on what that character comprises, and help identify key optimal situations where information for route users would be most beneficial in raising awareness of the cultural and historical landscape and seascape through which the route passes English Heritage 2009. The Character Type text descriptions produced in conjunction with the HSC GIS offer a useful resource in the development of public information for users along the route.

Within the Bristol Channel / Severn Estuary HSC project area gaps in the coast path with no satisfactory legally secure path include the section between between Clevedon and Weston-Super-Mare, and stretches of the coast between Minehead and Lynton http://www.naturalengland.org.uk/Images/southwest_tcm6-12268.pdf.

Coastal management frameworks

In addition to the Marine and Coastal Access Act 2009, a broad range of management frameworks exist for the coastal, estuarine and inter-tidal areas although they often limit themselves to near-shore areas when making assessments below Mean High Water. English Heritage and in many cases, individual local authorities, are responsible for informing initiatives towards the implementation and review of Integrated Coastal Zone Management (ICZM) and Shoreline Management Plans (SMPs), both designed to integrate long-term policy decision-making and strategic planning relating to the coastal zones. Rapid Coastal Zone Assessment Surveys (RCZAS), are being undertaken across all areas within English Heritage's remit to enhance the coastal historic environment record and inform such initiatives.

Many of Europe's coastal zones face problems of deterioration of their environmental, socio-economic and cultural resources. Integrated Coastal Zone Management is an approach promoted by the European Commission through the EU ICZM Recommendation (EU 2002) to bring together consideration and management strategies to address the many inter-related biological, physical and human problems presently facing these zones. The approach aims to promote a collaborative approach to planning and management of the coastal zone, within a philosophy of governance by partnership with civil society. UK Government action towards ICZM (Defra 2008) is in line with implementing the EU recommendation for a stock take and national strategy formulation (EU 2002).

Historic Seascape Characterisation is the only available source of comprehensive area-based data on the typical historic character of our coastal zone, a context essential to feed into ICZM considerations as it provides a key to understanding coastal distinctiveness, diversity and cultural legibility. HSC is particularly relevant to integrated management of the coastal zone not only in sharing common principles with HLC but in providing the 'view from sea' to complement HLC's 'view from land': capturing those overlapping perspectives that occur within the coastal zone.

Shoreline Management Plans provide a large-scale assessment of the risks associated with coastal processes and present a long term policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner. SMPs are developed at a strategic level to provide a basis for developing long-term policies for coastal management (McInnes 2003, 50-61).

A second round of SMPs is currently under way to ensure full account is taken of latest information and future challenges. HSC would provide a valuable tool in this instance for providing context to all aspects of the marine environment evaluated in the plan. From a heritage perspective, while SMPs currently focus primarily on the assessment of risk to individual historic assets along the coast, as well as putting these assessments in a broader regional context, HSC enables an assessment of threats to the broader character of a coastal landscape as well as to individual sites to be made, analogous to the considerations of both species and habitats in SMP ecological assessments.

Defra's revised *Shoreline Management Plan Guidance* (Defra 2006) highlights the need for more consistent, integrated datasets, specifically noting the scarcity and inconsistency of data on archaeological potential and value and lack of information on a strategic level (Defra 2006, Appendix B.2). The consideration of historic character types will enable a better understanding of the historic processes that have taken place in a given area, hence the likely ranges of archaeological features corresponding with those processes that may be present, whether or not they have yet been confirmed by actual discoveries. HSC on a regional scale will improve the considered assessment of these issues, with explicit justifications, and will provide a context for site-specific assessments of potential during localised investigations.

Defra's 2006 SMP Guidance was supported by *Shoreline Management Plan Review and the Historic Environment: English Heritage Guidance*, which notes the role of HLC in understanding the historic dimension of landscapes (English Heritage 2006a).

The programme of Rapid Coastal Zone Assessment Surveys (RCZAS), funded by English Heritage, is designed to enhance and update the coastal HER, through a two-phased approach. Phase 1 (Desk-based Assessment) assesses the data available on the nature and character of historic environment within the project area, and potential threats to heritage assets, in order to design a strategy for Phase 2 (Field Assessment) which prioritises areas where heritage assets may be most at risk.

Historic Seascape Characterisation can provide valuable context during the interpretation of available data during Phase 1, providing a perspective on the typical cultural character of the present coastal environment and the processes that have helped to form it, giving context to the patterns of survival of the rare and the special. It also highlights the processes which determine the suites of site types likely to be present and to survive as yet unrecognised along the coastal and intertidal zones. Working in a complementary manner, HSC will provide the landscape-scale contextualisation of the coastal HER enhancement resulting from the current programme of RCZAS.

4.2.3.5 Designations

Marine Conservation Zones

By international agreement, the UK Government has committed to establishing a network of Marine Protected Areas (MPAs) around England's coasts by 2012. The Marine and Coastal Access Act 2009 provides the legislative framework to do this through the designation of Marine Conservation Zones (MCZs) a new designation which supersedes the Marine Nature Reserve (MNR) designation. MCZs are areas that have been designated for the purpose of conserving marine flora or fauna, marine habitats or types of marine habitats or features of geological or geomorphological interest (UK Government *et al* 2010, 22).

Particularly relevant to HSC are paragraphs 7 and 8 in Section 117 'Grounds for designation of MCZs' of the Marine and Coastal Act.

(7) In considering whether it is desirable to designate an area as an MCZ, the appropriate authority may have regard to any economic or social consequences of doing so.

(8) The reference in subsection (7) to any social consequences of designating an area as an MCZ includes a reference to any consequences of doing so for any sites in that area (including any sites comprising, or comprising the remains of, any vessel, aircraft or marine installation) which are of historic or archaeological interest.

HSC can contribute to Marine Conservation Zone designation in several ways. It can contribute directly to the social consequences of such designation referred to in subsection 7(8) by providing the cultural context in which known sites of historic or archaeological interest are embedded: the background against which their interest and, if applicable, their heritage designation, has been adjudged and which may well be directly pertinent to the inherent setting and survival of the site of such interest themselves.

In a broader sense and of very clear relevance for HSC, and for the landward perspective of HLC, under the Nagoya Protocol for Biodiversity in October 2010, the UK Government made the commitment in its 2020 targets that the global network of Marine Protected Areas (MPAs) will be 'integrated into the wider landscape and seascapes'. The UK's domestic contribution to that global network will be the forthcoming coherent network of MCZs by the end of 2012. Confirmation of the Nagoya commitment was made by Defra Minister Richard Benyon MP in January 2011 (http://services.parliament.uk/hansard/Commons/ByDate/20110119/writtenanswers/part003.html) As the European Landscape Convention (ELC) is also in force in the UK, under ELC Article 7, its definition of landscape comes into play here for the UK's work in respect of both domestic and international MPAs.

As HLC and HSC directly address cultural landscape and seascape issues, underpinned by common principles and directly in accord the ELC Articles and definitions throughout land, coast and sea, the extensive coverage by HSC and HLC databases will make a major contribution in providing a framework and content for MCZs' landscape/seascape integration.

The application of Historic Seascape Characterisation to the MCZ designation process is illustrated below in Case Study 2 (Section 5.2).

Areas of Natural Beauty

Areas of Outstanding Natural Beauty (AONBs) were brought into being by the National Parks and Access to the Countryside Act of 1949. The Countryside and Rights of Way Act 2000 strengthened the conservation and management of AONBs in partnership with local authorities. Characterisation of cultural dimension of marine and coastal landscapes plays a key role in the development of AONB management plans, especially

with the legal recognition that 'Natural Beauty' can include the result of man's management of the land.

The intimate inter-relationships between historical and natural processes in shaping our landscape perceptions are recognised by the ELC and widely by those charged with managing the coastal and marine environment. The extension of that inter-relationship to landscape and seascape, as also noted by the ELC, is perhaps less fully recognised. The impact of human activities over time has affected a wide range of aspects of the natural environment including biodiversity, the movement of sand along beaches and dunes, or the habitats along rivers and estuaries. Similarly coastal and marine habitat management is also a historic environment action in the same way as the management of the historic environment has impacts on natural habitats that must be taken into account. Just as the effects of man's management have left a cultural imprint on the *environment* everywhere, so too that cultural imprint has shaped the cultural perceptions in our minds of *landscape* and, where it involves the sea, *seascape*.

The character of that cultural imprint is illustrated through the HSC approach to characterising the coastal and marine landscape, reflecting not only the more obvious human activities such as industry and leisure, but all those which have played roles in shaping the present, everywhere, whether deliberate or unintentional, active or passive. HSC recognises the imprints of historic cultural process as a dimension of the environment and our cultural perceptions of it. It is necessary for informing broader environmental understandings, highlighting the value, through HSC's GIS platform, of enabling its interoperability with other environmental spatial databases.

4.2.3.6 Climate Change and the Historic Environment

The management of change arising from potential impacts from climate change and its mitigation is a key priority for English Heritage. A policy statement setting out English Heritage's thinking regarding the implications of climate change was published in 2008 (English Heritage, 2008). It recognises the potential impacts from climate change, such as sea level rise, extreme weather conditions and hydrological change on the historic landscape as well as the possible effects of mitigative measures in response to climate change such as the development of sea defences or renewable energy resources.

The MPS recognises that adapting to the impacts of climate change will be a priority for terrestrial planning on the coast and that marine planning will need to be compatible with these impacts (UK Government 2011, 23).

The output of HSC will provide a valuable resource in informing government agencies on the character of the different parts of the coastal and marine environment during policy making and during the assessment of potential impacts of new developments during Environmental Impact Assessments (EIA).

As well as being a force for change in the historic landscape, climate change also plays an important part in defining the present character of some coastal and marine areas, through the construction of sea defences, onshore and offshore wind farms, the presence of rapidly eroding coastlines or the reclamation of coastal areas. All of these play a key part in defining the present historic cultural character of many of our coastal landscapes and seascapes.

4.3 Data management

Historic Seascape Characterisation seeks to reflect best practice for data management and is compiled in accordance with 'Guidelines for English Heritage Projects involving GIS' (Froggatt 2004). English Heritage is also working closely with the Marine Environmental Data Information Network (MEDIN) alongside other partners from the private and public sector, towards a set of agreed "public good" goals (see http://www.oceannet.org/).

These aim to:

- Provide a data management and access framework for the UK marine data community;
- Develop marine data management standards, and protocols;
- Contribute to the marine component of the geospatial strategy for the UK; and
- Recommend actions and map progress towards achieving coordination of management of UK Marine Data.

HSC contributes towards MEDIN objectives by addressing these major government priorities:

- Marine data will be made accessible to the community in a format that is useful for all stakeholders; and
- Marine geospatial analysis will be undertaken through data enhancement and improving data quality which will enable integration of natural and historic environment datasets to allow informed decisions towards development control casework

4.4 Outreach and education

Raising levels of public understanding, engagement and appreciation of the historic cultural dimension of the marine environment is one of the main aims of both HSC and HLC. As such it aligns closely with the inclusive approach to landscape embodied by the European Landscape Convention (ELC) which requires ratifying states 'to recognise landscapes in law as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity' (Council of Europe, 2000, Article 5).

In line with that, HSC can serve as a framework and resource for outreach and improving public awareness of the marine historic environment. The Character Type texts in particular provides a valuable educational resource tool, consistently structured and in comprehensible language, conveying information on the historic character of everyone's familiar or favourite areas of the coast and sea. HSC carries the message that everywhere has historic character: the typical and commonplace as well as the rare and the special: all that is familiar and distinctive, whether highly valued or not, has relevance and is covered by HSC and HLC. It has meaning for everyone who inhabits, uses, or has any engagement with the coast or the sea.

The main outputs from England's eventual national HSC database, its GIS mapping and its linked Character Type texts, are to be curated and made available online in user-friendly formats through the National Monument Record Centre (NMRC) at Swindon, with the digital products from its contributory projects made available on the Archaeological Data Service (ADS) website.

The coastal access provisions of the Marine and Coastal Access Act 2009 will present an opportunity for using HSC and HLC as an information resource on the multiple landward and maritime cultural perspectives that bear on the planned coastal access route, such information being disseminated both by the traditional static information boards but more imaginatively perhaps through information resources provided online or through mobile phones. Information provision along the route would have even greater effectiveness if linked to national resources such as the proposed NMRC HSC interfaces, or to local educational and community based initiatives designed to enhance local communities' current awareness of the landscape character and perceptions of the areas in which they live and work, for example in Landscape Partnership Scheme projects.

5 Case studies

5.1 Case Study 1: Renewable Energy – Environmental Impact Assessments for Offshore Wind Farms

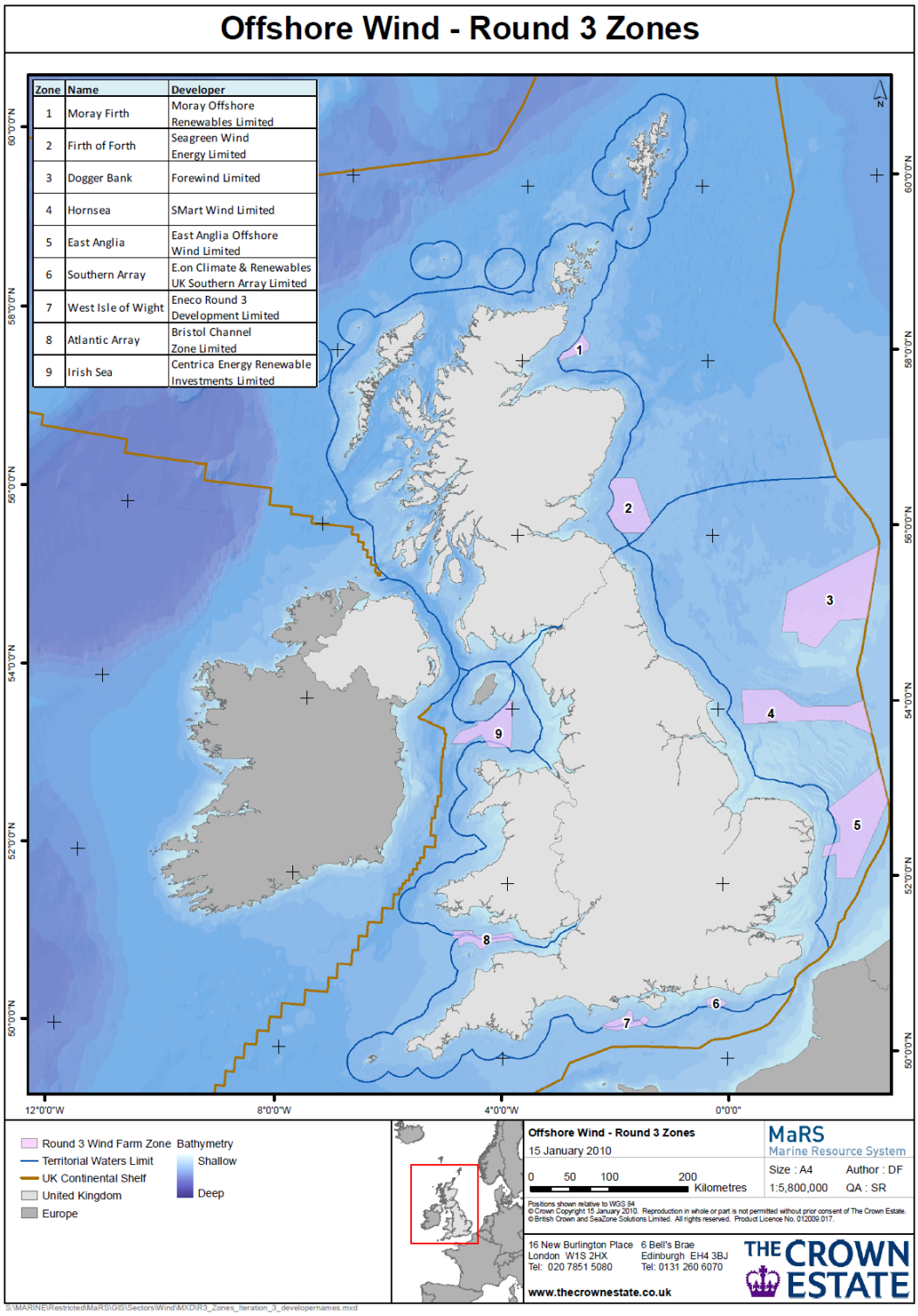

Fig 4: Offshore Wind – Round 3 Zones (© The Crown Estate)

5.1.1 Introduction

On 4 June 2008 The Crown Estate launched its Round 3 leasing programme for the delivery of up to 25 GW (gigawatts) of new generation capacity from offshore wind by 2020 (Fig 4).

Wind farms generating more than 100 megawatts will be licensed by the Major Infrastructure Planning Unit (MIPU) of the Planning Inspectorate, to replace the current Infrastructure Planning Commission (IPC). The IPC now, and later MIPU, will examine applications for nationally significant infrastructure projects, assessing them against National Policy Statements to be ratified by Parliament. HSC for the proposed development area will inform those considerations and the responses of English Heritage as a statutory consultee. It will also be in the interests of the developer, to consult the HSC to inform their own forward planning for the historic environment considerations the proposed development will generate.

The Environmental Impact Assessment Directive (97/11/EC) requires an Environmental Impact Assessment (EIA) to be carried out in support of an application for development consent for certain types of project as listed in the directive at annexes 1 and 2. Offshore wind farm developments are listed in annex 2 as "installations for the harnessing of wind power for energy production (wind farms)" and these provisions have been transposed into UK legislation by the Marine Works (Environmental Impact Assessment) Regulations 2007. Tidal devices (demonstration scale) typically fall within annex II projects of these regulations.

Environmental Impact Assessment describes a procedure that must be followed for certain types of project before they can be given development consent. The requirement for that procedure and the manner in which it must be carried out are governed by the Articles of the EU EIA Directive

(http://ec.europa.eu/environment/eia/full-legal-text/85337.htm).

The procedure is a means of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects. This helps ensure that the importance of predicted effects, and the scope for reducing them, are properly understood by the public and the relevant competent authorities before a decision is made.

The **Environmental Statement (ES)** is the main document that supports an application so it must contain information on a wide range of issues, such as coastal processes, bathymetric surveys, benthic communities, fish surveys and archaeological and historic remains. That information is given in the ES under a series of environmental themes specified in the EIA Directive Article 3: key for the roles of HSC are the themes of 'landscape' and 'cultural heritage'. From a developer's point of view, the careful preparation of an ES will provide a number of benefits to a project:

1. a useful framework within which environmental considerations and design development can interact
2. environmental analysis may indicate ways in which the project can be modified to avoid or mitigate possible adverse effects
3. thorough environmental analysis and provision of comprehensive information allows the consenting authorities to reach a decision more rapidly.

The Environmental Impact Assessments (EIA) Regulations implement the EIA Directive and also apply to all nationally significant infrastructure projects (NSIPs). Offshore wind farm projects considered as NSIPs include: the Atlantic Array in the Bristol Channel, which lies within the Bristol Channel and Severn Estuary HSC project area; Galloper, 30 miles off Sizewell, Kent; Triton Knoll of the East coast; Isle of Wight; and Rampion and off the south coast in the Brighton area.

5.1.1.1 HSC and EIA Scoping and Screening

Historic Seascape Characterisation will be valuable to the applicants and their historic environment consultants during the initial assessment or desk-based study for the applicant's EIA scoping report. It can help to identify potential environmental effects, their significance and other issues as recommended in the IPC's 'Identifying the right environmental impacts' in its 'Advice note seven: Environmental Impact screening and scoping' (IPC 2010a).

English Heritage will be consulted by the IPC/MIPU on all applications in England before the IPC adopts a scoping opinion on the information to be included in an Environmental Impact Assessment (IPC 2010b). HSC will assist English Heritage in informing and framing their response to the consultation in local, regional and national contexts. The HSC GIS output provides a strategic level characterisation of the cultural dimension of the coast and the marine zone; its character type hierarchy reflects national, regional and local scales of perception, and in addition to coastal land, these are mapped at the main marine levels of their expression: sea surface, water column, sea floor and sub-sea floor. This approach allows the user to select the scale and level of data relevant to their queries. The database incorporates the necessary transparency in its assessment, with confidence ratings attached to the HSC character assessments themselves.

As already noted, Character Type text descriptions are linked to the HSC GIS, providing an overview of coastal and marine historic cultural character in a consistently structured format and comprehensible language intended to communicate readily with planners and other specialists. They should ensure that the historic environment curators' viewpoint on each cultural character type is understood with clarity in the processes it is designed to inform. The information provided in the texts should give the user a feel for the cultural processes influencing each Type's expression in the present, their historical context and a better understanding of how and why differing areas of the sea are considered to have differing and distinctive cultural seascape character.

The texts also identify some of the current forces for change and pressures on historic seascape character and suggest some potential avenues for further research or management strategies. HSC accords all Character Types equal value, hence it is baseline information, recognising that all areas have landscape and/or seascape character and are better managed with understanding of that character. Beyond the compilation of the baseline HSC, values can, and usually need to, be ascribed at a later stage, in the context of a proposal for change or one of HSC's other applications. Relevant to such value ascription are the considerations set out in English Heritage's *Conservation Principles for the Sustainable Management of the Historic Environment* (English Heritage 2008). But as baseline information, it is important to be clear that HSC itself is value-neutral and is designed to be a positive force in informing change, recognising that landscape itself is a product of change, that change needs to happen, and that well-informed and sustainable landscape and seascape change will respect and retain cultural distinctiveness and legibility for future generations. How far that distinctiveness and legibility is retained is a matter for the planning process. It is simply for HLC and HSC to ensure that information on the character of the cultural dimension in the present is available to inform that process. Similarly historic cultural landscape and seascape character cannot be 'lost' as such, only changed to a differing character. In some circumstances, society may view that as desirable, in others, not.

5.1.1.2 HSC and EIAs

As noted earlier, the requirements for Environmental Impact Assessment (EIA) and the framework for its process and content are laid down in the Articles of the EU EIA Directive (http://ec.europa.eu/environment/eia/full-legal-text/85337.htm). Since that Directive came into force, various guidances have been published regarding the inputs of historic environment information to EIA Environmental Statements (ES). Most of those are now out of date or superseded. They include: the 'Guidance note for

Environmental Impact Assessment in respect of FEPA and CPA requirements' was published by Cefas in 2000 and updated in 2004 (Section 8 is entitled 'Archaeology and of the historical uses of the seabed') and the UK Government's Planning Policy Guidance Note no. 16 "Archaeology and Planning", replaced by Planning Policy Statement 5 in 2010.

Another relevant guidance document is 'Historic Environment Guidance for the Offshore Renewable Energy Sector' prepared for COWRIE by Wessex Archaeology in 2007. The COWRIE Guidance was compiled and published prior several significant developments affecting historic cultural landscape and seascape inputs to EIA's environmental theme of 'landscape'. Consequently the Guidance's consideration of the historic environment for EIA is exclusively under the 'Cultural Heritage' input and does not note 'Landscape' as a separate relevant theme for historic environment input to ESs. In that respect it is in need of updating: the Guidance makes no reference to the ELC (ratified by UK in 2007) and while mentioning HLC, it touches only briefly on 'seascape': its publication pre-dated finalisation of the HSC method and only anticipates HSC as a future development. As the ELC is now in force in the UK and with HLC and HSC coverage now extensively available across England's land, coast and seas, there is ample opportunity now for EIA ES inputs for historic cultural landscape and seascape character on the 'Landscape' theme for marine development proposals. Such inputs can be informed by use of HLC and HSC accompanied by visual impact assessment and by application of the Seascape Character Assessment (SCA) approach currently being developed by Natural England (Dave Hooley pers comm).

Considering just the 'Cultural Heritage' inputs to ESs, the COWRIE Guidance discusses the increasing recognition that the 'entire form of our present environment, even features whose main processes are entirely natural, has been structured by human actions and perceptions' (Wessex Archaeology 2007). It recognises that 'traditionally, frameworks for managing the historic environment have focussed on individual sites and monuments but that 'the concepts of 'setting', 'landscape' and 'seascape' are becoming increasingly important considerations in addressing the effects of schemes on the terrestrial and marine historic environments' and have been used to enable a consideration of the archaeological heritage to go beyond the focus on individual sites and engage with monuments in their wider setting (vi-vii, 12). The document emphasises that during baseline studies for EIAs 'Where available, reference should be made to Strategic Environmental Assessments, marine Historic Landscape Characterisation [as HSC was initially called] or other regional overviews, rather than seeking to write the entire history of area; (viii).

The EIA process requires the collation of a broad range of documentary and digital resources to provide baseline information for making an informed assessment. The initial compilation of this considerable quantity of data can obscure the overall picture, making it 'difficult to see the wood for the trees'. The strategic level overview of cultural processes in the present provided by HSC offers a valuable framework connecting and giving cultural context for those detailed inputs to EIA assessment.

The structure of the HSC output, comprising the GIS characterisation and Character Type text descriptions, corresponds well with providing an EIA's first stage assessment of the broad activities and key features dominating the marine and coastal environments. It meets the key aims and objectives of the EIA process by:

1. Providing a firm basis for making a first stage assessment of the character of human cultural and historic activity within an EIA area.

2. Enabling the area-based consideration of landscape and seascape character in the EIA process, interoperable with consideration of other cultural and environmental aspects

3. Providing a resource for identifying available data sources required for making more detailed assessments of potential impacts of activities within EIA study areas

4. Providing context for understanding other, predominantly point-based, data sources relating to the historic environment which also feed into the assessment such as HER data

5. Providing context for making preliminary assessments of the need for further research and data gathering

HSC highlights dominant patterns of cultural expressions, such as the recurring presence of infrastructure features, concentrations in wrecks and obstructions, mapped palaeoenvironmental features such as palaeo-channels (where data is available) and describes their roles in relation to specific human activities. The HSC output provides valuable contextual information on a broad-brush scale.

The characterisation provides an indication of the historic cultural processes which have shaped the historic character of a marine or coastal area in the present; as such there is considerable scope for it to inform the assessment of potential effects, negative and positive, on that historic character.

Providing Context

The structure of the text descriptions for the HSC database provides a succinct overview of the character of different activities when reviewing cultural and historical human processes. They provide not only a greater understanding of historic character, in a form readily comprehensible by other professionals, but also provide an understanding of time-depth, necessary to providing a temporal context for dominant activities within the EIA study area.

The HSC GIS provides immediate access to a spatial representation of the extent and coverage of different human activity. The correspondence of the HSC characterisation with the main layers of the marine environment provides clarity and better integration with the broad range of marine data expressed within similar layers.

The approach to EIAs has traditionally been focussed on point data, collating wrecks, obstructions and reported losses from different repositories including the NMR and UKHO databases. Use of HSC, especially if combined with a character sensitivity assessment, will provide a basis for making statements of effects on the typical and commonplace historic character of marine environment, everywhere, in the different levels of the marine environment (sea surface, water column, etc) and at various scales of perception. This gives HSC a powerful capability to contextualise the coverage of known individual features, often deemed the rare and the special. More specifically, incorporating such character statements drawn from HSC will give the EIA direct relevance to the requirement stated in Marine and Coastal Access Act 2009, Section 54 that historic and archaeological characteristics are considerations to be kept under review in the identification of Marine Plan areas and in the preparation and review of Marine Plans.

The sub-division of the HSC characterisation into four marine levels and three scales of perception facilitates its use as a contextual framework for the higher resolution assessment of other datasets bearing on activities, resources and potential impacts across different levels of the marine environment: the data required to assess and manage risk for activities on the sea surface will inevitably differ from those relevant for the same on the seabed.

5.1.2 Case study scenario: Atlantic Array Offshore Wind Farm

To provide a case-study scenario for this report, the proposed Atlantic Array offshore wind farm area was reviewed using this project's HSC GIS to illustrate how the data might be used. The scenario is based on the archaeological study area outlined in the Environmental Impact Assessment scoping report (RPS Energy 2010).

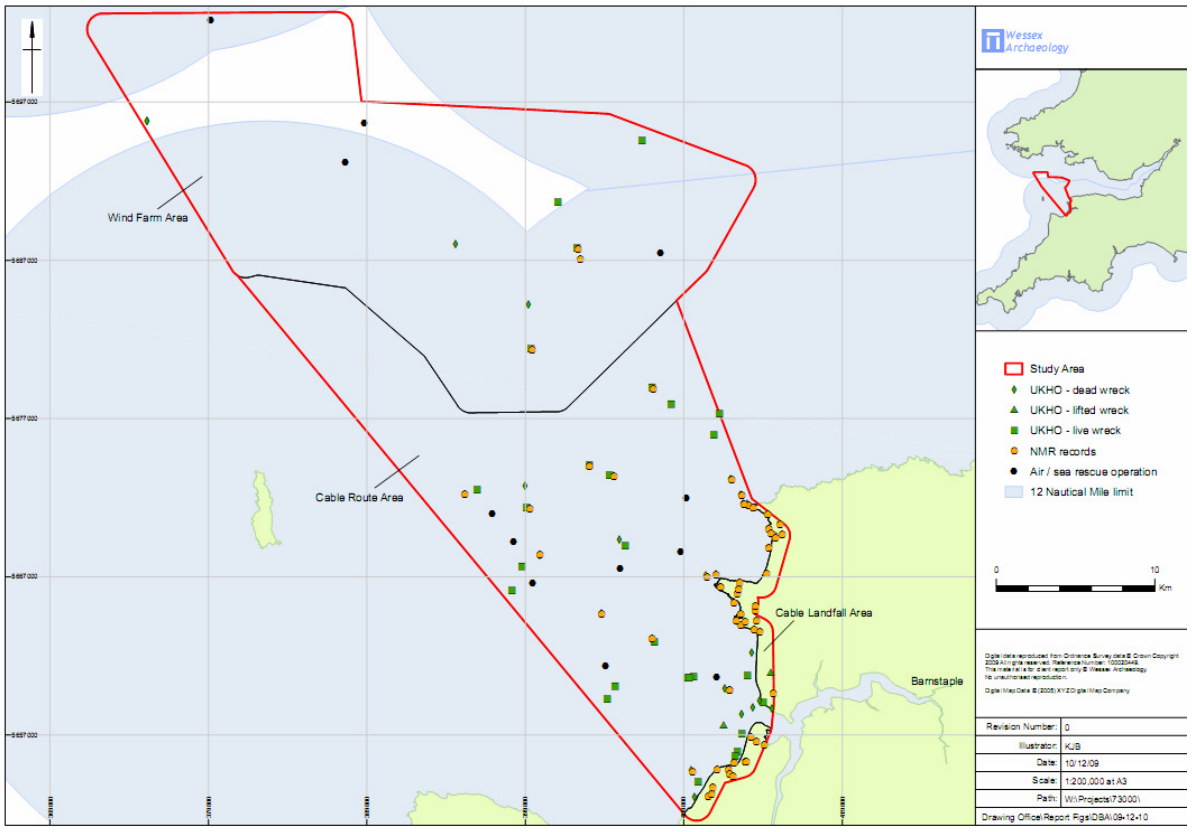

Fig 5: The Atlantic Array archaeological study area (from RPS Energy 2010)

The first step would be to look at the conflated HSC GIS layer for the Bristol Channel and Severn Estuary which is a 2-D representation of the whole area. This will give a general impression of the HSC for Atlantic Array study area and allows the user to become familiar with the dominant character types and the dominant historic processes they represent. The next stage would be to begin the more detailed appraisal. This involves assessing the impact of the wind farm proposal and determining which levels of the marine tier, in particular, are likely to most affected. Physically, turbines will extend from the seabed through all levels and therefore can be expected to impact on the historic character of each. Additionally the infrastructure required to support the turbines; cables, sub stations etc are likely to impact on the intertidal and coastal areas too as they are laid or buried and built in order to bring the energy generated to shore. The user will address the issues that arise from the analysis of each vertical level and horizontal zone expressed by the HSC layers (sea surface, water column, sea floor and sub-sea floor and coastal land in the HSC database) and highlight particular aspects relevant to the EIA scoping report and to the environmental themes to be considered for an ES later in the EIA process.

Those aspects are discussed briefly in the following sub-sections, drawing on both an examination of the HSC GIS database and it's accompanying Character Type texts. Those texts are structured consistently according to criteria that include an introduction on 'Defining/Distinguishing Attributes and Principal Locations' followed by 'Historical Processes', 'Values and Perceptions', 'Condition and Forces for Change', 'Rarity and Vulnerability' and 'Sources'. Their non-technical content should render them readily comprehensible to professionals in fields other than the historic environment. The

Character Type and Sub-type descriptions used in the following sections are derived from the texts to be found in Section 3 of this report.

5.1.2.1 Sea Surface HSC

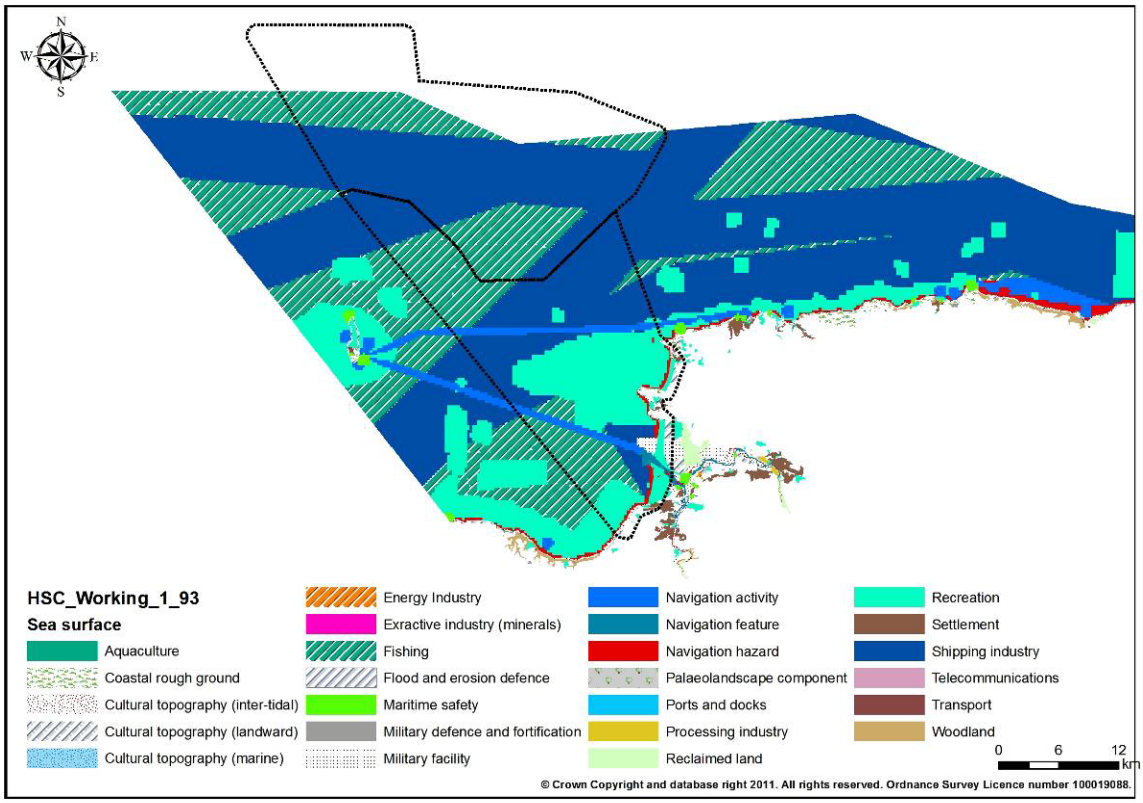

Fig 6: Atlantic Array sea surface and coastal land HSC, the wind farm and cable route study areas are outlined in black

At the sea surface, the present dominant historic character of much of the wind farm area and the cable route's marine area is mapped as **Shipping Industry** – principally reflecting the commercial shipping routes that have come to dominate the Bristol Channel since the since late medieval period, and which reflect the importance of Bristol as one of England's major ports. Within the study area the shipping routes divide to pass on either side of Lundy, giving it and the submerged sand banks that are found nearby a wide berth. Shipping through time will have sought the same, known safe routes and it can be expected that material from passing cargo-laden ships will find its way, accidentally or deliberately, into the sea – either to be carried away on the currents or coming to rest on the sea floor. It might also be expected that craft foundering in high seas, rather than stranding or wrecking on hazards, will be found in the areas plied by these busy routes. Consideration of these shipping lanes is likely to be a determining factor in the planning of the location of the wind turbine (Fig 6).

Also included are the ferry crossings from Bideford and Ilfracombe to Lundy (**Navigation Activity**) and these can be expected to have been made since at least the medieval period and that to a lesser degree material reflecting this activity may also find itself on the bottom – certainly where these routes land the necessary infrastructure, quays, wharves, slips will be present. Inshore, leisure fishing areas and occasional recreation diving areas (**Recreation**) dominate in the modern period although inshore fishing is known from the prehistoric period – as a means of subsistence however. There is potential for wrecks as well as for residual remains of leisure and industrial fishing, this might include lost gears, weights or nets or similar. It

is possible that the establishment of the wind farm might close off or set exclusion zones that would displace traditional fishing areas.

Closer to the shore are drying hazards including shoals and flats (**Navigation Hazard**) which will have been avoided at all costs by larger sailing vessels. The changing nature of sandbanks and shoals means the character of these areas is in continuous flux but which often reveals archaeological and historic material remains that are being covered and uncovered as sediments are transported. Navigation hazards, especially shoals, banks and flats, represent a resource for characterising the time-depth as wrecked craft, lost gear or accumulated prehistoric or historic deposits can be preserved in favourable conditions. Local environmental conditions will also indicate whether there is potential for preservation of prehistoric or historic materials.

5.1.2.2 Water Column HSC

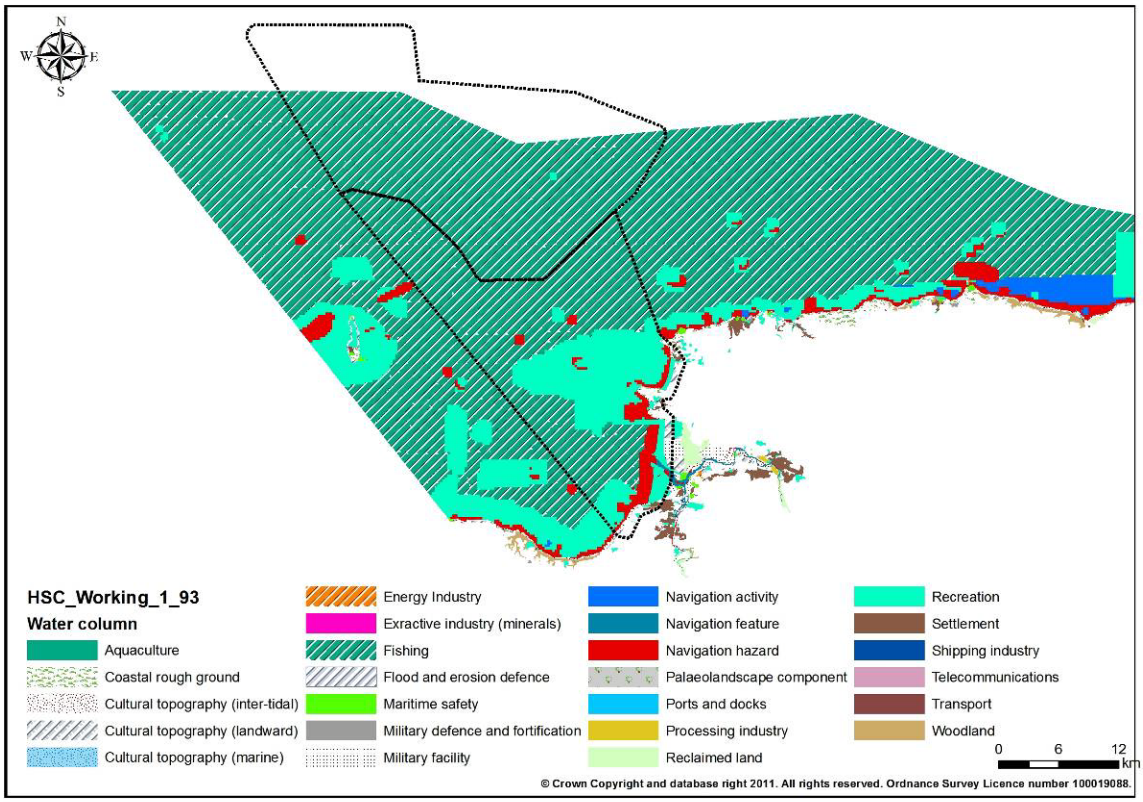

Fig 7: Atlantic Array water column and coastal land HSC

At water column level, the present dominant character across most of the wind farm area and the cable route is mapped as **Fishing**, reflecting various different types of activity that has been undertaken over millennia. Although commercial fishing in the Bristol Channel was never as widespread as in many other parts of English waters, being part of the wider western fishery it exhibited a great variety of techniques and species caught. There is potential for material remains indicative of netting and seining activities in particular, but with some dredging in sandier areas, while closer inshore coastal fixed netting was widespread on the shallow shelving beaches and estuaries. Fishing started to decline as the area developed into a major seaway in the post-medieval period there is potential for evidence of a number of different types of activity. As mentioned above, there is potential for wreck debris as well as for residual remains of leisure and industrial fishing and it is possible that the establishment of the wind farm might close off or set exclusion zones that would displace these traditional fishing areas elsewhere with the knock-on consequences that will be faced by local

fishing communities. Further inshore the cable route crosses recreational dive areas (**Recreation**), and cable–laying or burying would cause temporary disruption but the route could be classified as a diving exclusion zone (Fig 7).

5.1.2.3 Sea floor HSC

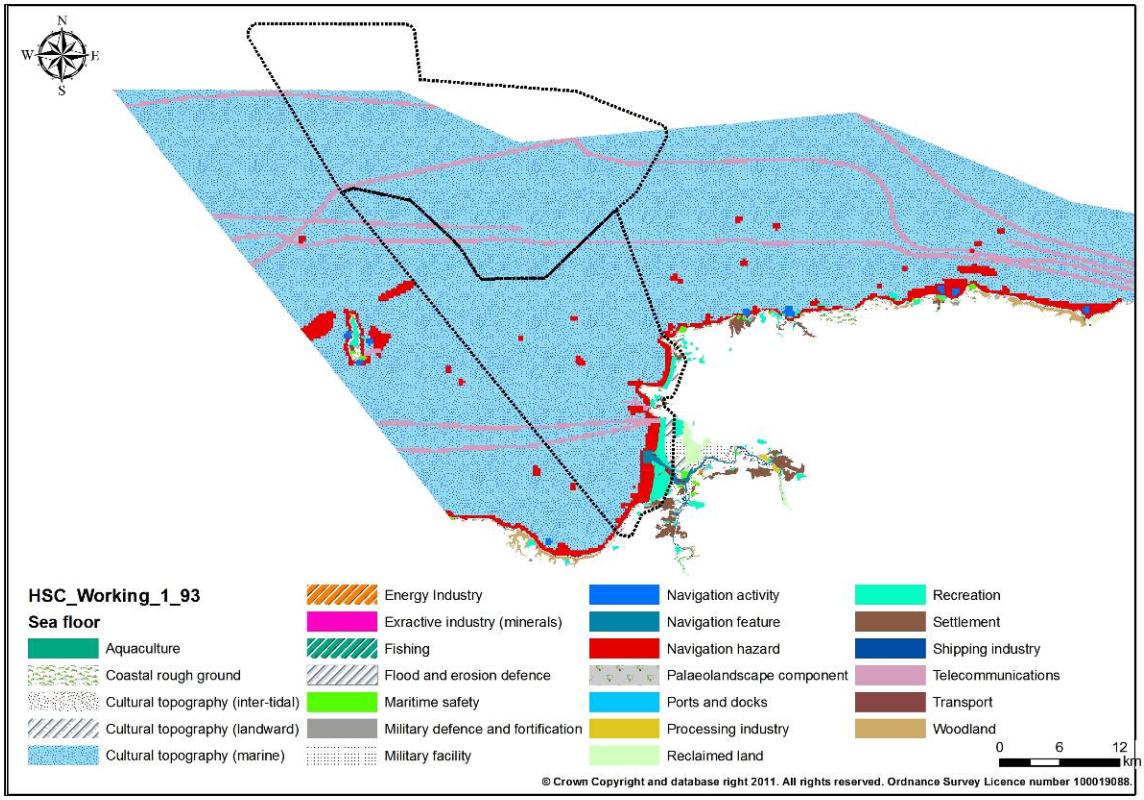

Fig 8: Atlantic Array sea floor and coastal land HSC

Many sites and features of archaeological and historic interest found in this level will directly reflect the parent activities occurring in the body of the water above (as alluded to in the discussion of the historic character of the sea surface and water column). Along with the sub sea-floor this level is likely to contain the most tangible expressions of human maritime activity. In this sense the HSC will allow users to map those areas that can be expected to have conservative historic character or be rich in archaeological remains and therefore potentially costly to mitigate if developed while also highlighting those areas that might be expected to more easily accept change. The seafloor in the centre of the Bristol Channel and in Barnstaple Bay comprises sandy deposits characterised as Fine Sediment Plains and mapped in HSC as **Cultural Topography (Marine) (Fig 8)**. These areas can be important as spawning grounds and habitats for particular commercially-exploited fish species such as flatfish. This Character Type's expressions and future are closely affected by marine processes such as sediment transport regimes including erosion, effects of sea level change and global warming and by direct human activities such as intrusive fishing activities (e.g. trawling and dredging) and offshore developments (e.g. wind farms, tidal barrages, and aggregate extraction). The effects of these activities could alter the environmental conditions and therefore potential survival of prehistoric and historic features, sites and artefacts lying on or partially embedded within this Character Type. The installation of wind engines will certainly impact on these areas and marine geophysics will be required to identify the most obvious features and artefacts lying on the seafloor. The impact is not likely to be restricted to the site of the installation either and any sediment material displaced may smother other areas of the seafloor and cause the physical loss or damage to

other areas of historic character. Wind farm monopiles will also cause abrasion by changing local current flows and thereby scouring areas of sea floor offset from their bases and again there may be physical damage arising from this. Conversely however processes may also bring some sites, features and artefacts to light allowing for their discovery during development works. Monitoring of the wind farm installations over the long term may also offer the possibility of sharing data, particularly that which is of use to archaeologists such as geophysical data, submarine video and bathymetric surveys.

Also mapped are **Telecommunications** cables which may have caused some disturbance to the seabed. The laying of these cables may have been environmentally monitored with potential for archaeological information such as buried land surfaces or wrecks. Inshore are shoals and flats with an active navigation channel, Barnstaple Bay **(Navigation Feature)**, which might be temporarily affected by cable-laying, and occasional wreck hazards which would need to be avoided by the cable route (**Navigation Hazard**). Cable-laying, especially if below ground, offers further opportunities for archaeologists to monitor the work and liaise with the developer where material is recovered.

5.1.2.4 Sub-sea floor HSC

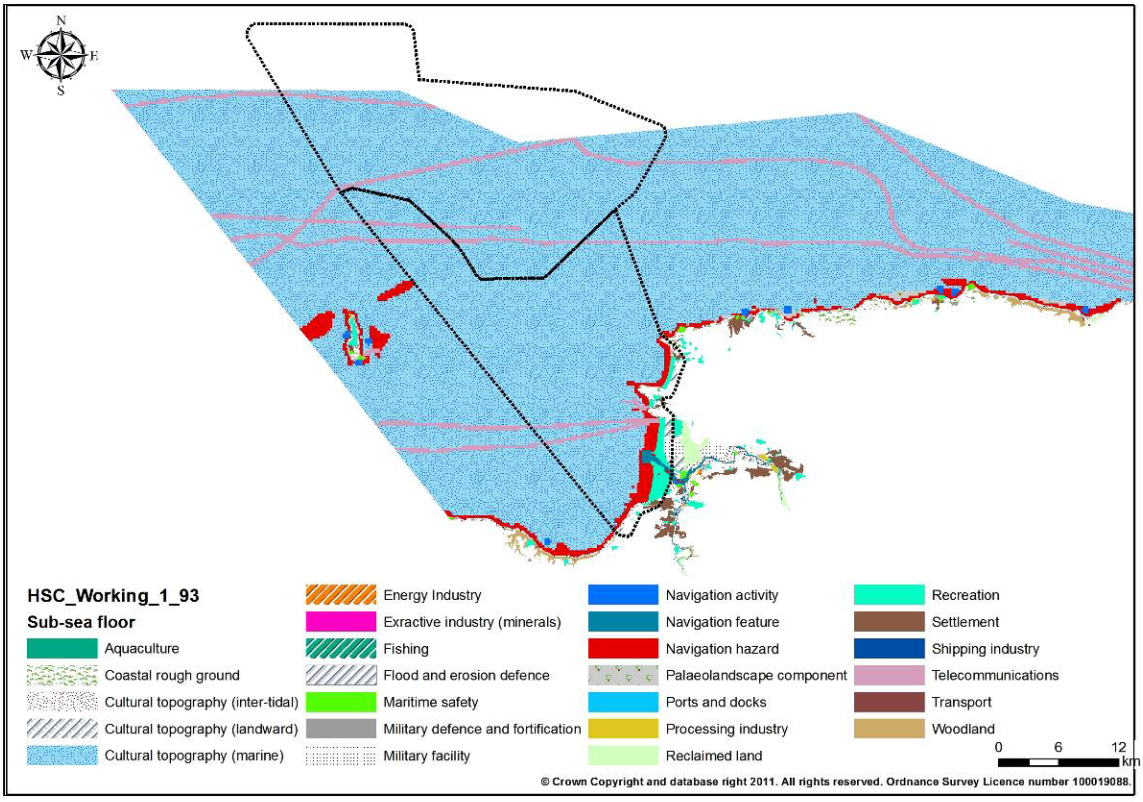

Fig 9: Atlantic Array sub-sea floor and coastal land HSC

The Sub-sea floor HSC is similar to that of the Sea floor HSC. The present dominant character of the wind farm area and the cable route marine area is mapped as **Cultural Topography (Marine)** - coarse and fine sediment plains; inshore are shoals and flats with an active navigation channel (Barnstaple Bay) and **Navigation Hazards** (Fig 8).

However analogous with the sub-sea floor in extensive parts of this area is the previous character HSC for the whole Bristol Channel/Severn Estuary which is mapped as having a '**Palaeolandscape component**'. This shows evidence of, or potential for, buried

Holocene landscapes, probably from the Mesolithic onwards (see the example presented in the discussion of coastal HSC below). Closer to shore, these buried landscapes are likely to be younger, possibly Bronze Age in date reflecting the gradual inundation of the Bristol Channel after the last Ice Age. Cable-laying and installation of the wind farm turbines would have a significant effect on such deposits, although the wind farm is mostly situated in an area that has been extensively sampled with no signs of any buried organic deposits. This highlights the care required to assess the area's bathymetric topography and sediment transport regimes in order to better evaluate the potential – nevertheless the HSC would highlight the requirement for geotechnical investigation at an early stage.

5.1.2.5 Coastal HSC

The coastal HSC, within the potential cable route landfall area includes the Rivers Taw and Torridge and the Taw-Torridge estuary and is mainly mapped as areas of Cultural Topography (Intertidal), **Flood and Erosion Defence** (e.g. Saunton Sands), **Coastal Rough Ground (CRG)**, Recreation (e.g. Saunton Sands)**, Military Facility** (Conisborough Range) and **Settlement** (e.g. Westward Ho!, Croyde, Woolacombe)**.** Cable trenching across this area might impact on a number of sites; for example, the Cultural Topography (Intertidal) at Westward Ho! includes an extensive Mesolithic forest and peat beds, part of which overlay a midden containing flints, bone, shell, and plant macrofossils dated to the sixth millennium BC and is important as the only known wetland occupation site of this period in the South West. Recent studies suggest that the midden has now eroded away but there is a potential for similar features within the organic deposits at this location. Studies of plant macrofossils, pollen, insects molluscs, animal bones, and diatoms as well a palaeomagnetic dating of silts have shown this to have been a freshwater habitat of fen woodland with fauna present including aurochs, wild pigs, and red and roe deer. The final cable route should be designed to avoid known archaeological sites and there should be provision for appropriate archaeological monitoring and recording during the cable trenching.

5.2 Case Study 2: Application of HSC to the Selection and Designation process for Marine Conservation Zones

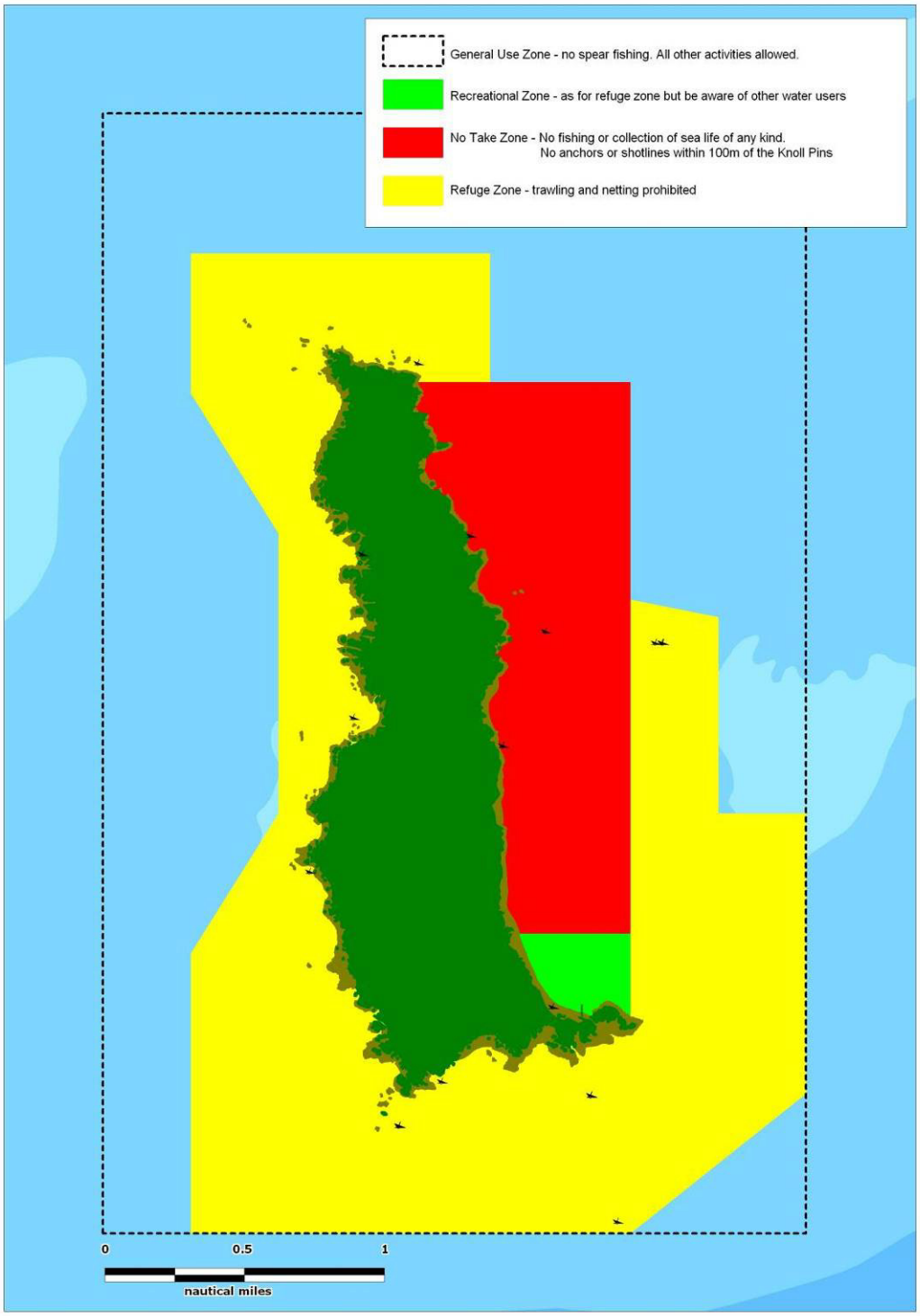

Fig 10: Lundy zoning (Natural England)

5.2.1 Introduction

As a direct result of the Marine and Coastal Access Act 2009, the waters around Lundy Island were designated as the first Marine Conservation Zone in England in January 2010. Marine Conservation Zones (MCZs), provided for by the Marine and Coastal Access Act 2009, supersede the Marine Nature Reserves (MNRs) and form the designation basis for a new network of Marine Protected Areas that the Government has committed to have in place around England's coasts by the end of 2012. MCZs are areas designated for conserving marine flora or fauna, marine habitats or types of marine habitats or features of geological or geomorphological interest. The protected feature or features and the conservation objectives for the site are stated in the designation order. Marine planning authorities are required to ensure that activities ideally contribute to but at least do not hinder achievement if the objectives of the designated site (Defra 2010f).

http://www.naturalengland.org.uk/ourwork/marine/protectandmanage/mpa/mcz/lundy.aspx

Lundy lies off the north Devon coast in the Bristol Channel. The waters around the island are of special importance for their marine wildlife. They contain the finest examples of rocky reefs in Britain, with an amazing diversity of sea life including some very rare and fragile species. The seas around Lundy Island are home to an impressive range of wildlife, such as grey seals, lobsters and eight species of coral (which include pink sea fans, red sea fingers and dead man's fingers). Lundy is also the only place in the UK where five cup corals exist together. Above the sea the 5km long island is a SSSI, designated both for its plants and seabirds.

Lundy was Britain's first Marine Protected Area (MPA). A voluntary marine nature reserve was established round the island in 1971. In 1986, it was designated as England's first, and what turned out to be only, statutory Marine Nature Reserve (MNR) protected for its reef habitats and associated species which are protected by strict controls on permitted activities.

Lundy's designation accompanies one of four independent, stakeholder-led projects to identify and designate new MCZs elsewhere: Finding Sanctuary (south-west), Balanced Seas (south-east), Irish Sea Conservation Zones (Irish Sea) and Net Gain (North Sea). Each regional project has a stakeholder group made up of representatives of sea users and interest groups, which will submit its recommendations for MCZs to Natural England and the Joint Nature Conservation Committee (JNCC) by June 2011. On receipt of these recommendations and any further advice provided by Natural England and JNCC, Defra will draft designation orders, and carry out a formal public consultation in early 2012. The aim is for Defra to complete the MCZ designations by December 2012.

5.2.2 Application of HSC to MCZ selection and designation

The Marine and Coastal Act 2009 Section 117 (7) and (8): 'Grounds for designation of MCZs' are particularly relevant to historic environment inputs into the MCZ selection and designation process:

(7) In considering whether it is desirable to designate an area as an MCZ, the appropriate authority may have regard to any economic or social consequences of doing so.

(8) The reference in subsection (7) to any social consequences of designating an area as an MCZ includes a reference to any consequences of doing so for any sites in that area (including any sites comprising, or comprising the remains of, any vessel, aircraft or marine installation) which are of historic or archaeological interest.

HSC can contribute to Marine Conservation Zone designation in several ways. It can contribute directly to the social consequences of such designation referred to in

subsection 7(8) by providing the cultural context in which known sites of historic or archaeological interest are embedded: the background against which their interest and, if applicable, their heritage designation, has been adjudged and which may well be directly pertinent to the inherent setting and survival of the sites of such interest themselves.

In a broader sense and of very clear relevance for HSC, and for the landward perspective of HLC, is the UK Government commitment noted above under the Nagoya Protocol that MCZs will be 'integrated into the wider landscape and seascapes', with the need to deploy the ELC's understanding of 'landscape' which extends to include marine areas. As HLC and HSC directly address the cultural landscape *and* seascape, underpinned by common principles and directly in accord the ELC Articles and definitions throughout land, coast and sea, the extensive coverage by HSC and HLC databases will make a major contribution in providing a framework and content for MCZs' landscape and seascape integration.

As described above MCZs are areas that have been designated for the purpose of conserving marine flora or fauna, marine habitats or types of marine habitats or features of geological or geomorphological interest and the important indicators for the MCZ process are almost exclusively biological or ecological FOCI.

The HSC GIS gives ready access to a comprehensive spatial representation of the dominant types, extent and coverage of human cultural activity that has shaped the present. The correspondence of the HSC characterisation with the main layers of the marine environment enables an integrated approach when considering a broad range of marine data which is similarly structured. HSC, like HLC, is particularly effective in bringing cultural information to spatial planning alongside other themes, informing understanding and debate with a generalised statement of historic cultural character relevant to a wide range of planning, conservation and management-led initiatives (cf Hooley 2010).

In related types of work on land, for example in Lancashire and in Suffolk, HLC has been recognised as providing valuable information to the former English Nature's 'Lifescapes' initiative, seeking to increase biodiversity throughout the countryside. It gave particular assistance in helping to identify the location and extent of former habitats for (Clark *et al* 2004). In the marine zone HSC is potentially useful in a similar way, providing baseline inputs that will help to identify the cultural processes that have shaped and affected present expressions of biodiversity and articulating the cultural dimension and perspective of topographic features and areas that are often incorrectly viewed as only the result of 'natural' processes. HSC's 'Navigation' Character Types, which include wreck clusters as 'navigation hazards', will also assist in identifying areas of the marine habitats which form typically on wreck sites. It should be noted in this regard that the MPA Science Advisory Panel commented on the second Finding Sanctuary progress report that they believed this occurrence may be considered as part of the case for a MCZ, only if FOCI species or important 'other features' occur on artificial substrata, but not otherwise and that this advice is also pertinent when assessing the merits or otherwise of offshore wind-farms and other artificial structures (MPA Science Advisory Panel 2010). Whether or not they may be considered within the case for an MCZ, it is at least helpful to know the artificial substrate is there.

5.2.3 Case Study Scenario 2: Lundy Marine Conservation Zone

To contextualise the MCZ case-study, the Lundy MCZ area was reviewed using this project's HSC GIS to assess how the data could be used in the MCZ selection and designation process. The assessment of each tier of the characterisation in the MCZ highlighted the following cultural processes which could be taken into account during the MCZ selection and designation process.

5.2.3.1 Sea Surface HSC

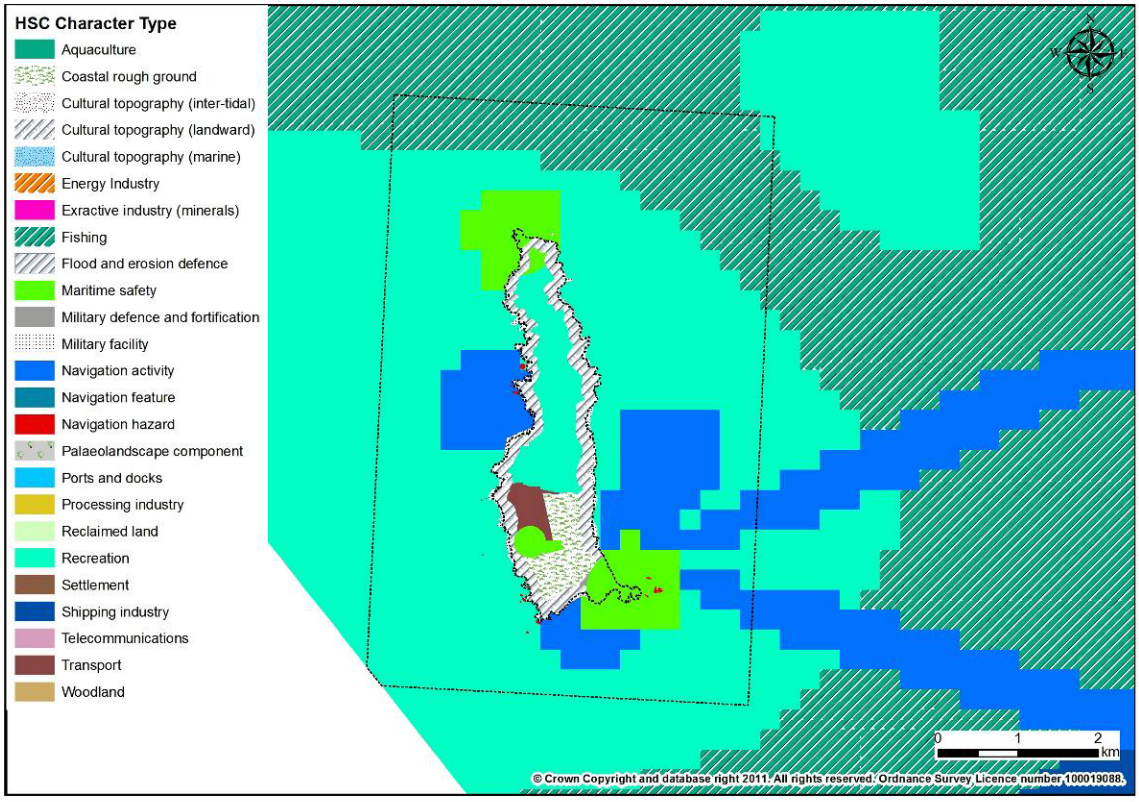

Fig 11 Sea surface HSC Character Types, Lundy; the black rectangular outline is the georeferenced MCZ area

The sea surface HSC around Lundy is mainly mapped as **Recreation** indicating extensive areas of leisure fishing and recreational diving, these are now managed through a zonation scheme allowing particular activities in certain areas to safeguard important marine habitats from human disturbances, particularly commercial and/or recreational fishing (see Figure 10). The principal commercial fishery within the Lundy MNR was potting for crabs and lobsters. The MNR already provided a 'Refuge Zone' around Lundy in which forms of trawling and netting were banned under a Devon Sea Fisheries Committee (DSFC) byelaw. In addition to allowing some forms of commercial fishing, the MNR also allowed various forms of recreational fishing and harvesting, including angling from boat and shore, and the collection of scallops, crabs and lobsters by scuba divers. In 2003 a designated No-Take-Zone (NTZ) was established off the east coast of Lundy extending some 1km from the shore and all fishing is now banned in the NTZ and no sea life of any kind can be taken. The creation of the Lundy NTZ was supported by local fishermen who hoped to see an increased catch outside the area, demonstrating how commercial and conservation interests can work together for mutual benefit. Monitoring has shown evidence of a rapid and large increase in the abundance and size of lobsters and also a spill over of small lobsters from the NTZ into adjacent areas, also apparently small, but significant increase in the size of brown crab and a decrease in the abundance of velvet crabs (which was thought to possibly be due

to predation or competition from lobsters). Natural England believe the zone will help Devon's lobster-potters by providing a refuge where young lobsters can grow to maturity, then migrate into areas where commercial fishing is permitted.

The introduction of the MCZ may highlight to those who make recreational use of these areas by raising the awareness and therefore likelihood that wrecks, finds and other features of archaeological interest may come to light through chance discovery or observation. The interplay of the historic environmental and nature conservation will also be highlighted and demonstrate where wrecks, for example can contribute to benthic ecology.

The **Navigation Activity** Type is represented by three anchorages, Lundy Roads to the east, Jenny's Cove on the west side of the island and Rattlers at the south. Landing Bay with its jetty at the southern end of the island is the main access point to the island with ferry routes from Ilfracombe and Bideford on the north Devon coast. It is noticeable that the main commercial shipping lanes of the Bristol Channel give the island wide berth (Fig 11). These areas are likely to exhibit some evidence for the millennia of activity that has seen people embarking and disembarking from Lundy and may be hotspots for a range of materials; objects and artefacts lost or disposed of, as a result of all that activity. The relatively sheltered and low energy environment of Lundy Roads in particular, lying between the island and East Bank may provide a form of catchment for such material remains.

There are also **Maritime Safety** areas associated with the late 19th century North and South lighthouses at either end of the island. The Bristol Channel was largely unlit mid-19th century and notoriously hazardous for shipping - '*From Padstow Bar to Lundy Light Is a sailor's grave by day or night*'. It is likely that before this period Lundy itself served as a navigational mark and was conspicuous in the minds of the pilots who navigated these waters through millennia. On Lundy itself there can be expected to be the remains of various phases of development of maritime safety techniques and technology.

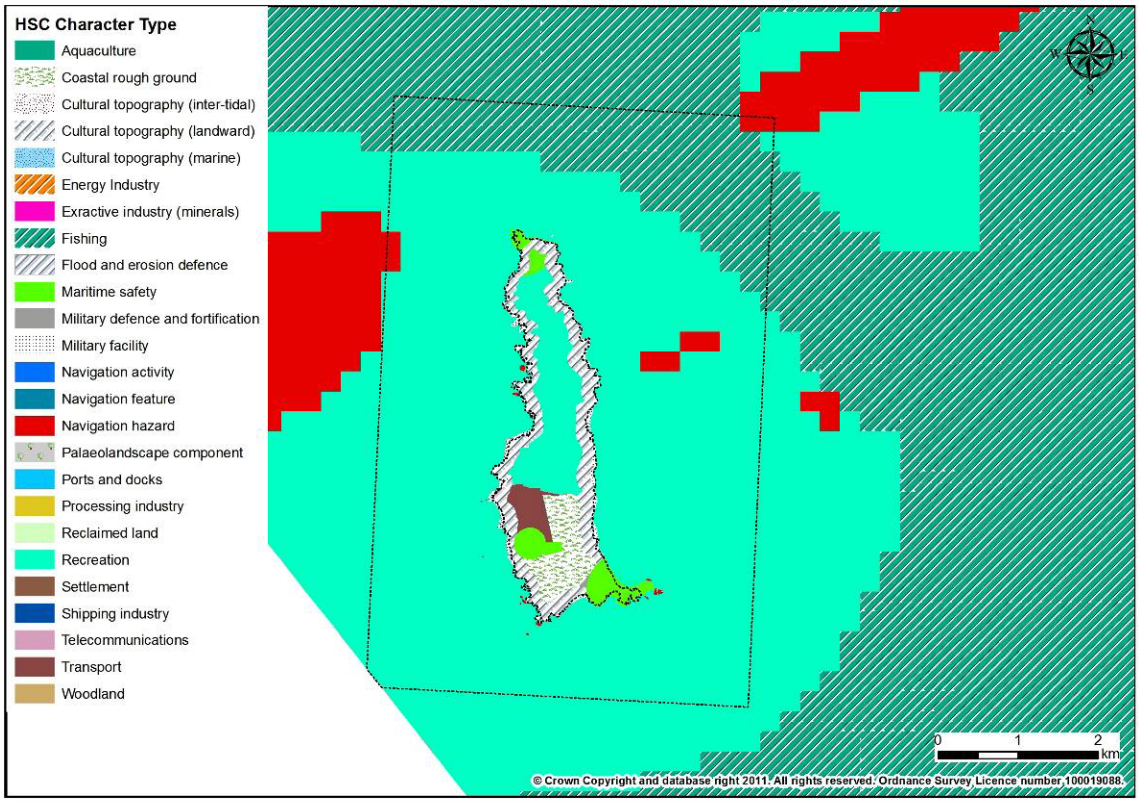

Fig 12 Water column HSC Character Types, Lundy;

5.2.3.2 Water Column HSC

The whole area is mapped as **Recreation** - recreational dive area and leisure fishing and small scale angling (see above), bordered with hazardous waters associated with the shoals and flats of East Bank, North West Bank and the White Horses (**Navigation Hazard** – see below) (Fig 12).

5.2.3.3 Sea floor HSC

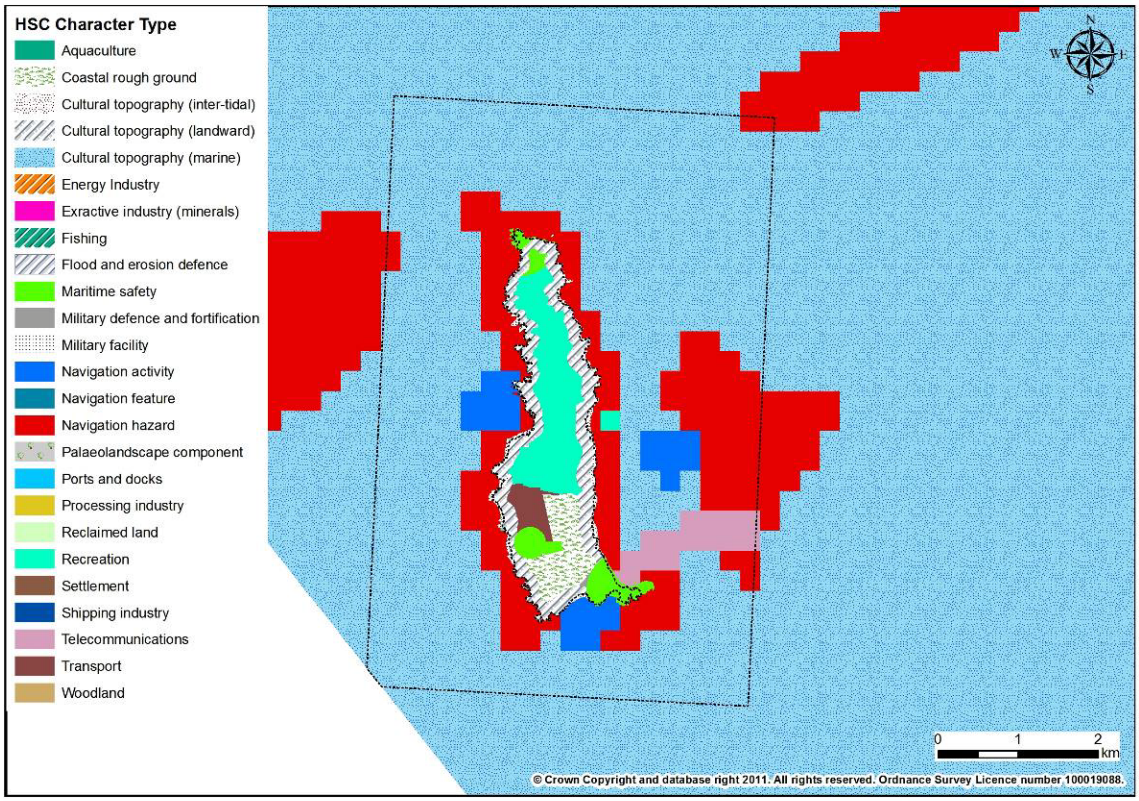

Fig 13 Sea floor HSC Character Types, Lundy

The seafloor HSC shows the three anchorage areas (**Navigation Activity**); there is potential for cultural debris and remains associated with this historic use although it is also likely that the sea floor of the anchorages will have suffered more disturbance than areas of cultural topography around the islands due to the more intensive use. Much of the area is mapped as **Navigation Hazard**. Lundy and the Bristol Channel are among the major natural hazard areas in the South West region. There are many shipwrecks around Lundy including the designated Gull Rock wreck, a 15th or 16th century on the east side of the island, and *Iona II* wrecked off the island in 1864. The HSC mapping shows a cluster of wrecks in Lundy Roads with another on East Bank (Fig 13).

Wrecks are fragile and non-renewable resources serving as exceptional opportunities to discover our common past as well as important habitats for aquatic life since they act as artificial reefs for entire and unique ecosystems, potentially including FOCI species. In this sense, wrecks are seen as beneficial sites of increased biodiversity by marine ecologists. Therefore, further collaborative work between marine biologists and archaeologists would be beneficial to enable a deeper understanding of species living in wreck sites, how they contribute to wreck preservation, and contextualising this information within regional sea dynamics. As well as wrecks there is also potential for residual remains of leisure and industrial fishing.

5.2.3.4 Sub-sea floor HSC

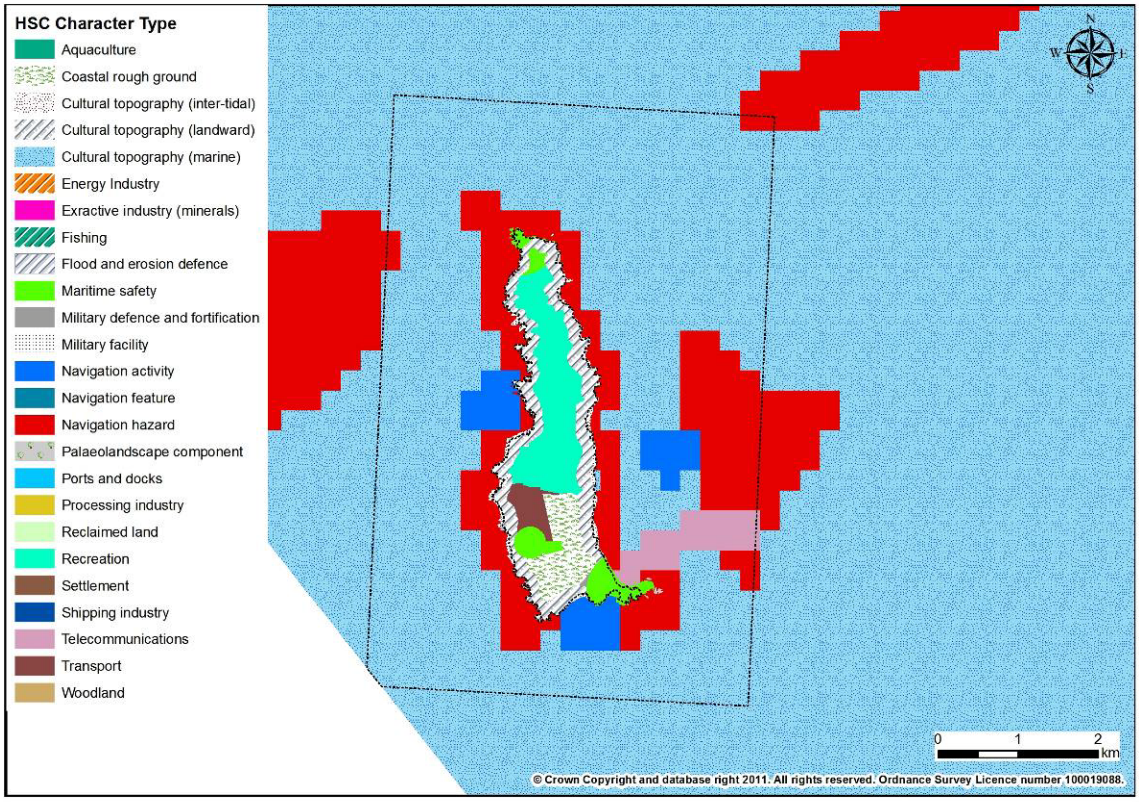

Fig 14 Sub-sea floor HSC Character Types, Lundy

The sub-sea floor HSC around the island is mapped as **Navigation Hazard** but beyond this is **Cultural Topography (Marine)** – coarse and fine sediment plains. Much of this Character Type is home to a rich diversity of marine life. For instance, sandy areas can be host to eel grass which supports a large number of crustaceans and fish, including sand eels, which in turn attract a large number of predators extending to commercially valuable fish species and wildlife attractive to tourists such as cetaceans, seals, and seabirds. Reefs provide an anchor point for a variety of species that also attract commercial fish species and tourist-friendly wildlife.

This Character Type can also contain buried palaeolandscapes with potential for traces of prehistoric human activity dating to the Mesolithic. If MCZ monitoring activities include remote sensing, coring or sampling there is potential here for data sharing to learn more about the resource particularly in those morphologically distinctive areas where remains are most likely to survive and be discovered e.g. crevices, gullies, troughs, caves and such like. Also mapped are telecommunications cables at the south end of the island which may, if buried, have caused some disturbance to the seabed and surviving prehistoric submerged land-surfaces if only covered by shallow sediments (Fig 14).

5.2.3.5 Coastal HSC

The present character of the northern end of the island is mapped as **Recreational**, but exhibits earlier episodes of military activity, mapped as having a previous character of WW2 Military **Defences and Fortification** similarly the south end is characterised as Coastal Rough Ground but also was the focus of earlier WW2 activity. These remains hint at the strategic importance of the island as an observation post facing into the Atlantic and protecting the important sea-borne activity emanating from the Bristol Channel. The 'Old Lighthouse' at the south east of the island (**Maritime Safety**) was

built in 1847 but replaced at the end of that century by the North and South lighthouses. To the north of the old lighthouse is a civilian airfield (**Transport**), again previously WW2 defences (Fig 15).

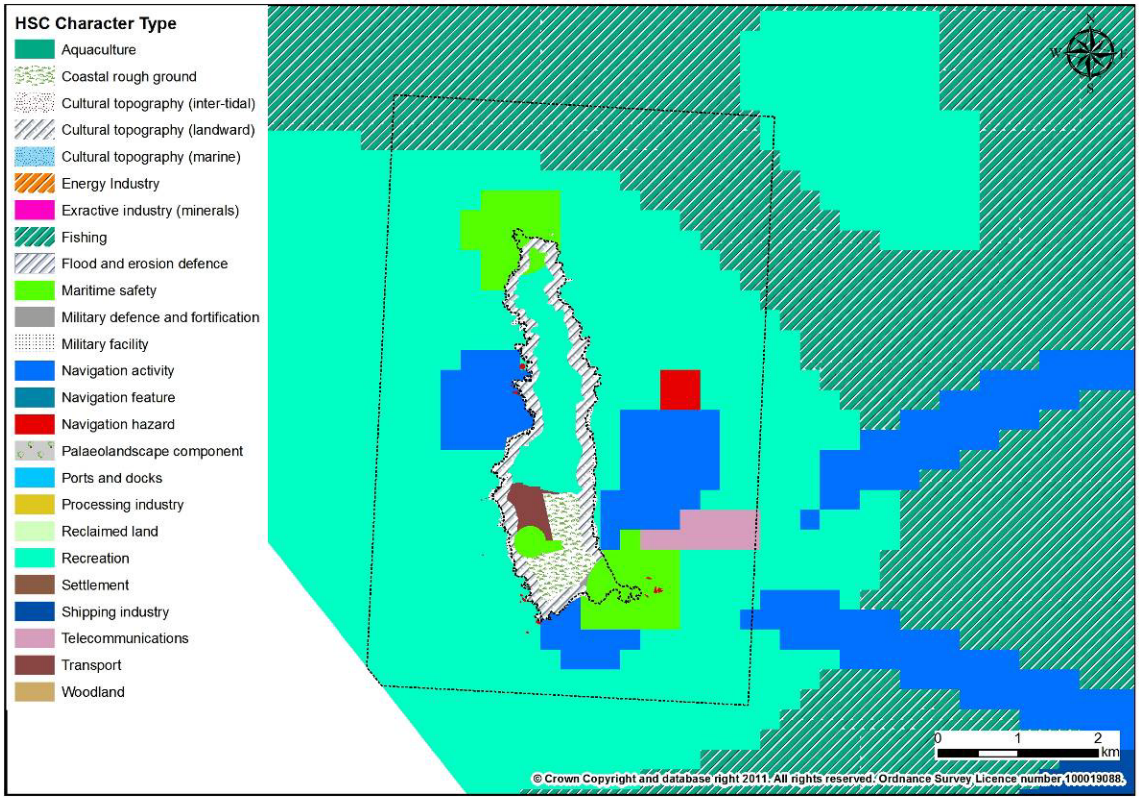

Fig 15 Present type HSC Character Types, Lundy

6 Conclusion

This Applications Review is designed to identify and demonstrate some of the capabilities of Historic Seascape Characterisation and its potential for application to various planning and outreach scenarios. The review seeks to illustrate how HSC can enable the historic character of our present coastal and marine seascapes to play its full part in shaping culturally distinctive and legible seascapes for the future, using case-study scenarios to support the discussion.

The review of HSC applications illustrates the roles of HSC for a broad range of contexts through a review of the potential applications of HSC on a broad scale, taking account of current policies and legislation, government priorities and the needs of stakeholders in the marine and historic environment. The review is accompanied by case-studies which applied HSC to two scenarios. In order to contextualise the discussion, the review considered the relevance of HSC to a range of national and international government contexts including UK Legislation, marine planning infrastructure and the responsibilities of English Heritage, EU Marine Policy and the European Landscape Convention, and the impacts of climate change on the historic environment and our perceived landscape.

The Review highlights the roles of HSC in delivering baseline information at a strategic level, providing valuable context and extending the principles of historic characterisation to informing sustainable management of change, spatial planning and public engagement concerning our coastal and marine seascape.

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8 Abbreviations

ADS	Archaeological Data Service, York
ALSF	Aggregates Levy Sustainability Fund
AONB	Area of Outstanding Natural Beauty
ASA	Archaeological Study Area
BMAPA	British Marine Aggregates Producers Association
Cefas	Centre for Environment, Fisheries and Aquaculture Science
COWRIE	Collaborative Offshore Wind Research into the Environment
CPA	Coast Protection Act 1949
DCMS	Department for Culture, Media and Sport
Defra	Department for the Environment and Rural Affairs
EH	English Heritage
ELC	European Landscape Convention
FEPA	Food and Environment Protection Act 1985
ENG	Ecological Network Guidance - the ecological criteria that the overall MPA network (MCZs plus existing MPAs) has to meet.
FOCI	Features of Conservation Importance – habitats and species listed in the ENG.
GIS	Geographic information System
HER	Historic Environment Record
HLC	Historic Landscape Characterisation
HSC	Historic Seascape Characterisation
ICZM	Integrated Coastal Zone Management
IPC	Infrastructure Planning Commission
JNAPC	Joint Nautical Archaeology Policy Committee
JNCC	Joint Nature Conservation Council
MCZ	Marine Conservation Zone
MIPU	Major Infrastructure Planning Unit of the Planning Inspectorate
MMO	Marine Management Organisation
MNR	Marine Nature Reserve
MoU	Memorandum of Understanding
MPA	Marine Protected Area
MPS	Marine Policy Statement
nm	nautical mile
NMR	National Monument Record, Swindon
NHPP	National Heritage Protection Plan (English Heritage)
NSIPs	National Significant Infrastructure Projects

RCZAS	Rapid Coastal Zone Assessment Surveys
SMP	Shoreline Management Plan
SSSI	Site of Special Scientific Interest
UKHO	United Kingdom Hydrographic Office, Taunton