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Seascape Character Assessment for the South West Inshore and Offshore marine plan areas



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MMO 1134: Seascape Character Assessment for the South West Inshore and Offshore marine plan areas

September 2018



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1 Introduction

The [Marine Policy Statement \(MPS, 2011\)](#) (2.6.5.2) states that, when developing marine plans, visual, cultural, historical and archaeological impacts should be considered for all coastal areas. The MPS adds that any wider social and economic impacts of a development or activity on coastal landscapes and seascapes should also be considered, taking into account existing character and quality (2.6.5.3). In addressing these requirements, this report presents a seascape assessment for the south west inshore and offshore marine plan areas.

1.1 Context

The first strategic-scale seascape assessment commissioned by the Marine Management Organisation (MMO) was undertaken for the [south inshore and offshore marine plan areas](#) in 2014. This followed the seascape character assessment for the [east inshore and offshore marine plan areas](#) commissioned by Natural England in 2011, further [updated by the MMO in 2012](#) following a consultation exercise.

In 2015, the MMO commissioned desk-based seascape assessments for the south east, north east and north west marine plan areas. In the same year, Natural Resources Wales (NRW) and Welsh Government completed their own national study to identify and describe [Marine Character Areas \(MCAs\)](#) for the Welsh Marine Plan. In the following year, 2016, the MMO commissioned a desk-based seascape character assessment for the south west inshore and offshore marine plan area to complete coverage for England. Visual resource mapping (VRM) was undertaken for all marine plan areas in 2015 (see [section 2.3](#)).

This project developed MMO's desk-based seascape assessments for the south east, north east, north west and south west marine plan areas formulated in 2015/16 to undertake stakeholder verification through a series of workshops were held in 2018 to provide the opportunity for key stakeholders to input into the process. In addition to the workshops, further comments from stakeholders across the four regions were invited by email to supplement the information gathered at the workshops.

Following consultation, this study has produced a combined national seascape character map for all England's inshore and offshore areas, comprising a spatial framework of individual MCAs which 'flow across' marine plan area and administrative boundaries. The MCAs represent strategic patterns and variations in character across the national marine area.

This report for the south west comprises the baseline desk-based seascape assessments for the MCAs defined and described in 2016, updated to account for comments received through the stakeholder verification process undertaken in 2018. Separate complementary reports are available for the south east, north east and north west marine plan areas. Existing studies are also available for the [east inshore and offshore marine plan areas](#) and [south inshore and offshore marine plan areas](#).

The MMO's seascape assessments have been broadly aligned with the guiding principles set out in Natural England's 2012 publication, [An approach to Seascape Character Assessment](#) (NECR105).

1.2 Objectives

The objectives of the overall study (for the south west, south east, north east and north west marine plan areas) were to:

- Undertake a desk-based seascape character assessment for the marine plan areas, comprising the spatial definition of strategic-scale MCAs and accompanying descriptions, with a focus on key characteristics.
- Create a single, unified Geographical Information System (GIS) data layer and a national map of seascape character for all marine plan areas in England.
- Hold stakeholder engagement workshops to refine and validate the combined seascape character assessment map and MCA descriptions

1.3 Structure of the report

This report for the south west has been structured as follows:

- [Section 2](#) describes the methodology developed and followed for this study
- [Section 3](#) includes the MCA profiles for the south west.
- [Section 4](#) has the References used in this report.
- [Annex 1](#) is the project's data list.
- [Annex 2](#) lists organisations consulted with for this study in the south west.

2 Methodology

This section summarises the methodology used for the production of the south west seascape assessment. This process followed six main steps:

- 1) [Gathering and assimilating data and information.](#)
- 2) [Undertaking a desk-based seascape character assessment.](#)
- 3) [Using the national visual resource mapping to inform the seascape character assessment.](#)
- 4) [Undertaking stakeholder verification.](#)
- 5) [Updating the MCA names, boundaries and descriptive information.](#)
- 6) [Creating a combined national seascape character GIS shapefile and map for England's inshore and offshore marine plan areas.](#)

These steps are described below, with additional information described relevant to this study for the south west. This includes how the project considered spatial links with the adjacent Welsh and south marine plan areas.

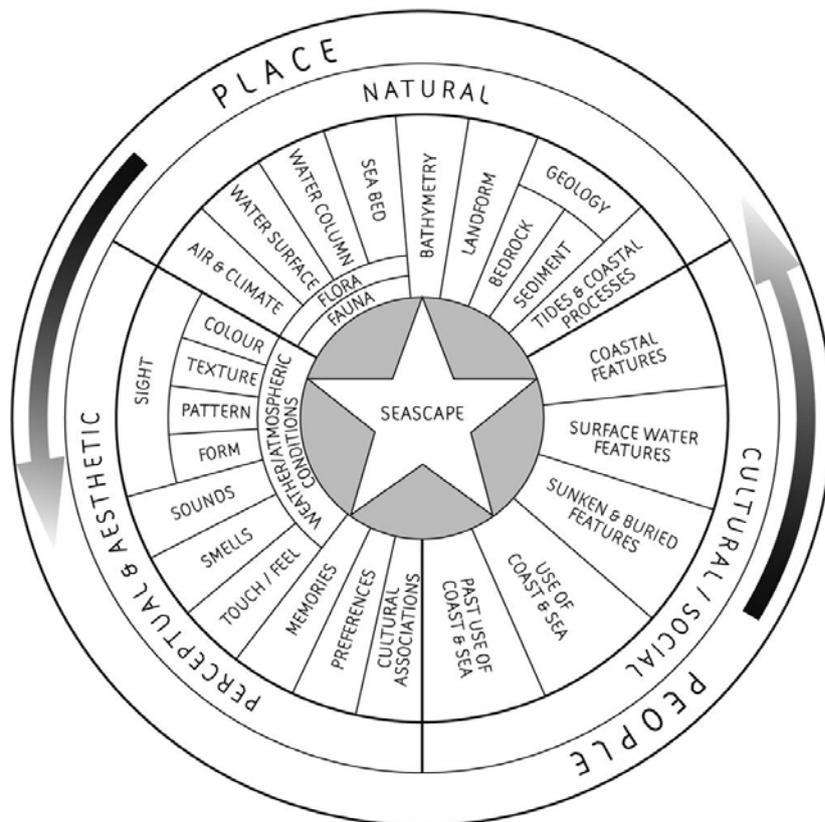
2.1 Gathering and assimilating data and information

The first stage involved gathering and assimilating the range of datasets, literature, plans and strategies available to inform the work. The majority of the required spatial data was provided by the MMO, organised in a GIS database structured according to the key themes of the 'seascape wheel', see Figure 1 ([An approach to Seascape Character Assessment](#) (NECR105)). The wheel illustrates the different aspects which combine to create 'seascape character', under the general themes of natural, cultural/social and perceptual and aesthetic. General information layers such as base-mapping and administrative boundaries were also collated during this first stage.

Marine raster charts and marine themes vector data provided the backdrop onto which numerous other GIS layers (geology, bathymetry, designated sites, etc.) were overlaid. Particular attention was paid to aligning the coordinate systems of onshore and offshore datasets to ensure a seamless transition between the marine and terrestrial data, drawing on the experience of previous studies. A full data list for this work is provided in [Annex 1](#), including groupings under the three general themes of the seascape wheel to show the range of data used by this study to inform each theme.

The work undertaken for this study was primarily desk-based and aligned more with the 'natural' and 'cultural/social' themes of the seascape wheel, rather than the 'perceptual and aesthetic' (e.g. sight, sounds, smells) which could not be gained without further detail from field/boat survey work. However, more information on perceptual and aesthetic qualities were gathered through the stakeholder engagement process undertaken in 2018.

Figure 1 - The Seascape Wheel (Natural England, 2012)



Relevant literature and other written references were also compiled to inform the project: a reference list is provided in [Section 4](#). Of particular use in understanding sea conditions (e.g. tides and currents) and interpreting information on marine navigation are the relevant Coast Pilots published by Imray. These were used to gain a further understanding of seascape character from the perspective of the sea and sea users.

2.2 Undertaking a desk-based seascape character assessment

2.2.1 Identifying Marine Character Areas (MCAs)

The collated data and information relating to the different aspects of the seascape wheel were interrogated in order to begin to identify dominant patterns relevant to character across the inshore and offshore marine plan areas. This process informed the identification of MCAs, defined in the box over the page. This definition is consistent with that provided for 'seascape character areas'¹ in Natural England's 2012 publication, [An approach to Seascape Character Assessment](#), and applies to all of the other strategic-scale studies undertaken in England and Wales.

¹ Marine Character Areas (MCAs) are more widely known as Seascape Character Areas (SCAs) outside of the marine planning process in England.

Marine Character Areas (adapted from Natural England, 2012)

Definition: An MCA is an area of marine space has its own individual character and identity

Application: Although MCAs can share the same generic characteristics as other areas, the use of marine character areas provides a good framework within which to draw out patterns of local distinctiveness and those factors influencing sense of place. They can be used to develop more tailored policies or strategies, reflecting the things that make a particular area different, distinctive or special.

The boundaries drawn for the MCAs represent broad transitions (rather than immediate or abrupt changes) in character from MCA to MCA, tending to reflect natural breaks or the clustering of characteristics and/or features deciphered from available data and information. The use of GIS is a key tool in the process of seascape character assessment, enabling different information layers to be interrogated in tandem and therefore allowing spatial patterns relevant to character to be investigated.

Professional judgement by a consultancy team of landscape and seascape specialists was fundamental in deciding which aspects have greatest influence on the character of each MCA, considering in particular how they shape individual distinctiveness and sense of place. Additional sources of written information, as well as LUC's own knowledge of the south west (gained through other landscape/seascape studies and fieldwork), were used alongside the GIS data to inform the boundary drawing process.

Draft MCA boundaries were digitised in GIS at a 1:250,000 scale with notes kept on the reasoning behind the boundaries drawn, including the use of GIS datasets. This draft classification was discussed with the MMO at this early stage, with comments made considered in a further detailed review of available information.

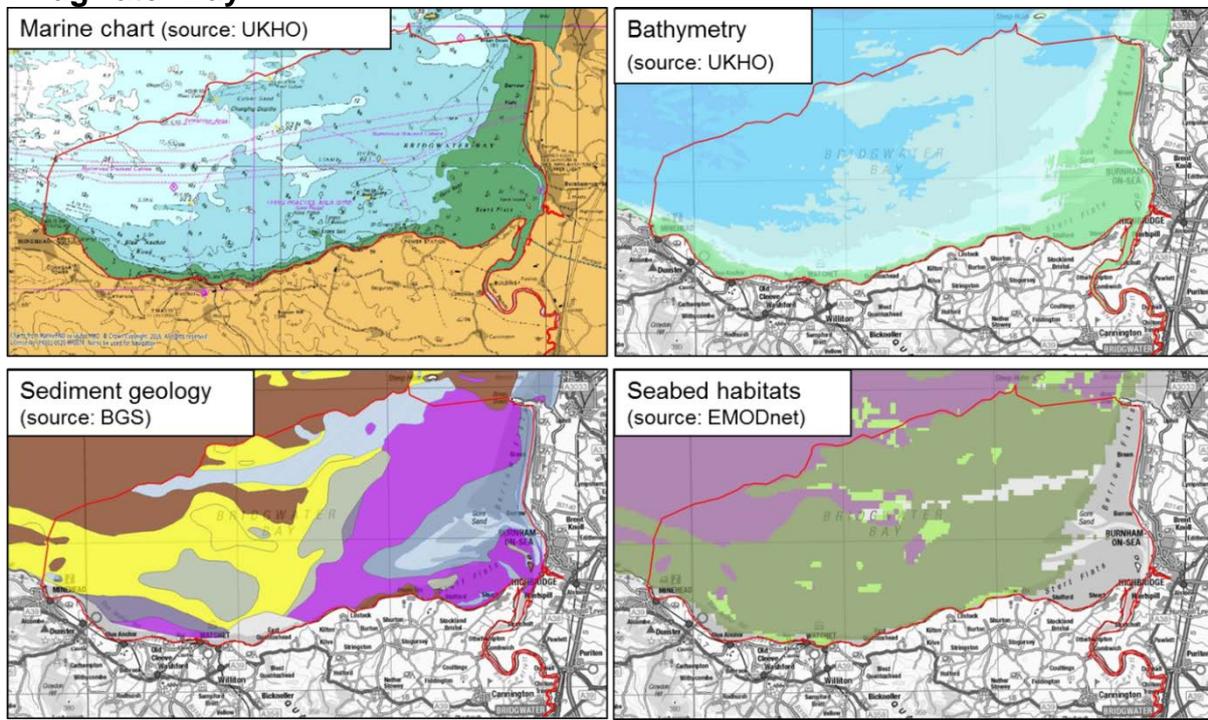
Figure 2 below illustrates how base mapping information detailed on the marine chart was used alongside other GIS datasets to help inform the MCA boundaries, using an example from the south west marine plan area (MCA 40 Bridgwater Bay). The character of this MCA, straddling between the Bristol Channel and Severn Estuary, is strongly influenced by natural and physical processes. Data representing the 'natural' theme of the Seascape Wheel therefore played a strong role in the boundary identification process for this MCA.

Further refinements to draft MCA boundaries resulted in the classification of 17 MCAs for the south west, which were discussed at the stakeholder workshops undertaken in 2018 (see [section 2.4](#) below). The final classification of MCAs for the south west inshore and offshore marine plan areas is illustrated at Figure 5 at the start of [Section 3](#). A summary of the main information used to inform the boundaries is included in the 'location and boundaries' section of each MCA profile in [Section 3](#).

As outlined above, **it is important to note that the MCA boundaries represent broad zones of transition (i.e. not immediate breaks in character)**, and that

natural, visual, cultural and socio-economic relationships between adjacent MCAs play a key role in shaping overall character. Therefore individual MCAs should not be considered in isolation.

Figure 2 - Example of GIS data used to help inform the boundaries of MCA 40: Bridgwater Bay



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2.2.2 Making spatial links to adjacent Marine Character Areas (MCAs)

This study forms part of a full national classification of MCAs across England, displaying seamless boundaries that are not constrained by the location of the different marine plan areas or administrative jurisdictions (in the case of Wales).

For the south west, this required consideration of the neighbouring MCA classifications already published for the south (2014) and Wales (2015). Where seascape character was deemed to continue (or ‘flow’) across planning boundaries, the definition of English MCA boundaries was extended across the border into other MCAs. As a result, two of the MCAs form extensions to MCAs already classified in the south (1 Lyme Bay (West) and 14 English Channel (West) and the Wight-Barfleur Reef); and three stretch into Wales as shared units of consistent character (39 Severn Estuary, 40 Bridgwater Bay and 41 Bristol Channel). MCAs including England in parentheses do so to clarify that the definition only refers to the part of that area which is within the English marine plan area.

Where relevant, these connections are illustrated on the map and described in the ‘location and boundaries’ box at the beginning of each MCA profile in [Section 3](#).

The MCA numbering in this report follows on from the north west, starting with MCA 39 Severn Estuary (England). More information on the national seascape character map is provided at [section 2.6](#).

2.2.3 Describing the seascape character of the Marine Character Areas (MCAs)

Each MCA has its own descriptive profile, which is included in [Section 3](#) of this report. The profiles are structured as follows:

- Map of the MCA, showing its position within the wider marine plan area(s)
- Overview of the MCA, with information against the following headings:
 - **Location and boundaries:** this includes information on how the MCA was defined with reference to key sources of data/information – noting that boundaries represent zones of transition, not immediate breaks in character.
 - **Overall character:** a summary snapshot of the overall seascape character of the MCA.
 - **Adjacent National Character Areas:** For those MCAs with an adjacent coastline, reference is made to the adjoining [National Character Areas](#) defined by Natural England which form the equivalent spatial and descriptive units for landscape as the MCAs are for seascape.
 - **Adjacent and inter-visible nationally designated and defined landscapes:** This section outlines which nationally designated or defined landscapes (National Parks, Areas of Outstanding Natural Beauty, Heritage Coasts, World Heritage Sites) are found along the adjacent coast or are visible to/from the MCA.
- **Key characteristics:** Seascape character is described using a set of bullet-pointed key characteristics which consider the main themes of the 'seascape wheel' (Figure 1). The key characteristics are designed to capture the main features, elements and attributes of the MCA which combine to produce its overall seascape character. The key characteristics are not intended to be an exhaustive list of every site or feature present within the MCA. More fine-grained information on character can be captured in local-scale seascape character assessments (see [section 2.2.4](#) below).

The MCA profiles draw on a range of available literature (see References at the end of [Section 3](#)) and data ([Annex 1](#)) in order to compile the key characteristics.

2.2.4 Making links to local-scale seascape character assessments

Seascape character assessments prepared at a local scale provide more detailed evidence, and have been referred to where available. In the south west, reference was made to the [Seascape Character Assessment for North Devon and Exmoor \(2015\)](#) and the [Plymouth and Plymouth Urban Fringe Landscape and Seascape Assessment \(2016\)](#) which were both in progress at the time of this study. This allowed for a 'nesting' of local seascape units within the strategic framework of MCAs, and the distilling of more detailed local-scale descriptive information into the key characteristics of the relevant MCA profiles.

Nationally, it is envisaged that future local-scale assessments will consider the output of this assessment by seeking to nest smaller seascape units within the spatial framework of MCAs, where it is appropriate to do so.

2.3 Using the national visual resource mapping to inform the seascape assessment

An approach to visual resource mapping (VRM) was developed and methodology documented as part of [seascape assessment for the South marine plan areas](#) (2014). This has subsequently been applied nationally by the MMO. All of the MMO's subsequent studies have referred to the VRM to help inform the 'perceptual and aesthetic' theme of the seascape wheel as relevant to visual character. Figure 3 presents the national VRM for England and Wales (showing both sea surface visibility from land and land with views of the sea). The south west section, showing the MCA framework, is included at Figure 6 in Section 3.

2.4 Undertaking stakeholder verification

2.4.1 Stakeholder workshops

LUC was commissioned in 2018 to undertake stakeholder verification on the draft seascape character assessments for the south west, south east, north east and north west. This included workshops held in each region. For the south west, two workshops were held as follows:

- Bristol on Monday 23 April 2018
- Plymouth on Tuesday 24 April 2018

A range of different stakeholders attended the workshops. A list of organisations represented is included at [Annex 2](#). Those attending the workshops received an introductory presentation from the MMO on how seascape evidence is feeding into the marine planning process. This was followed by an overview of seascape work prepared to-date by LUC. Discussions were facilitated to verify the MCA names, boundaries and key characteristics for consideration in the updated information provided in this report.

2.4.2 Comments submitted by email

Participants and invitees to the workshops were given a further opportunity to submit comments to the MMO via email. This consultation period ran until 25 May 2018. Those who submitted comments are also listed in [Annex 2](#).

2.5 Updating the MCA names, boundaries and descriptive information

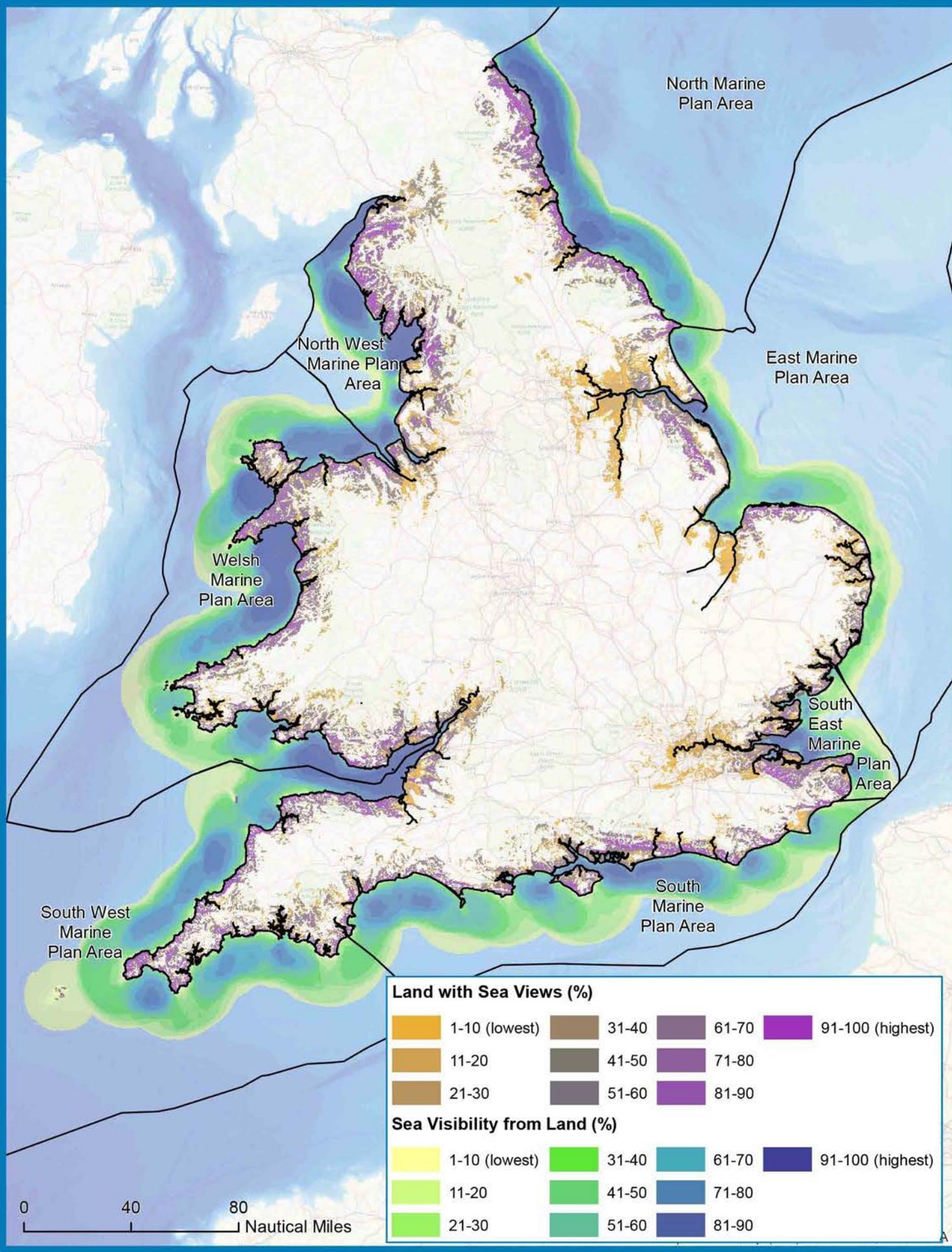
Responses made at the workshops and submitted by email were considered as part of an update to the MCA profiles (included in [Section 3](#)). Comments on MCA names and boundaries fed into the process of creating the national seascape character map and combined GIS layer, as described in [Section 2.6](#).



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Figure 3: Visual Resource Mapping For England and Wales

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2.6 Creating a combined national seascape character GIS shapefile and map for England's inshore and offshore marine plan areas

An essential aim of this assessment was the creation of a single combined GIS layer and map of MCAs covering all of England's inshore and offshore waters, replacing previously available separate datasets for individual marine plan areas.

This required an understanding of how character 'flows' between marine plan areas, a consideration already part of the MMO's existing studies (see [section 2.2.2](#)). Relationships between Wales and the south west or north west marine plan areas were also considered during the preparation of the National Seascape Assessment for Wales (LUC, 2015).

This is the first time character has been mapped across all marine plan areas. It was essential to gain permission for the outputs from the north east and south east studies to supersede the seascape characterisation published for the east marine plan area by Natural England in 2012. The national seascape layer for England has, however, retained the numbering and naming of the SCAs identified by Natural England as separate to the MCAs for the remaining five marine plan areas. Otherwise the numbering is continuous, starting from the south marine plan area and running anti-clockwise around the coast to the south west marine plan area.

Using GIS, the National Marine Character Area layer for England was created by merging the individual datasets produced for the south west, north west, north east, east, south east, and south marine plan areas. Areas which overlap at either end of these individual datasets were merged or amended to reflect stakeholder comments on names and boundaries, and desk-based interpretation of characteristics and features from available data and information.

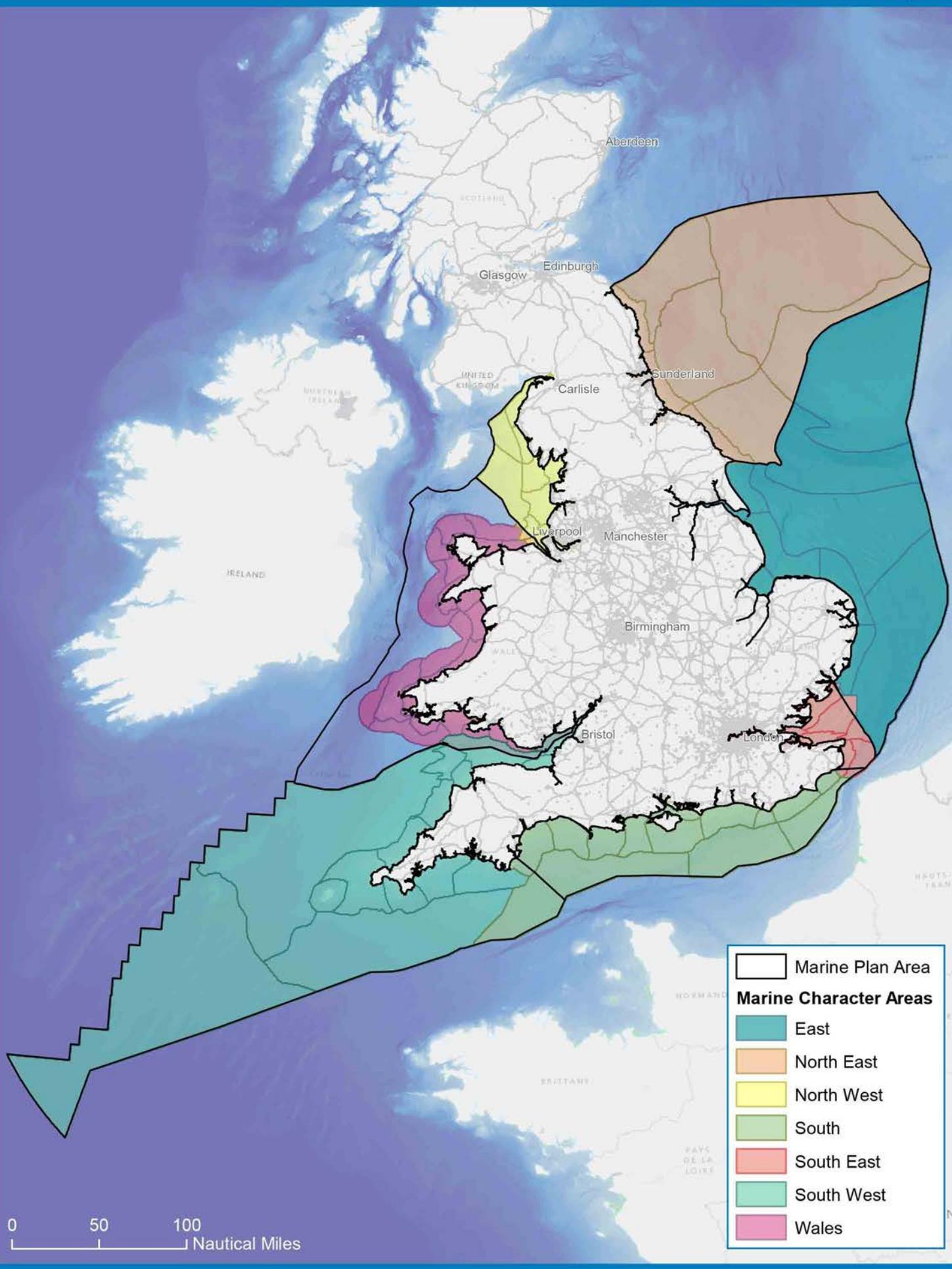
The resultant national seascape character map for England is presented at Figure 4, showing how the MCAs relate to those defined for Wales. The combined GIS layer will be included on the MMO's online [Marine Information System \(MIS\)](#) to inform the marine planning process, as well as downloadable from [data.gov.uk](#).



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Figure 4: Marine Character Areas in England and Wales

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2.7 Limitations

The main limitations of this seascape assessment for the south west, and suggestions for further improvements, are summarised as follows:

- The time and resources available for this study enabled the production and verification of desk-based character descriptions only, with a focus on key characteristics.
- The MCA descriptions provide information on the current (baseline) character of the seascape. The majority of this information is from the 2016 desk-top study which preceded stakeholder consultation in 2018. The MCA profiles were updated in 2018 to account for stakeholder comments where available evidence allowed.
- The key characteristics are designed to capture elements of importance to seascape character at a strategic (marine plan area) level. They are not designed to be a comprehensive list of all sites and features present – designated or otherwise.
- An evaluation of quality, condition, sensitivity and capacity to accommodate change could be considered at a future date, which in turn could inform the production of tailored management and planning guidelines.

3 Marine Character Area profiles for the south west inshore and offshore marine plan areas

3.1 Introduction

This section provides descriptive profiles for each MCA identified for the south west inshore and offshore marine plan areas. Figure 5 presents the spatial classification of all south west MCAs and Figure 6 shows the national Visual Resource Mapping (VRM) results, overlain by the south west MCA framework.

Each stand-alone profile contains the following information:

A location map of the MCA (forming the front cover of each MCA profile)

Overview of the MCA

- Location and boundaries
- Overall character (summary)
- Adjacent National Character Areas (for those MCAs abutting the coast)
- Adjacent nationally designated and defined landscapes (National Parks, Areas of Outstanding Natural Beauty (AONBs), Heritage Coasts and World Heritage Sites).

Key characteristics

Comprising summary bullet points considering natural, cultural/social and perceptual/aesthetic influences on the MCA's character.

3.2 List of Abbreviations

The following abbreviations are used throughout the MCA profiles:

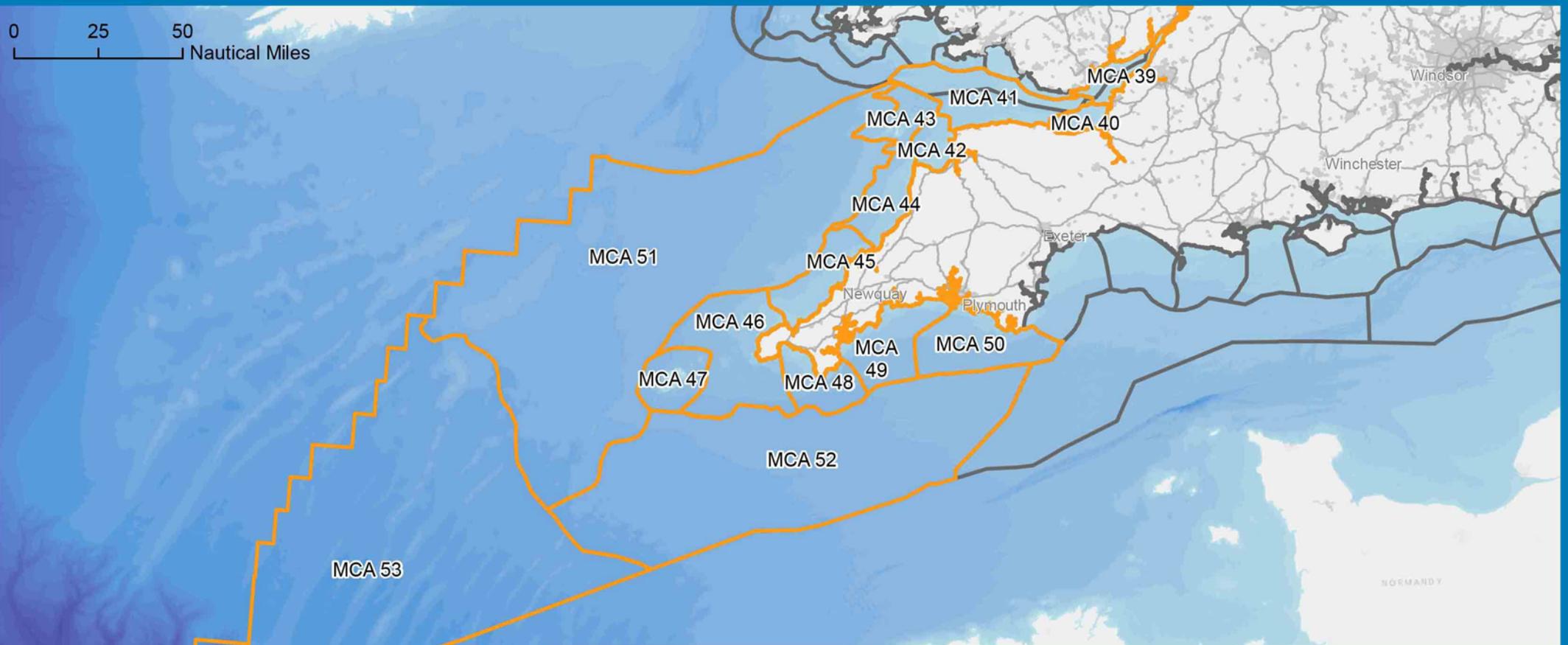
AONB	Area of Outstanding Natural Beauty
MCA	Marine Character Area
MCZ	Marine Conservation Zone
NCA	National Character Area
SAC	Special Area of Conservation
SCA	Seascape Character Area
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UNESCO	United Nations Educational, Scientific and Cultural Organization
WHS	World Heritage Site
WWI / WWII	World War I / World War II



Figure 5: South West Marine Character Areas

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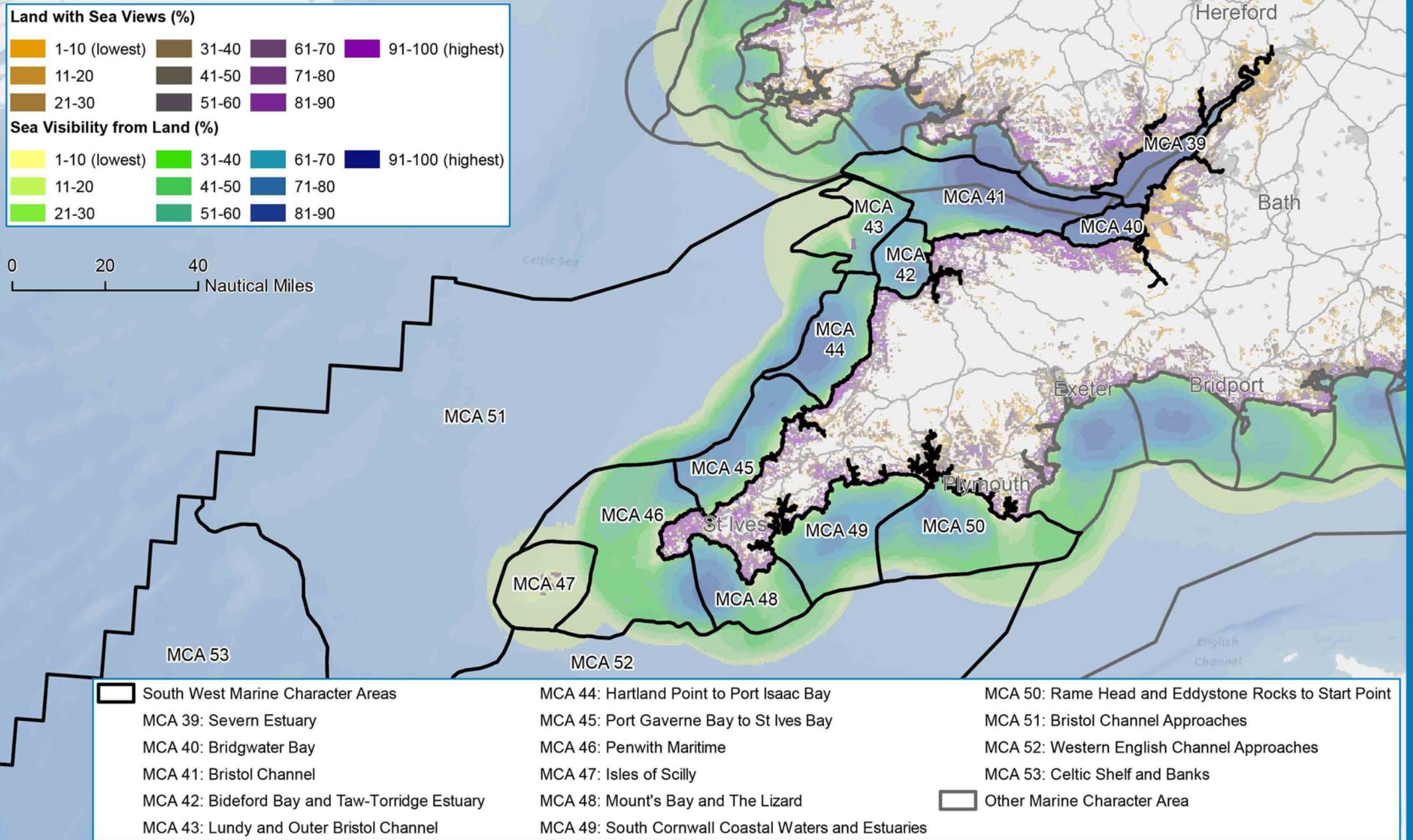


- | | |
|---|---|
|  South West Marine Character Areas | MCA 46: Penwith Maritime |
| MCA 39: Severn Estuary | MCA 47: Isles of Scilly |
| MCA 40: Bridgwater Bay | MCA 48: Mount's Bay and The Lizard |
| MCA 41: Bristol Channel | MCA 49: South Cornwall Coastal Waters and Estuaries |
| MCA 42: Bideford Bay and Taw-Torridge Estuary | MCA 50: Rame Head and Eddystone Rocks to Start Point |
| MCA 43: Lundy and Outer Bristol Channel | MCA 51: Bristol Channel Approaches |
| MCA 44: Hartland Point to Port Isaac Bay | MCA 52: Western English Channel Approaches |
| MCA 45: Port Gaverne Bay to St Ives Bay | MCA 53: Celtic Shelf and Banks |
| |  Other Marine Character Area |



Figure 6: Visual Resource Mapping for the South West

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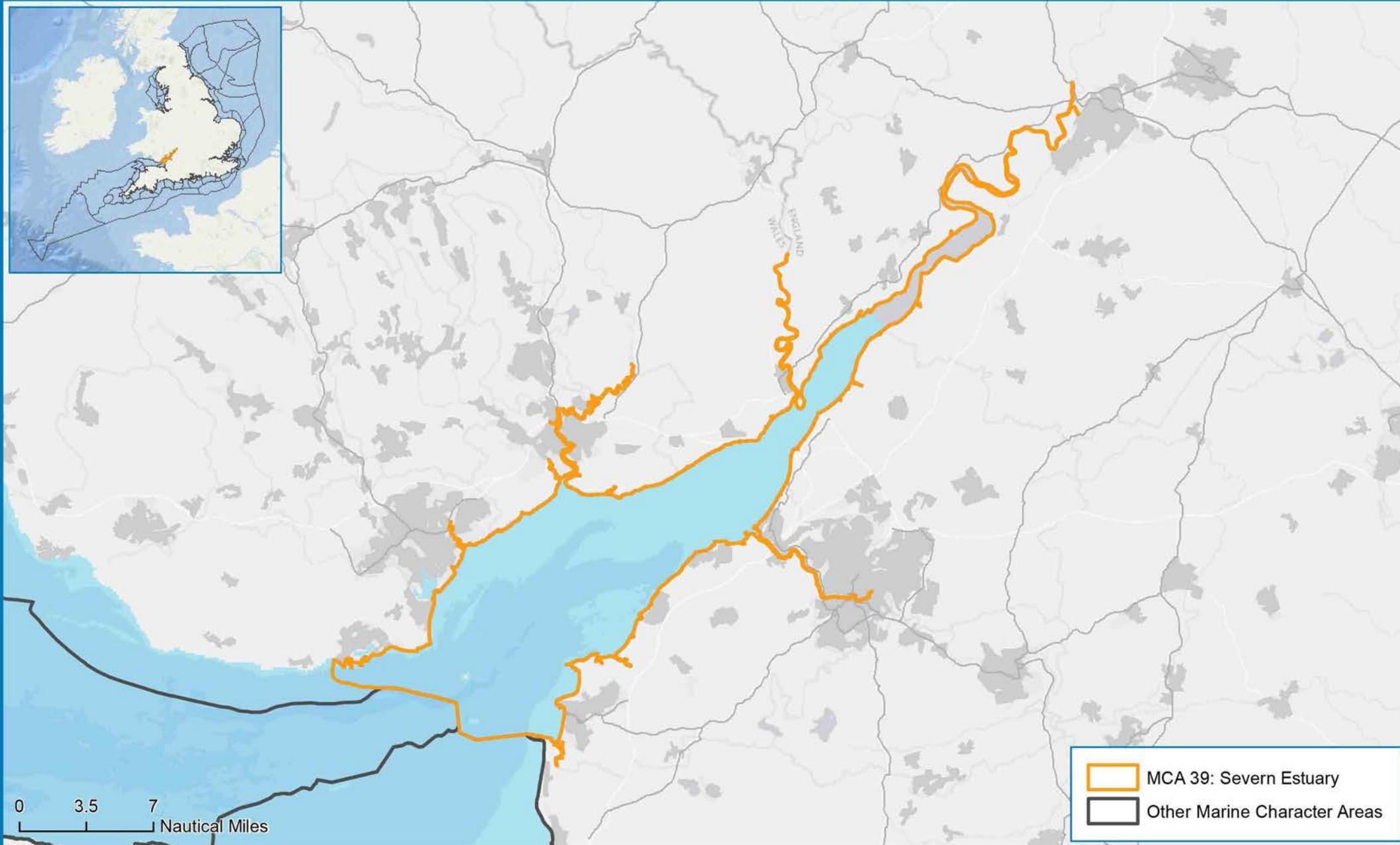




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Figure 7 - MCA 39, Severn Estuary

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3.3.1 Profile for MCA 39: Severn Estuary (England)

Location and boundaries

Please note that the Severn Estuary as an entity continues into Welsh waters under the jurisdiction of Welsh Government as indicated in the map above. Therefore whilst this MCA profile focuses on the area of the Estuary found within English waters, overall character flows across the administration boundary into Wales. For specific information on the Welsh side, see the published profile available on the Natural Resources Wales website [Welsh MCA29: Severn Estuary](#).

This MCA covers the English side of the Severn Estuary and its tidal reaches up to the High Water Mark – including the Rivers Wye and Avon. The lower estuary's extent, as it transitions into MCA 41: Bristol Channel, encompasses the twin islands of Steep Holm and Flat Holm (in Welsh waters); the boundary making landfall on the English side at the protruding headland of Brean Down. Collectively, the two islands and Brean Down present natural gateway features at the entrance to the estuary. This boundary also marks the transition to the deeper waters/shipping lanes of the Bristol Channel, where the surrounding landforms open out and take a west-east orientation. When combined with the Wales MCA, the estuary's full extent is consistent with how it is recognised for the purposes of coastal navigation (e.g. Imray, 2008).

Overall character

The south west orientated Severn Estuary is fed by the major rivers of the Severn, Wye, Avon and Usk (Wales). The estuary expands in width from the mouth of the River Severn as it flows westwards to meet the Bristol Channel (MCA 41), creating a classic funnel shape. The funnelling effect of the adjacent land has a profound effect on overall character and makes the area particularly susceptible to weather sweeping in from the Atlantic. It has the second highest tidal range in the world; the unique physical conditions and dynamic expanse of mudflats and sand bars supporting a rich marine and coastal biodiversity (recognised in a suite of international and national designations). The estuary displays a rich historic and palaeoarchaeological legacy of human exploitation, occupation and trade over millennia. It forms a natural entry point and trade route into Britain which fuelled the historic growth of ports including Bristol and Gloucester. Today, its role in maritime transportation continues, the busy port of Avonmouth being a hub of activity, with shipping passing through the waters to and from the Bristol Channel to worldwide destinations. The open character of the estuary affords uninterrupted views between England and Wales, the Mendip Hills rising above the adjoining flat Somerset Levels landscape to form a distinctive backcloth. Longer distance views to the Quantocks, moorlands of Exmoor and foothills of the Brecon Beacons provide an enclosing upland setting to the wider seascape.

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 105: Forest of Dean and Lower Wye
- 106: Severn and Avon Vales
- 118: Bristol, Avon Valleys and Ridges
- 142: Somerset Levels and Moors

Adjacent and inter-visible nationally designated and defined landscapes

The Wye Valley AONB fringes the eastern course of the tidal Wye in England (and continues on the Welsh side). Although not immediately adjacent, the Mendip Hills AONB extends inland from Weston-Super-Mare. There are also visual links to the Quantocks Hills AONB and Exmoor National Park to the south west.

3.3.2 Key characteristics of MCA 39: Severn Estuary (England)

- Expansive funnel-shaped Severn Estuary, sitting at the mouth of four major rivers (the Severn, Wye, Avon and Usk (the latter in Wales)).
- Vast tidal range of the estuary second only to the Bay of Fundy in Canada. The increased funnelling effect of the surrounding land in the east creates the famous natural phenomenon of the Severn Bore, reaching as high as over three metres.
- Soft Triassic and Jurassic rocks exposed periodically along the shore, creating rocky intertidal areas. Elsewhere the shore is defined by extensive tidal flats and reclaimed marshes.
- Thick Holocene-derived mud and sand producing a varied bed of flats and bars, with associated shallow waters and numerous shoals marked by buoys and flashing lights.
- Steep Holm island (SSSI) forming a gateway feature in the west – an outcrop of harder limestone rising out of the estuary. Flat Holm forms a similar ‘twin’ feature in Welsh waters, with a prominent lighthouse.
- Strong tidal streams and turbidity producing biological communities’ characteristic of the extreme physical conditions of liquid mud and tide-swept sand and rock.
- Tidal flats, saltmarshes and the extensive wet grasslands are of international importance for wintering waterfowl and migratory birds (designated as SAC, SPA, Ramsar, SSSI and Important Bird Area).
- Estuary important for the interpretation of coastline dynamics and land-forms, and also past changes in sea level and climate. The timbers of many Mesolithic trees can be found in the inter-tidal zone.
- Some of the richest and most diverse populations of non-exploited fish in the UK; sea lamprey and twaite shad populations considered to be larger than in any other estuary. It also provides nursery grounds for commercially important fish including sole and bass.
- Natural resources within the MCA exploited by humans for millennia, with evidence dating back to the earliest hunter-gatherers roaming what was previously a much larger coastal plain (prior to sea level rise around 6,000 BC).
- Numerous ship wrecks found on estuary floor, including examples mined and sunk during WWII. A particular concentration of wrecks and obstructions is found at Avonmouth.
- Rich history of coastal reclamation, embankments and ditches, notably the expansive Somerset Levels.
- Long-standing importance for trade and communications due to its great length and navigable distance inland, particularly as ports like Bristol and Gloucester expanded from the medieval period.
- With Roman origins, the nationally significant port of Avonmouth dominates the north-east, providing shipping, distribution and logistics services. Cranes and wind turbines punctuate the skyline, the Severn road bridges framing views behind.

- Small local trawlers and shoreline netters fish for whelks, ray, skate, bass, sole, cod and whiting. Some lobster potting also takes place.
- MCA used for recreational fishing charters and beach fishing. The traditional seaside resorts of Clevedon and Weston-Super-Mare attract holiday makers to the area.
- Regular glimpses of large-scale container ships and tankers travelling to/ from the major ports, reinforcing sense of place and the estuary's continued role as a major seafaring route (since at least the 1st century AD).
- The Mendip Hills rise above the surrounding flat landscape to provide a distinctive backdrop, their elevation enabling views into the MCA (and adjacent MCA 40) from the AONB.
- Visual links west to the Quantock Hills AONB and moorlands of Exmoor National Park beyond – the MCA forms part of the wider maritime setting to the two designated landscapes.
- Long, open views to Wales, including Cardiff, Newport and the foothills of the Brecon Beacons National Park.
- Estuary's classic funnel shape and south west orientation make it susceptible to extreme weather conditions (including storm surges) sweeping in from the east Atlantic.



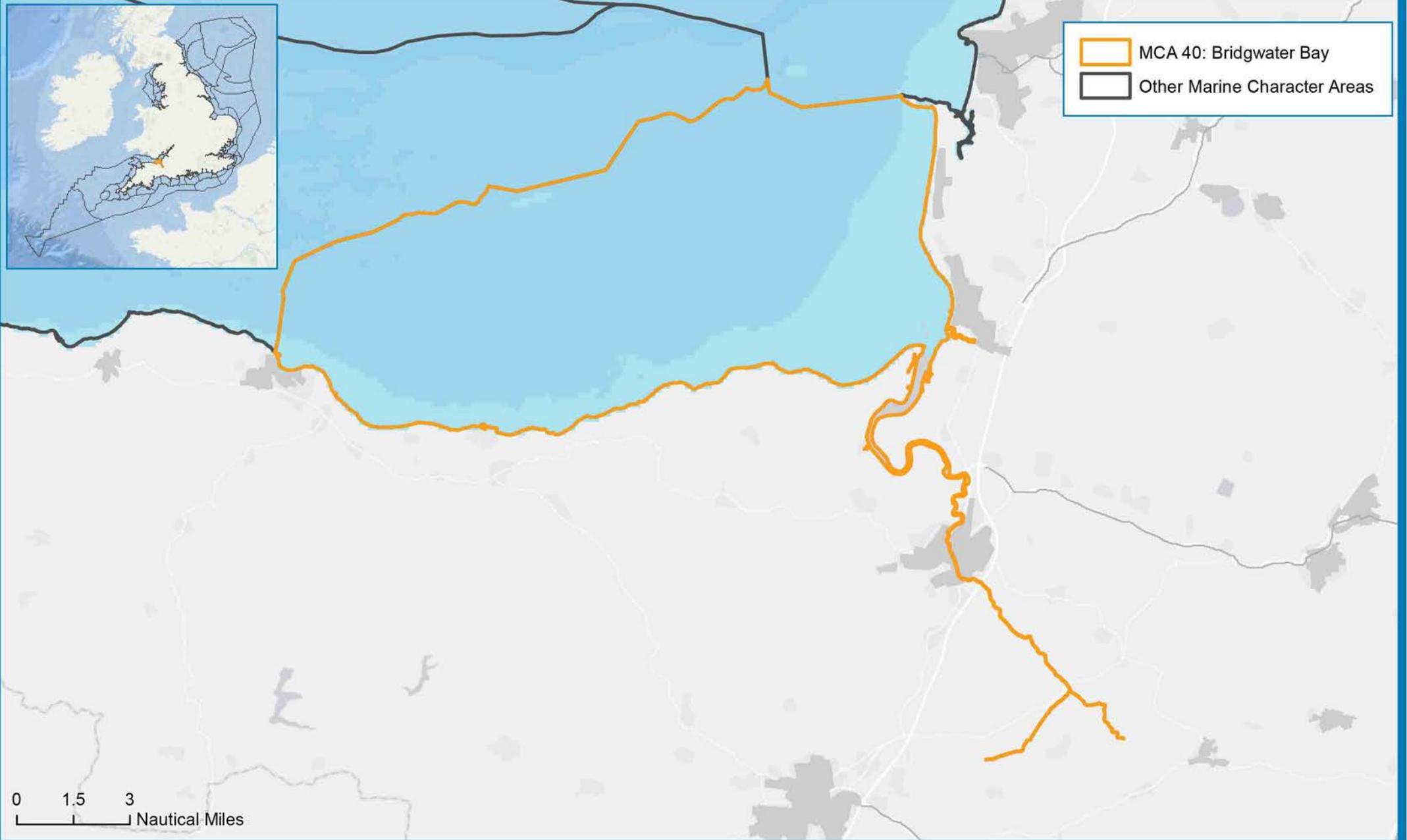
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Figure 8 - MCA 40, Bridgwater Bay

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 MCA 40: Bridgwater Bay
 Other Marine Character Areas



0 1.5 3
Nautical Miles

3.4.1 Profile for MCA 40: Bridgwater Bay

Location and boundaries

The Bridgwater and Blue Anchor Bays MCA encompasses the combined arc-shaped bay of Bridgwater and Blue Anchor, sitting below the entrance to the Severn Estuary and at the eastern edge of the Bristol Channel. The MCA is characterised by expansive sand, mud and gravel sediments exposed at low tide – particularly distinguished from the wider Bristol Channel (MCA 41) by low levels of shipping activity owing to the shallow waters and natural hazards present. The transition with MCA 41 is also guided by patterns of sediment geology (changing from the sand and gravel sediments of this MCA to the rock characterising the deeper waters of the Bristol Channel). The western boundary marks distinct change from open coastal flats to the high cliffs of the Exmoor National Park behind Minehead harbour. This aligns with the corresponding SCA boundary from the local [North Devon & Exmoor Seascape Character Assessment \(2015\)](#).

Overall character

This MCA comprises the wide, open expanse of mud and sandflats forming the combined large-scale bays of Bridgwater and Blue Anchor. It is a dynamic seascape, greatly influenced by its high tidal range and the shifting nature of the sand and mudflats; home to a rich array of maritime habitats and species including a wide range of fish and wetland birds (within the wider Severn Estuary SAC, SPA and Ramsar site). Evidence for human activity over millennia is preserved in the seascape, from historic shipwrecks visible at low tide, the rich archaeological heritage of the Somerset Levels telling the story of past fluctuations in sea level rise, to ancient fish weirs preserved in the mud. Historic and continuing maritime transport links with the Bristol Channel are key to character, including the landing wharf at Dunball for ships bringing in aggregates from the Bristol Channel. Sailing, fishing and coastal tourism are important activities today; the coastline including the popular seaside resorts of Burnham-on-Sea and Minehead. Hinkley Point nuclear power station is a dominant landmark in an open, largely featureless shoreline; the contrasting uplands of the Quantock Hills and Exmoor rising behind. The open seascape also affords expansive views across the Bristol Channel (MCA 41) and Severn Estuary (MCA 39) to the Welsh coast and Brecon Beacons beyond.

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 142: Somerset Levels and Moors
- 144: Quantock Hills
- 146: Vale of Taunton and Quantock Fringes

Adjacent and inter-visible nationally designated and defined landscapes

The Quantock Hills AONB rises up behind the MCA's southern coastline. Exmoor National Park and Exmoor Heritage Coast lie to the west of the MCA boundary. Although not immediately adjacent, the Mendip Hills AONB is inter-visible with the MCA to the east.

3.4.2 Key characteristics of MCA 40: Bridgwater Bay

- Wide, open expanse of drying Holocene mud and sandflats forming the combined large-scale bays of Bridgwater and Blue Anchor. The tidal rivers of the Parret and Axe drain into Bridgwater Bay.
- Shallow, frequently changing water depths owing to the high tidal range of the wider Bristol Channel – up to 10m at springs. Depths reach a maximum of 23m at the transition to the Channel (MCA 41).
- Shipping movements in and out of Burnham and the River Parrett limited to spring high tides; local pilots constantly monitoring the changing depths and lines of navigation channels.
- Exposed to west and north westerly winds. When strong, vessels are advised to avoid the area. The long bank of Culver Sands and its associated tidal streams are marked by cardinal buoys.
- A generally featureless shoreline, but of significant geological and biological interest. Wave-cut platforms create a significant rock reef system supporting a range of marine invertebrates.
- Expansive mudflats and salt meadows within the wider Severn Estuary SAC, SPA and Ramsar site, supporting diverse populations of overwintering, passage and migrant waders and waterfowl.
- Rich estuarine sediments, sand banks and reefs also internationally recognised for their rich diversity of unexploited fish, particularly the protected species of lamprey and twaite shad.
- Waters also home to commercially important juvenile fish populations, including sprat, mullet, whiting, bass, cod and flounder.
- The Somerset Levels provide rich evidence for human activity dating back to the Neolithic period, responding to fluctuations in sea level rise over the centuries.
- This includes coastal reclamation, embankments and ditches – the flat, ‘featureless’ Levels landscape hiding a rich and complex surviving archaeology, including that of a former seascape.
- Brent Knoll (139m), a conical hill rising up from flat, levels landscape inland from Burnham, acts as a natural navigational marker. An Iron Age hillfort crowns its summit.
- Nationally important Bronze Age settlement remains on the promontory of Brean Down. With likely Iron Age origins, Daws Castle was one of a series of forts and lookout posts established by King Alfred to defend against Viking raids from the Bristol Channel.
- The medieval Dunster Castle (managed by National Trust) also affords panoramic views across the Bristol Channel; in turn its turrets peep above the treeline in landward views.
- Number of historic ship wrecks, some visible at low tide. These include 19th century vessels laden with coal – foundering in gales, colliding or stranding on sand banks. Wartime losses include a German Heinkel bomber shot down in 1940.

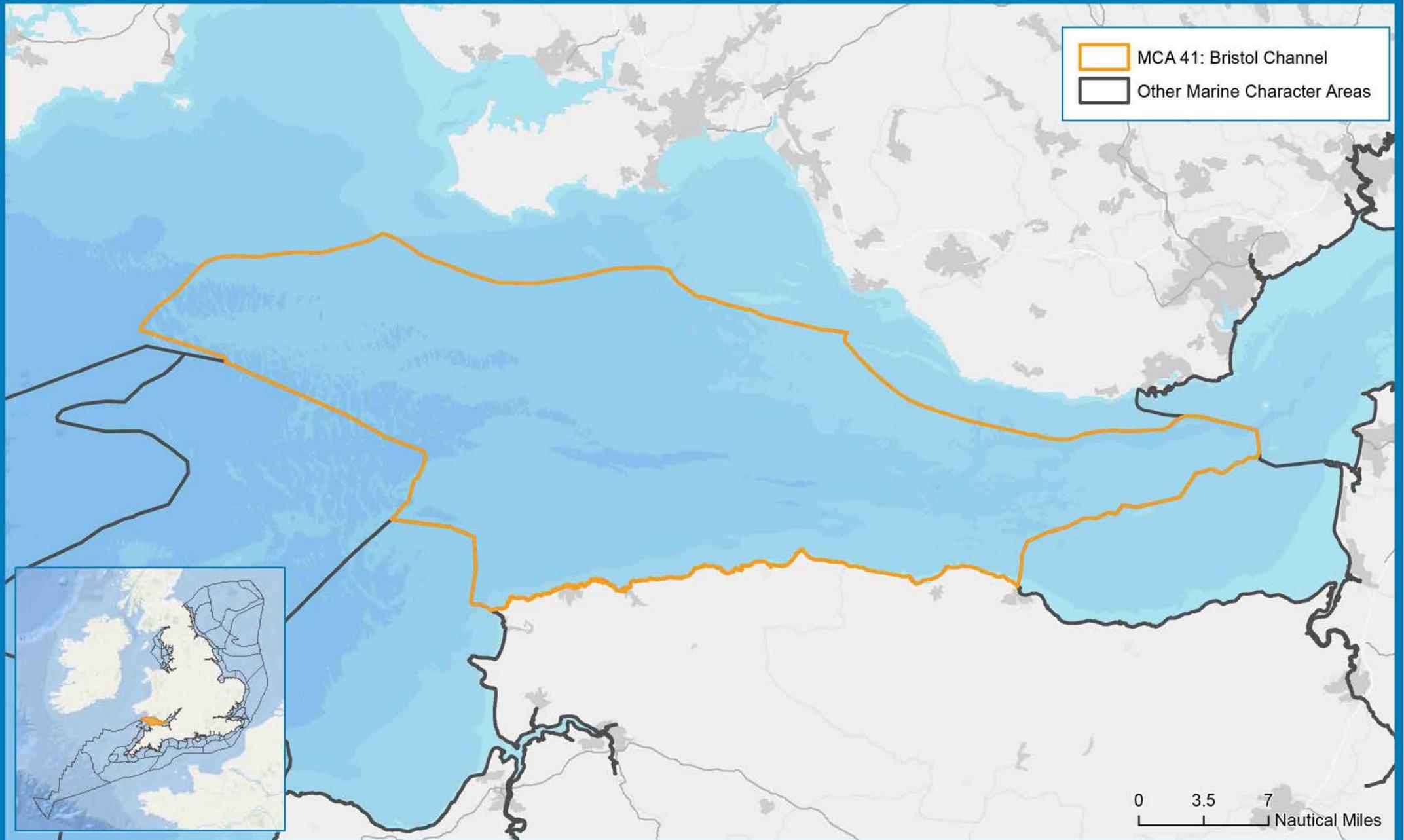
- Historic associations with international trade, particularly at Dunball Wharf on the Parrett – regularly used by ships to import salt, peat and fertilisers from Scandinavia and granite blocks from Portugal.
- Numerous ancient fish weirs on Stert Flats, the earliest dating to the 10th century. A traditional mud-horse fisherman still operates on the flats, accessing nets via a wooden sledge (mud-horse) at low tide.
- Today, stake-netting, potting and angling also takes place from along the shoreline. Anchorage for recreational boats is available at Watchet Harbour Marina, Blue Anchor Road and at sheltered points along the Brue and Parrett.
- Suction dredgers use Dunball Wharf to land aggregates extracted from the Bristol Channel (MCA 49). At Comwich a specialist Ro-Ro terminal is used by barges servicing Hinkley Point power station.
- The traditional seaside resorts of Burnham-on-Sea and Minehead (including Butlins), Watchet and a number of coastal camping/caravan sites support the local tourism industry.
- The England Coast Path traverses the coastal edge from Highbridge to Minehead.
- Hinkley Point nuclear power station forms a large, box-shaped feature looming on the immediate coastal skyline – strongly recognisable in views from offshore.
- The Quantock Hills AONB rises up behind Bridgwater Bay, linking westwards to Exmoor National Park to form an upland backcloth. The MCA forms part of the seascape setting to both protected landscapes.
- The Mendip Hills AONB extends eastwards from Brean Down, with the MCA featuring in views from the hills (along with MCA 39).
- Expansive views across the wider Severn Estuary and Bristol Channel (MCAs 39 and 41), with strong intervisibility with the South Wales coast including the Glamorgan cliffs and Brecon Beacon foothills.



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Figure 9 - MCA 41, Bristol Channel

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3.5.1 Profile for MCA 41: Bristol Channel (England)

Location and boundaries

Please note that the Bristol Channel as an entity continues into Welsh waters under the jurisdiction of Welsh Government as indicated in the map above. Therefore whilst this MCA profile focuses on the area of the Channel found within English waters, overall character flows across the administration boundary into Wales. For specific information on the Welsh side, see the published profile available on the Natural Resources Wales website [Welsh MCA28: Bristol Channel](#).

The Bristol Channel (England) MCA forms a continuation of the Wales MCA for the Bristol Channel which reflects the recognised extent of the Channel as noted by the International Hydrographic Organization. Its coastal extent takes in the high coastal cliffs of Exmoor and North Devon stretching from Minehead to Morte Point. Morte Point marks the transition to a more open character and influence of the Atlantic as the landform drops curves south into Bideford Bay. The western boundary nests above the local SCA boundaries defined by the Seascape Character Assessment for North Devon and Exmoor (2015), which were influenced by a distinct change in seabed habitats. The MCA also encompasses the rocks and overfalls associated with Horseshoe Rocks off Bull Point, as marked on the marine charts. A small part of the MCA lies to the north of MCA 40, reflecting a continuation of the Channel's extent back into the south west marine plan area from Wales.

Overall character

The Bristol Channel MCA extends up to approximately 20km offshore from the North Devon and Exmoor coast, with a sense of enclosure increasing in the east as the channel narrows. Its bathymetry and seabed topography is influenced by the presence of sand and gravel banks which form havens for seasonal variations of fish species, including commercially important stocks. It is characterised by channels running perpendicular to the east-west tidal currents and the second largest tidal range in the world. The area is highly exposed to weather rolling in from the Atlantic, creating areas of high wave climate in the west. It has strong historical and current associations with maritime trade and transport (a number of shipwrecks tracing historic shipping routes), with human activity continuing to have a strong influence on character. Extensive, open views across the waters are available to the contrasting coastlines of the industrialised sections of the South Wales coast and the remote coastline of Exmoor and North Devon to the south, with its high rugged cliffs and dark night skies.

At a local level, the Bristol Channel (England) MCA falls within 12 SCAs with more detailed descriptions described in [North Devon & Exmoor Seascape Character Assessment \(2015\)](#) (including of the adjacent coast)

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 145: Exmoor
- 146: Vale of Taunton and Quantock Fringes

Adjacent and inter-visible nationally designated and defined landscapes

A large proportion of the adjacent coastline is within Exmoor National Park, with the western part falling within the North Devon AONB. Apart from the section around Ilfracombe, the entire adjacent coastline is also defined as Heritage Coast (Exmoor and North Devon).

3.5.2 Key characteristics of MCA 41: Bristol Channel (England)

- Distinctive channel with water depths ranging between 14 and 46 metres. A sense of enclosure increases in the east as the channel narrows.
- Framed by the dramatic Exmoor and North Devon coastline, including the highest sea cliffs in England & Wales at Great Hangman. Long sections along coast are SSSI or SAC-designated.
- Jurassic mudstone, sandstone, limestone and clay seabed, in parts overlain by thick Holocene-derived deposits of sand and gravel.
- Horseshoe Rocks located off Bull Point; a large linear dolerite dyke intruding into the surrounding Devonian strata. A lighted buoy directs vessels north around this treacherous area of sea.
- Strong tidal movements combined with suspended sediment resulting in high levels of turbidity. Along with the Severn Estuary, the Bristol Channel has the second highest tidal range in the world.
- Channels running perpendicular to east-west tidal currents, which accelerate in the east due to the funnelling effect of the land. The seabed retains traces of the palaeochannels of the River Severn.
- Areas of circalittoral rock and biogenetic reefs home to tide-swept faunal communities. Harbour porpoises, grey seals and dolphins can be sighted, particularly in the west. Coastal waters are within the Bideford to Foreland Point MCZ, whilst part of the North of Lundy proposed MCZ extends into the MCA to the north-west.
- Sand and gravel banks forming havens for fish, including commercially important stocks of cod, plaice, bass, sole, turbot, whiting, pouting and all species of ray. Rocky coastal waters host lobster and crab.
- Known vulnerability of the surrounding coastline to Atlantic conditions over the centuries, including a massive flood event in 1607 thought to have been caused by a storm surge.
- Long-standing strategic role of Channel as a trade route and entry point into Britain, including by Roman and Viking fleets. Famous stories of smuggling are associated with parts of the coast.
- Number of ship wrecks tracing the historic shipping routes, associated with treacherous waters (e.g. off Foreland Point and around Horseshoe Rocks), and mined during WWII. These form valued artificial reefs and dive sites.
- D-Day landing fleets passed through these waters. A trial pipeline remains on the seabed from Operation PLUTO², supporting the D-Day landings.
- Numerous disused and active telecommunications cables crossing the seabed, including the Hibernia Express network connecting North America, the UK and Europe.

² PLUTO stands for Pipelines Under The Ocean – see <http://d-dayrevisited.co.uk/planning/operation-pluto.html>

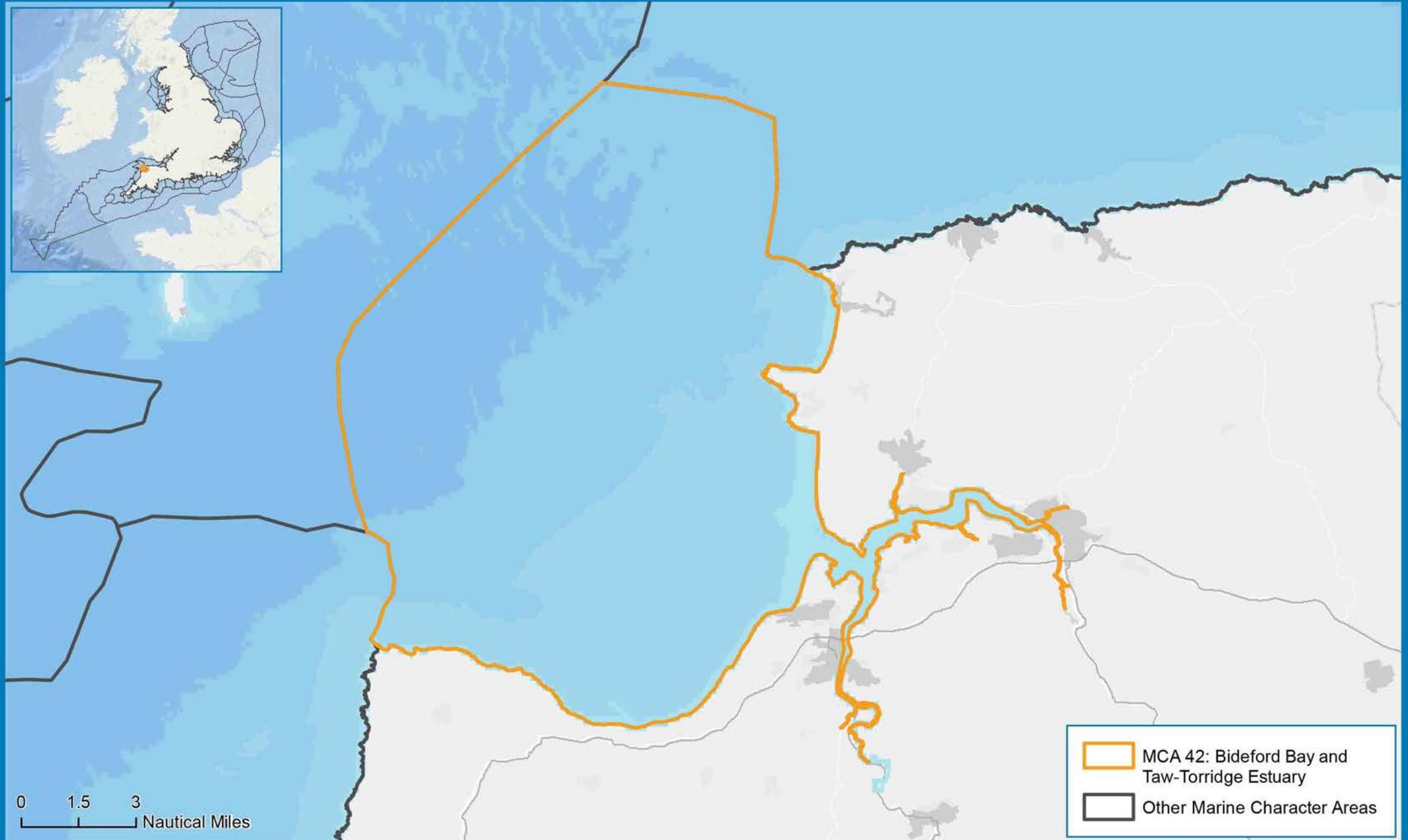
- Strong tidal resource being explored as a source of renewable energy, including the world's first test site for an open-sea turbine off Foreland Point and through the North Devon Tidal Zone.
- Recreational sailing and cruising routes linking destinations along both the Welsh and English coasts, including charters by historic vessels including the MV *Balmoral* and *Waverley* paddle steamer.
- Flashing navigation marks contributing to night-time character, including the lighthouse beams from Nash Point (Glamorgan), Foreland Point, Bull Point and distant views to Lundy North Light.
- The low profile of Lundy featuring in long views from the west; the islands of Flat Holm and Steep Holm visible to the east.
- Distinctive cross-channel views, including from the South West Coast Path, to the flat-topped light golden cliffs of the Glamorgan coast, foothills of the Brecon Beacons and the recognisable profile of Worm's Head (Gower AONB).
- Contrasting views to industrialised sections of the South Wales coast (including wind turbines on distant hills) and the largely undeveloped coastline of Exmoor and North Devon AONB to the south, with high rugged cliffs backed by rounded moorland / downland hills.
- The MCA forms part of a wider maritime/seascape setting to Exmoor National Park and the North Devon AONB.
- Localised hubs of activity relating to the harbours at Lynton / Lynmouth, Combe Martin and Ilfracombe – supporting traditional fishing fleets and coastal tourism, including water sports.
- Coast and seascape long providing artistic inspiration to many, including Coleridge, Henry Williamson and Damien Hirst (his 20m *Verity* statue towering above Ilfracombe harbour).
- Exposure to weather rolling in from the Atlantic creates areas of high wave climate, along with an associated sense of danger during stormy conditions.
- Regular glimpses of large-scale container ships and tankers travelling to and from the surrounding major ports, reinforcing its sense of place and long-standing role as a major seafaring route.



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Figure 10 - MCA 42, Bideford Bay and Taw-Torridge Estuary

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	MCA 42: Bideford Bay and Taw-Torridge Estuary
	Other Marine Character Areas

3.6.1 Profile for MCA 42: Bideford Bay and Taw-Torridge Estuary

Location and boundaries

The Bideford Bay and Taw-Torridge Estuary MCA encompasses the inner and outer Bideford Bay, as marked on the marine charts. It covers the sheltered waters of the bay, and as such excludes the overfalls, turbulence and higher levels of tidal power associated with Hartland Point and Horseshoe Rocks at either opposing points of the Bay. The outer (western) MCA boundary marks the transition to more open/exposed Atlantic waters; whilst the northern boundary marks the edge of the Bristol Channel (MCA 41). The MCA includes the tidal extents of the Taw/Torridge Estuary which forms a major feature draining into the centre point of the Bay. Both the extent of the bay and that of the estuary are informed by the local SCA boundaries defined by the Seascape Character Assessment for North Devon and Exmoor (2015).

Overall character

The sweeping north-west orientated Bideford Bay is characterised by a predominantly sandy seabed supporting rich commercial fisheries and attracting seabirds and cetaceans. Areas of biogenetic reef, sandy shores and rock pools form valued habitats, recognised within the Bideford to Foreland Point MCZ. Draining into the bay, the large combined Taw-Torridge Estuary is fringed by nationally important wetlands, supporting a range of bird and fish species, whilst the prominent internationally designated dunes at Braunton Burrows fringe the estuary mouth. Ship wrecks on the sea floor are testament to a long history of maritime trade and transport, including the timber trade between Newfoundland and Bideford (a working historic port on the banks of the estuary). The sheltered waters provide opportunities for a range of recreational activities, along with the popular sandy beaches at Woolacombe, Croyde, Saunton and Westward Ho!. The open bay is defined by its panoramic, uninterrupted views out to sea - featuring Lundy and distant glimpses of the Welsh coast. Seascape character is strongly influenced by visual and cultural links to the coastline surrounding the bay, with its complex and varied forms and coastal landmarks, including the prominent Hartland Point lighthouse.

At a local level, the Bideford Bay and Taw-Torridge Estuary MCA falls is divided into 10 SCAs with more detailed descriptions in [North Devon & Exmoor Seascape Character Assessment \(2015\)](#).

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 145: Exmoor
- 149: The Culm
- 159: Lundy

Adjacent and inter-visible nationally designated and defined landscapes

All of the adjacent coastline (apart from the inner estuary) falls within the North Devon AONB, with the vast majority also defined as Heritage Coast (North Devon to the north and Hartland to the south).

3.6.2 Key characteristics of MCA 42: Bideford Bay and Taw-Torridge Estuary

- Large area of open water contained within the north-westerly orientated Bideford Bay, with outer depths reaching 50m. Draining into the central bay, the Taw-Torridge Estuary is a key feature.
- Seascape sheltered by the bay's shape, orientation and position of Hartland Point – buffering the prevailing south-westerlies.
- Moderate tidal streams, although the outgoing current from the estuary causes localised rough seas across the shallow Bideford Bar – a notorious wrecking site.
- Diverse coastline including the wooded cliffs and rocky foreshore of the Clovelly coast, sand dunes and tidal flats fringing the estuary, and wide sandy beaches and rocky cliffs from Saunton to Woolacombe Bay.
- Seabed underlain by Devonian and Carboniferous mudstones and sandstones, topped by an assemblage of dynamic sediments, sand ridges and mud troughs. It supports high benthic species and biotope diversity.
- Rich marine biodiversity Morte Platform proposed MCZ includes a unique range of sandy and rocky seabed habitats rarely found elsewhere. Wave-cut platforms, sandy shores, rock pools and biogenetic reefs are valued within the Bideford to Foreland Point MCZ.
- Important for seabirds including diving shearwaters and gannets and puffins. Harbour porpoises, grey seals, dolphins (and occasionally orca) can be sighted.
- Taw-Torridge Estuary designated as SSSI, with diverse wetlands, unique tide-swept channels, nursery areas for fish and feeding grounds for colonies of wetland and sea birds.
- Varied coastal habitats and geology of national and international importance, including the dynamic dune system of Braunton Burrows, second largest in the UK and central to the North Devon UNESCO Biosphere Reserve.
- Significant inter-tidal archaeology including Mesolithic middens and flint artefacts at Westward Ho!.
- Long history of maritime trade and exchange of materials between Bristol Channel ports, Wales and worldwide – including the timber trade between Bideford and Newfoundland.
- Working traditional port of Bideford and shipyard at Appledore, dry docks, numerous jetties and slipways dot the banks of the estuary. The medieval 24-arch Bideford Long Bridge is a key local landmark.
- Small number of wrecks, including the British Steamship, the *Thistle-mor*, which foundered in 1909 during a violent gale. Wrecks form popular destinations for diving and fishing trips.
- Waters used for low-intensity commercial potting (mainly lobster), as well as a key trawling ground for the North Devon fleet, mostly targeting plaice and ray. Continental trawlers also visit the bay.

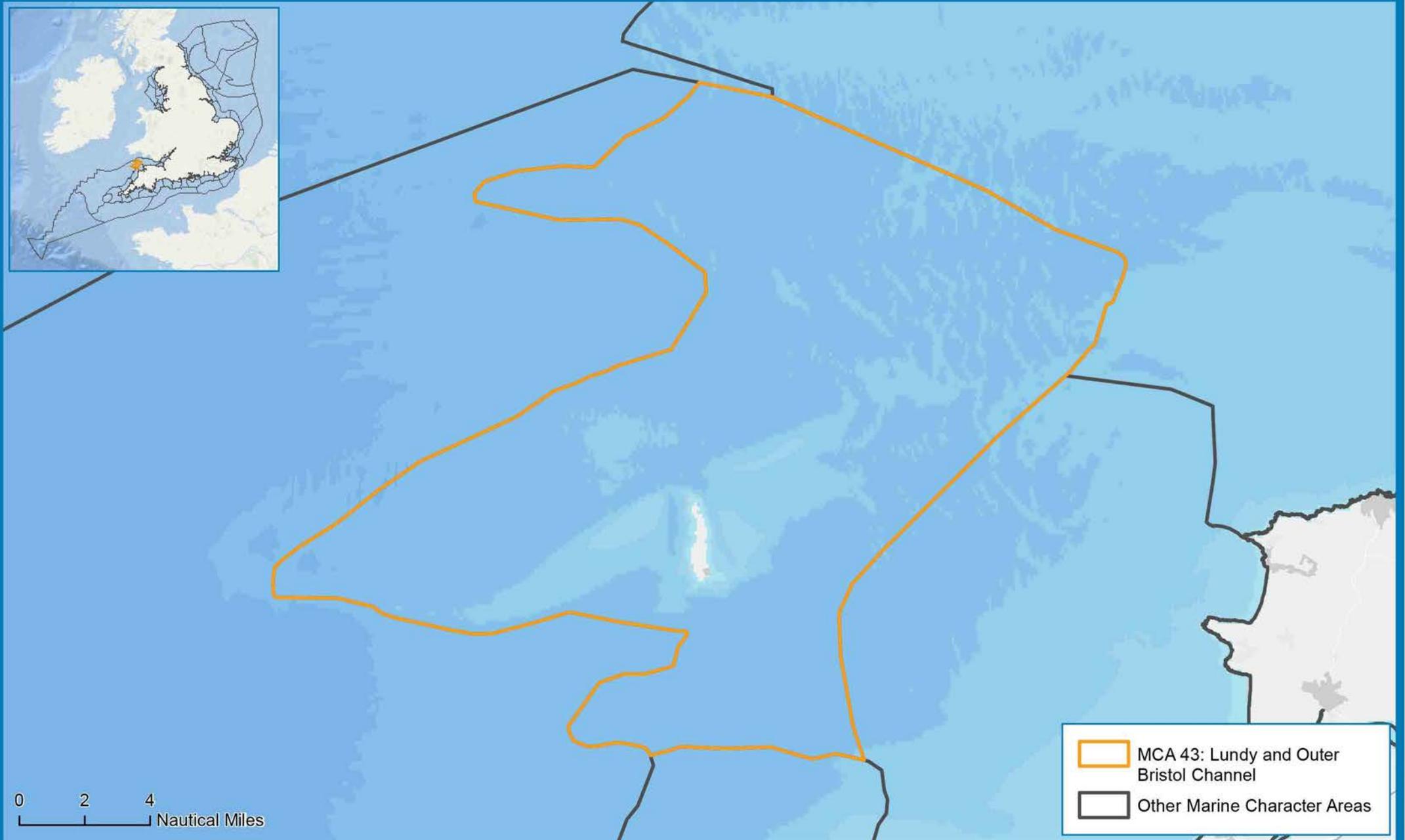
- Recreational boat charters also visit these waters for sightseeing and fishing, with local operators based at Bideford, Appledore and Clovelly. The MV *Balmoral* and other charter boats take passengers to and from Lundy (MCA 43).
 - Royal Yacht Association sailing routes cross through the bay, whilst occasional cargo ships pass the outer bay en-route to/from the Bristol Channel (MCA 41).
 - Atlantic West and Western Europe submarine cables cross the area, with a landing station at Saunton.
 - Perceptual qualities varying according to prevailing weather conditions – the pervading sense of shelter and calm rapidly shattered in north or north-easterly gales. The estuary provides contrasting sense of enclosure to the wider bay.
 - Contrasting activity and development associated with the busy coastal resorts of Woolacombe, Croyde and
- Westward Ho! The sandy beaches are a particular draw, including for surfers.
- Panoramic views including from the South West Coast Path; landmarks including Morte and Baggy Points, the sandy beaches and dunes at Woolacombe, Croyde and Saunton, and Hartland and Bull Point lighthouses.
 - Lundy's distinctive long, low profile forming a characterful feature in the west. Far-reaching views are also afforded from the north of the MCA to the Gower AONB and Pembrokeshire coasts.
 - The MCA forms part of the wider seascape setting to the North Devon AONB and component Heritage Coasts.
 - It has long provided artistic and literary inspiration; including the estuary's famous setting for Henry Williamson's *Tarka the Otter* and in watercolours by J.W.M Turner.



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Figure 11 - MCA 43, Lundy and Outer Bristol Channel

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0 2 4
Nautical Miles

-  MCA 43: Lundy and Outer Bristol Channel
-  Other Marine Character Areas

3.7.1 Profile for MCA 43: Lundy and Outer Bristol Channel

Location and boundaries

The Lundy and Outer Bristol Channel MCA comprises the rocky island of Lundy – the largest island in the Bristol Channel – and its surrounding waters. The outer (western) boundaries of the MCA are informed by distinct seabed topography, as reflected in patterns of bathymetry and depicted on the marine charts. The MCA includes the waters and offshore rocks/bars and overfalls associated with Lundy, including The White Horses, Stanley Bank and North West Bank. The inner (eastern) boundary marks the transition to the calmer, sheltered waters of Bideford Bay and is consistent with the local SCA boundary defined by the Seascape Character Assessment for North Devon and Exmoor (2015). The MCA includes the majority of the North of Lundy MCZ and North West of Lundy proposed MCZ.

Overall character

Lundy is a flat-topped island in the Bristol Channel, located between the North Devon coast and the Gower and Pembrokeshire coasts in Wales. It forms an important focal point in views from these coasts and within the channel. Spectacular cliffs define Lundy's coastal edge, the western waters of the MCA (and coast of Lundy) exposed to strong tidal currents and Atlantic swells. The island's clear waters and varied seabed host nationally important maritime habitats which are a haven for marine wildlife including seals and colonies of seabirds; further offshore coarse sand and gravel sediments below deep waters of up to 60m support commercially important fishing grounds. The island and its surrounding waters are rich in archaeological heritage and steeped in maritime legend; a dense concentration of wrecks (now popular dive sites) testament to the rough seas and position of the area within historic trading routes. Lundy is a valued destination for visitors seeking a range of experiences and recreational activities above and below the water. It is defined by its undeveloped character, rich marine biodiversity, uninterrupted views across the open Atlantic, and strong visual and cultural connections with the surrounding seascapes.

At a local level, the Lundy and Outer Bristol Channel MCA is included within three SCAs with more detailed descriptions available from the North Devon AONB website [here](#).

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 159: Lundy

Adjacent and inter-visible nationally designated and defined landscapes

All of Lundy is defined as Heritage Coast. Whilst not immediately adjacent, the MCA is also inter-visible with parts of the North Devon AONB, Exmoor National Park, Pembrokeshire Coast National Park and Gower AONB (and their corresponding Heritage Coasts).

3.7.2 Key characteristics of MCA 43: Lundy and Outer Bristol Channel

- Large area of open water contained within the north-westerly orientated Bideford Bay, with outer depths reaching 50m. Draining into the central bay, the Taw-Torrige Estuary is a key feature.
- Flat-topped island of Lundy forming a focal point in an empty and undeveloped sea; formed primarily of Tertiary granite with spectacular cliffs and volcanic intrusions battered by westerly Atlantic weather systems.
- Nationally important cliff-top habitats (most of Lundy is SSSI) including heath and maritime grasslands with unique flora and fauna, including the endemic Lundy cabbage.
- Island encircled by strong tidal races and overfalls associated with granite/slate reefs, rocks and sand banks at East Bank, Stanley Bank and North West Bank; notorious navigational hazards.
- Mixed bedrock geology of mudstones, sandstones and limestones, predominantly Jurassic in age. Major fault zone of the Sticklepath-Lustleigh fault trending north west – south east extending to Bovey Tracey and Newton Abbot in south east Devon.
- Shallow coarse circalittoral sand and gravel sediments overtopping the bedrock, exposed to a moderate energy environment. Sediments punctuated by boulders and bedrock protrusions.
- Mobile sediments sometimes creating isolated asymmetric sand waves up to 10m in height. They also form habitats for polychaete worms, bivalves and amphipods; as well as epifaunal communities.
- Diverse complex of marine habitats in Lundy's waters, designated as MCZ, proposed MCZ and marine SAC. The island is renowned for its seasonal seabird colonies, including the emblematic puffin.
- Lundy is also home to a colony of grey seals, with the surrounding waters visited by basking sharks, sunfish, dolphins, porpoises, pilot and minke whales and orca.
- Important spawning area for commercially fished species including sprat, cod, sole, whiting and plaice. Seasonal populations of squid and sharks are also found, as well as shellfish and molluscs including lobster, crab, scallops and whelks.
- Rich shipwreck heritage with over 200 ships lost to the island's turbulent seas. These include the protected wrecks of the *Iona II* (1864) and at Gull Rock (15th to 16th century). Victims of WWII torpedo attacks are dispersed throughout.
- Lundy's rich and chequered history illustrated by a dense concentration of Scheduled Monuments, from early Christian memorial stones to the 13th century Marisco Castle. Legends of notorious island residents, smuggling and lawlessness abound.
- Vessels guided through the hazardous seas by the long flashing beams of the 19th century Lundy North Light and Bull Point Lighthouse on the mainland. The early 19th

century 'Old Light' remains as a prominent daytime landmark visible in long views from the mainland.

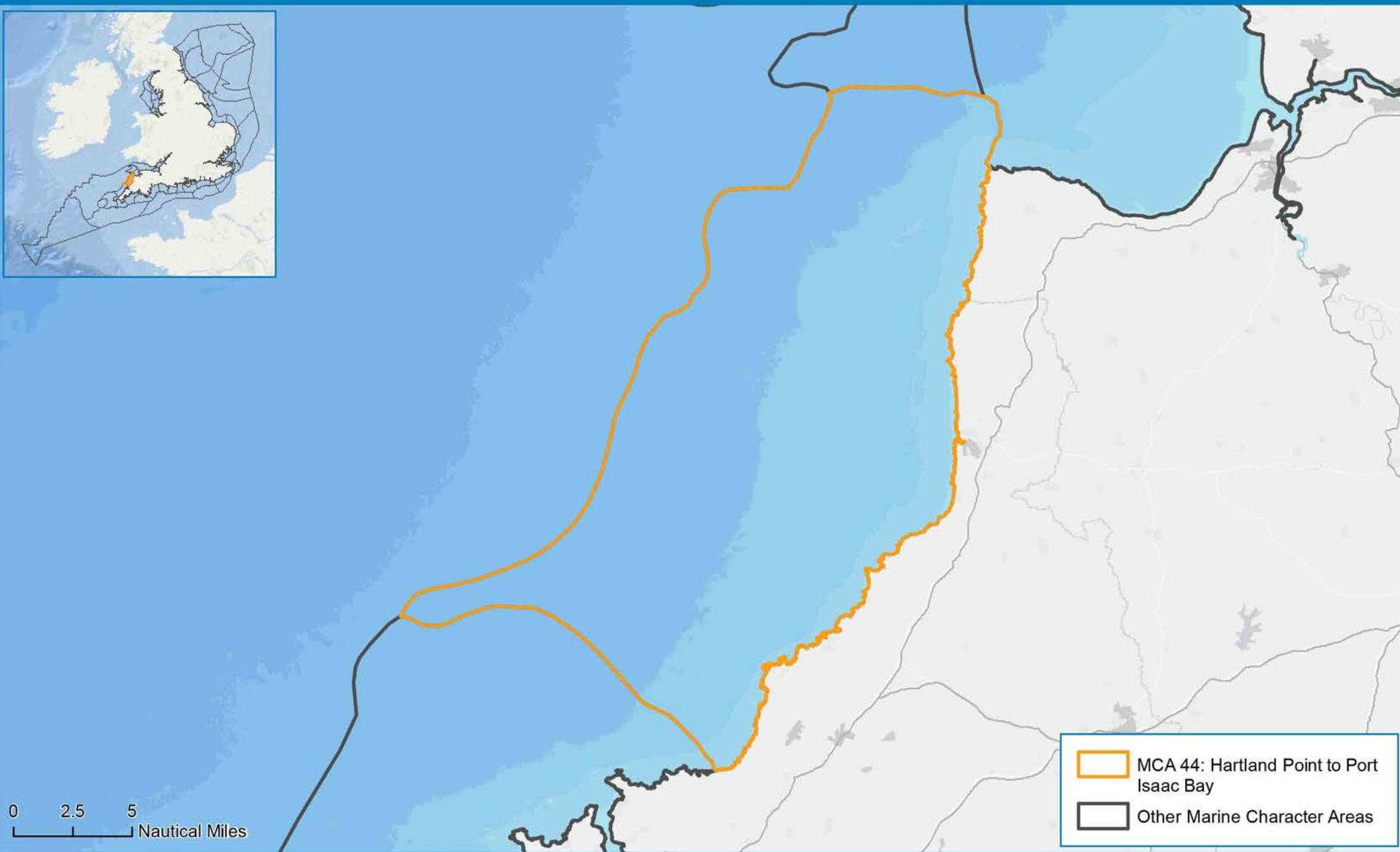
- Historic fishing grounds of medieval origin, with continuing importance for local and UK boats and some visiting Belgian and French trawlers, plus some limited netting.
- Lundy valued as 'jewel in North Devon's crown', offering a range of experiences and activities both above and below the water. The east coast's clear waters and wreck sites are a particular draw for divers and snorkelers.
- Long-standing connections with Bideford and Ilfracombe as disembarkation points for trips to Lundy. Charter boats and historic cruisers bring visitors via Bideford Bay (MCA 42).
- Commercial shipping routes crossing through the area - with up to 5,000 ships passing through the area annually travelling to/from the area's major ports including Avonmouth.
- Seabed crossed by several disused and active trans-Atlantic telecommunications cables, including the recently completed Hibernia Express network connecting North America and Europe.
- Royal Yacht Association sailing routes link Lundy with the Welsh coast and Padstow.
- Forms a key part of the undeveloped seascape setting to surrounding designated landscapes, with strong intervisibility with the Gower AONB and Pembrokeshire Coast National Park in Wales and the North Devon AONB and Exmoor National Park in England.
- In clear conditions views are available between Lundy and Caldey Island (Pembrokeshire), with potential mythological/cultural links between them.
- Western MCA characterised by wide, open views of the empty Atlantic Ocean. With up to 70 kilometres between Hartland Point and St Govan's Head, a strong sense of isolation prevails.
- Seascape at the mercy of the elements, defined by the ever-present influence of the sea. It presents a challenging and exhilarating 'wilderness' experience to visitors to Lundy.
- Sense of remoteness broken by passing maritime transport and fishing trawlers, introducing bursts of colour, movement and noise.



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Figure 12 - MCA 44, Hartland Point to Port Isaac Bay

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0 2.5 5
Nautical Miles

- MCA 44: Hartland Point to Port Isaac Bay
- Other Marine Character Areas

3.8.1 Profile for MCA 44: Hartland Point to Port Isaac Bay

Location and boundaries

The Hartland to Port Isaac Bay MCA stretches from Hartland Point in Devon south to Tresungers Point in Port Isaac Bay, Cornwall. It extends offshore to encompass inshore waters up to 26km from the coast, the outer boundary influenced by sediment geology (sand) and bathymetry as marked on the marine charts, reaching a maximum of 56m depth in the south west. The northern boundary takes in the rough, high energy waters off Hartland Point (including Hartland Race tidal stream), forming transition to calmer waters of Bideford Bay (MCA 42) in the lee of Hartland Point – as also recognised in the local Seascape Character Assessment for North Devon & Exmoor (2015) and depicted on the marine charts. The southern boundary in Cornwall marks the transition from the wild, often remote character of this MCA to the more developed character to the south west. It is also informed by patterns in sediment geology (change from sand to coarse sand/gravel sediments).

Overall character

This is an exposed, wild and rugged seascape open to the full brunt of the Atlantic, backed by flat-topped, sheer coastal cliffs with renowned folded and faulted strata and waterfalls plunging to the sea. The cliff bases are characterised by extensive wave-cut platforms. Jagged reefs extending out from Hartland Point along with submerged pinnacles create hazards to navigation (marked by the prominent Hartland Point lighthouse). Crashing waves, swirling white water and foam characterise the sea surface, and the coastline is a surfing hotspot. The area is rich in coastal and marine wildlife (much designated as SAC or MCZ) as well as cultural associations with early human occupation, maritime trade, smuggling and shipwrecks. Views extend westwards across the Atlantic ocean and there is strong intervisibility with adjacent seascapes, including North Cornwall and to Lundy to the north-west. Associated with Arthurian legends, Tintagel Castle, situated on a dramatic rocky headland, is a key draw for visitors to the area.

At a local level, the northern part of the MCA adjoining Torridge District is included within three SCAs with more detailed descriptions (including of the adjacent coast) available from the North Devon the North Devon AONB website [here](#).

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 149: The Culm
- 152: Cornish Killas

Adjacent and inter-visible nationally designated and defined landscapes

The coastline between Hartland Point and Bude falls within the North Devon AONB and Hartland Heritage Coast. From Widemouth Bay south, the adjacent coastline is within the Cornwall AONB and Pentire Point-Widemouth Heritage Coast.

3.8.2 Key characteristics of MCA 44: Hartland Point to Port Isaac Bay

- Highly exposed, west-facing seascape, open to the full force of the Atlantic Ocean.
- Gently shelving seabed reaching a maximum of 20m depth, underlain by Devonian and Carboniferous mudstone, sandstone and limestone.
- Flat-topped, sheer coastal cliffs with renowned folded and faulted strata and waterfalls plunging to the sea. Striking wave-cut platforms, sea caves and jagged reefs exposed at low tide. Lower, unstable cliffs with sandy beaches found to the south.
- Notorious tidal race, reefs and pinnacles off Hartland Point; surf running up to a mile offshore in winter storms. Dangers are marked by the Hartland Point lighthouse (1874).
- Veneer of high energy sand and gravel sediments with areas of reef, pink sea fan corals, fragile sponges and mussel beds. Reef-building tubeworm populations considered some of the finest in Britain (most of the coastal waters designated as Hartland Point to Tintagel MCZ).
- Coastal habitats of national and international importance (majority designated as SAC), including mosaics of maritime grassland, heath and scrub. Vegetation largely absent from exposed cliff faces.
- Seabirds including gannets, cormorants and shearwaters gathering on rock outcrops and feeding from the coastal waters; red-throated divers are associated with the waters off Hartland Point.
- Varied fish species including mackerel, cod, whiting, bass, pollock, black bream, flat fish and sharks. A sprat spawning area is found west of Hartland Point, whilst a ray fishery is located off Bude.
- Spider crabs, edible crabs and lobsters found along the exposed or rocky shorelines. Seals, dolphins, porpoises (and occasionally Porbeagle sharks) visit the waters.
- Known as the 'Iron Coast', referencing the area's many shipwrecks. Hartland Point was thought to have been known as 'the promontory of Hercules' by the Romans.
- Number of nationally important ancient burial sites and Iron Age hillforts in commanding cliff-top positions, including Embury Beacon.
- With its mythical connotations and associations with Arthurian legend, the ruins of the 13th century Tintagel Castle and earlier settlement are a popular tourist draw, on a dramatic rocky headland.
- Local produce including grain exported from Hartland Quay and Bude in the 16th to 19th centuries; coal and lime was also imported from Wales – transported to further destinations via the Bude canal.
- Disused coastal quarries, mines and former mill buildings providing further evidence of past industry. The coastline is also strongly associated with tales of smuggling.

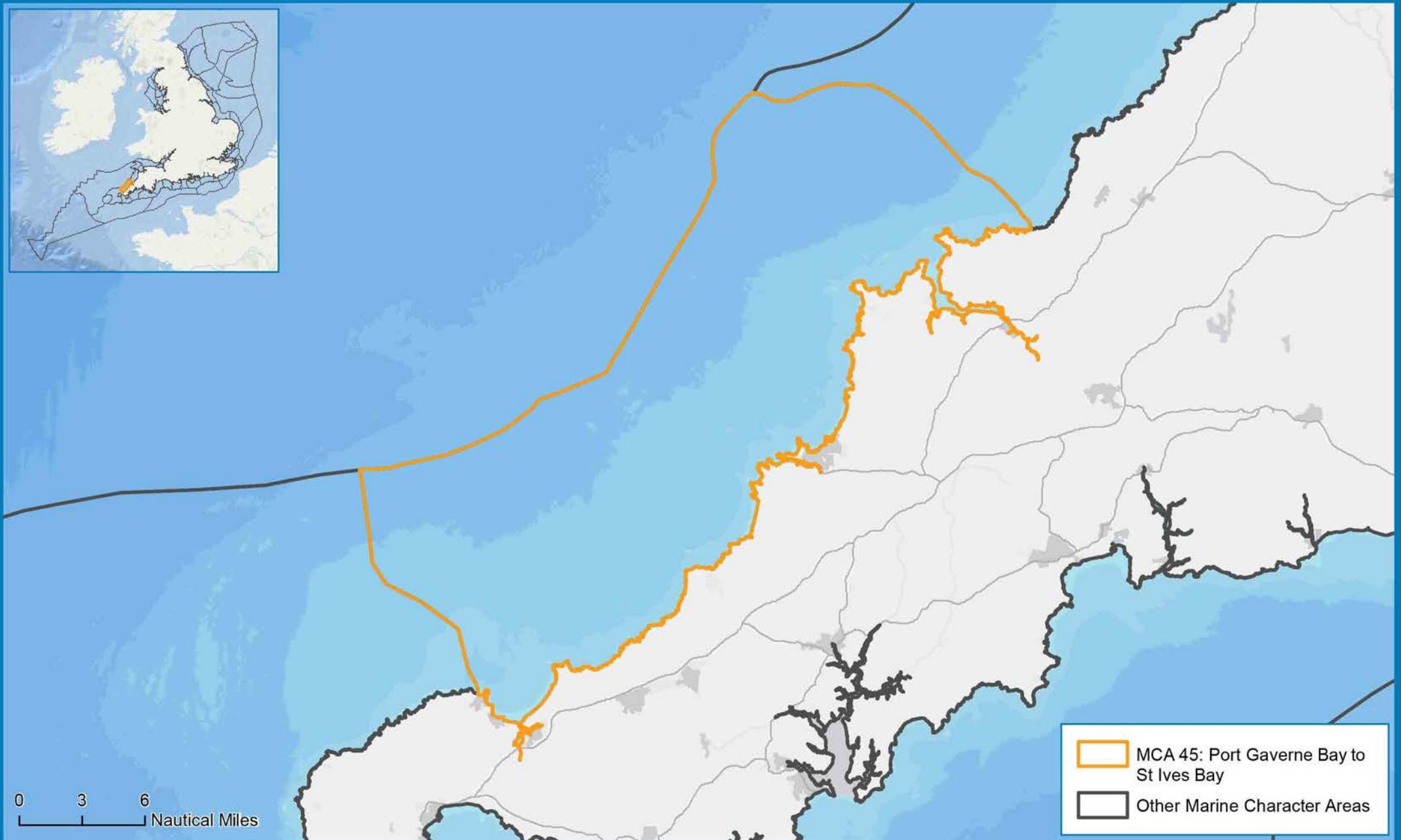
- Generally low levels of fishing activity owing to exposure. 'The Patch' off Bude is trawled for ray, whilst lobster and crab potting takes place within the rocky waters. Charter boat trips and beach fishing take place at Bude.
- Number of submarine telephone cables crossing the seabed to make landfall at Bude and Widemouth Bay, including connections with Ireland, Portugal and Africa.
- Popular coastline for walking (South West Coast Path), climbing, coasteering, rock-pooling, crabbing and geology study. The coastline is renowned for its surf beaches.
- An exposed, wild and dramatic seascape, with levels of remoteness emphasised by an absence of development along long stretches of the coast. Bude is the only significant settlement adjoining the MCA.
- Strong intervisibility with adjacent seascapes, including along the North Cornwall coast and the iconic view of the end-on profile of Lundy to the north- west.
- The MCA forms part of the wider maritime seascape setting to the two AONBs and sections of Heritage Coast.
- Hartland Point lighthouse and adjacent radar dome visible from long distances across Bideford Bay. Further south, the Government Communications Headquarters (GCHQ) station at Morwenstow and several wind turbines punctuate the open plateau.
- Popular film and television setting. Associations with Thomas Hardy at St Juliot and Boscastle. This wild and dynamic seascape continues to provide literary and artistic inspiration to many.



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Figure 13 - MCA 45, Port Gaverne Bay to St Ives Bay

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3.9.1 Profile for MCA 45: Port Gaverne Bay to St Ives Bay

Location and boundaries

The Port Gaverne Bay to St Ives Bay MCA) covers the open coastal waters off the north coast of Cornwall, its seaward boundary with MCA 51: Bristol Channel Approaches extending up to 25 kilometres from the coast, generally following changes in bathymetry and sediment geology. The western boundary includes the offshore renewable energy areas and marks the edge of the deeper waters of the Atlantic. The coastline includes the sheltered ports and development related to Padstow, Newquay and St Ives. Its north-eastern and south-western boundaries mark a change in character to the wilder, more remote seascapes of MCA 44: Hartland Point to Port Isaac Bay and MCA 46: Penwith Maritime respectively.

Overall character

This is an open seascape fully exposed to the force of the Atlantic and susceptible to swells and inshore gales. The coastline is characterised by eroding slate cliffs and rocky headlands, interspersed by sheltered coves and sweeping sandy beaches backed by sand dunes and estuaries. The submerged rocky reefs, shallows and sand bars create navigational hazards which are marked by lit buoys and lighthouses.

The area is rich in coastal, estuarine and marine wildlife (much designated as SAC or MCZ), as well as cultural associations with wrecking and shipwrecks, coastal mining and maritime trade. The potential for harnessing the MCA's high wave energy is being explored through renewable energy testing sites. Sandy beaches are a draw for summer visitors, including, and tourist development stretches from the harbour settlements along the coast. There is a strong visual connection with the adjacent MCAs along the coast and panoramic views out to the Atlantic Ocean from the high cliffs. The area has inspired writers and artists through history, including the St Ives School of Painting in the early 20th century.

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 152: Cornish Killas

Adjacent and inter-visible nationally designated and defined landscapes

Extensive lengths of the coastline are included within the Cornwall AONB and Heritage Coasts (east to west: Pentire Point - Widemouth, Trevoze Head, St Agnes, Godrevy – Portreath and a small part of Penwith). The coast around St Agnes falls within the wider Cornwall and West Devon Mining Landscape WHS in recognition of its important role in the historic mining of copper and tin.

3.9.2 Key characteristics of MCA 45: Port Gaverne Bay to St Ives Bay

- Open seascape off Cornwall's north coast, exposed to the full force of the Atlantic.
- Gently shelving seabed reaching a maximum depth of around 50 metres, underlain by Devonian and Carboniferous mudstones, sandstones and limestones.
- Bedrock topped by a thin covering of sand and gravel sediments; exposed off Trevoze Head due to high wave energy. Submerged rocks, reefs, shallows and sand bars create navigational hazards.
- Rough sea conditions due to the prevailing westerly winds combined with the long 'fetch' across the Atlantic Ocean. The exposed seascape is susceptible to swells and inshore gales.
- Backed by a rugged coastline with sheer, eroding slate cliffs and rocky headlands, interspersed by sheltered coves and sweeping sandy beaches backed by sand dunes and estuaries.
- Varied coastal habitats defined by robust flora and fauna adapted to withstand Atlantic exposure. Internationally important, floristically rich dunes and dune slacks are found at Pendale Dunes, whilst the cliffs from Godrevy Head to St Agnes support rich heathland communities.
- Extensive designated MCZs around Padstow and Newquay, hosting a wide range of maritime habitats from rocky reefs supporting species such as the giant goby, to the more sheltered rock, mud and salt marsh habitats found in the River Camel and Gannel Estuaries providing nursery grounds for various fish.
- Exposure combined with an array of submerged hazards and unpredictable sea conditions has resulted in a large number of shipping losses. The aptly named Doom Bar, off Padstow, has claimed some 600 victims in the last 200 years.
- Dangerous rocks and reefs marked by lit buoys and lighthouses, including the 19th century Godrevy lighthouse (made famous by Virginia Woolfe's novel *To The Lighthouse*).
- Disused coastal quarries and mines associated with internationally important mining heritage (WHS), particularly around St Agnes, Hayle and Portreath. Copper and slate were exported from local pier ports from the 17th century.
- Medieval fishing ports such as St Ives and Newquay were famous for their pilchards. Larger estuarine ports, such as Padstow and Hayle, maintained a coastal trade, exporting ores and importing coal from Wales and timber from Canada for boat building.
- Today visiting trawlers to Padstow exploit the brief spring fishery for Dover sole, while larger gill netting boats target hake and monkfish further offshore. Smaller boats work inshore landing shellfish.
- Wrecks and rocky reefs provide fishing grounds for pollock, ling, turbot, monkfish, conger eels and rays.

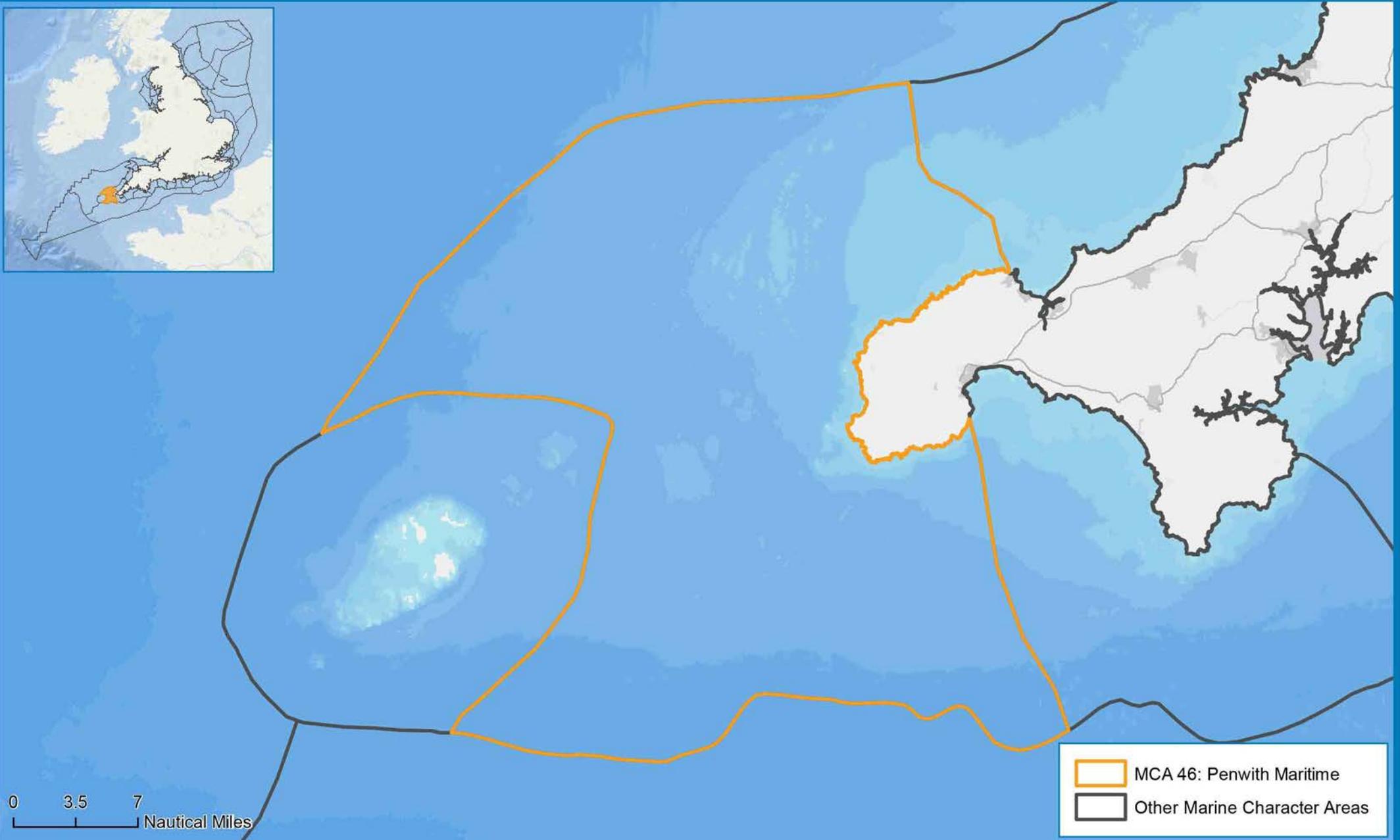
- Off St Ives/Hayle, the Wave Hub is exploring the potential for harnessing the MCA's high wave energy. A number of submarine cables cross the seabed, including at Ligger Bay which is marked as a hazard for anchoring or fishing.
- The majority of the MCA is used by the military for firing practice; however no access restrictions are imposed due to generally low levels of shipping within the waters and large area of the range.
- A coast dominated by tourism and recreational use. Newquay and St. Ives are two of the largest resorts in Cornwall. The windswept sandy beaches are popular with holiday makers, particularly surfers. Tourist development including caravan parks stretch from the harbour settlements along coastal cliffs and beaches.
- Panoramic views from the high cliffs along the North Cornwall coast, to North Devon, and out to the Atlantic Ocean. This includes vistas from the South West Coast Path.
- The MCA forms part of the wider maritime/seascape setting to the Cornwall AONB and component sections of Heritage Coasts.
- Full exposure to the force of the Atlantic; the variable weather makes for ever-changing light conditions.
- Coastal landscape and wild seascape has provided a source of inspiration for generations of writers and artists, including those established at St Ives to enjoy the particular qualities of light and sea. Tate St. Ives is now a landmark building on the coast. Literary associations include John Betjeman.



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Figure 14 - MCA 46, Penwith Maritime

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0 3.5 7
Nautical Miles

Yellow box MCA 46: Penwith Maritime
Black box Other Marine Character Areas

3.10.1 Profile for MCA 46: Penwith Maritime

Location and boundaries

The Land's End Maritime MCA covers the deep waters off Cornwall's south west peninsula and includes the shipping channel running north-south between Land's End and the Isles of Scilly. The landward extent stretches from the Cornwall AONB boundary west of St Ives Bay in the north around to Mousehole in the south east. It encompasses the wild undeveloped coastline of the Penwith and Land's End peninsula – the north-eastern boundary with MCA 45: Port Gaverne Bay to St Ives Bay and the south eastern boundary with MCA 48: Mount's Bay and The Lizard both marking a change to more developed seascapes. The eastern offshore boundary excludes the offshore renewable energy area to the north east within MCA 45, with the south-eastern part picking up the route of a submarine cable. Its seaward, western boundary with MCA Isle of Scilly marks the change in seascape character around the archipelago, excluding the isles' inshore fishing areas but encompassing the Traffic Separation System between Land's End and the Scillies. The boundary to the south with MCA 52: English Channel Approaches marks a distinct change in the seabed geology from slate to chalk.

Overall character

This is an exposed west-facing seascape open to the full force of the Atlantic. The rugged coastline is characterised by the spectacular columnar sea cliffs of the Land's End peninsula, deeply incised inlets and small coves, pounded by large waves generated by the steep rise in the sea floor. The designated granite cliffs support important seabird colonies while the granite islets and submerged reefs are highly valued for marine biodiversity (designated as SAC or MCZ). The treacherous reefs are a hazard to shipping and are marked by lighthouses and lit buoys, some far out to sea. The area has a rich industrial heritage related to coastal mining and the historical trade in metal ores and stone. Today there are low levels of fishing activity and recreational sailing owing to exposure but international vessels use the major north-south shipping route between Land's End and the Isles of Scilly. The potential for harnessing the MCA's high wave energy is being explored through testing sites. Tourism is an important economic activity in the area. Panoramic views out across the Atlantic from the peninsula are often marked by maritime transport.

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 156: West Penwith

Adjacent and inter-visible nationally designated and defined landscapes

The landward extent of the MCA from St. Ives to Mousehole falls within the Cornwall AONB and Penwith Heritage Coast. The coast around St Just falls within the wider Cornwall and West Devon Mining Landscape WHS in recognition of its important role in the historic mining of copper and tin.

3.10.2 Key characteristics for MCA 46: Penwith Maritime

- Exposed west-facing seascape forming the south-western point of mainland Britain; open to the full force of the Atlantic.
- Relatively steep rise in the sea floor near the shore from deep seas offshore (reaching a maximum of 86m), generating large waves.
- Backed by an irregular and rugged coastline, with spectacular columnar sea cliffs, deeply incised steep-sided inlets ('zawns'), and small coves, some with white sandy beaches – e.g. Sennen Cove.
- Internationally and nationally designated granite cliffs topped by heathland, grassland and scrub – supporting important seabird colonies and providing nesting sites for raven and peregrine falcon.
- Character owes much to the underlying geology of granite; part of an unbroken batholith stretching from Dartmoor to the Isles of Scilly, reaching the surface in several places, including Land's End.
- Exposed granite also forming rocky coastal islets and offshore reefs. Some reefs are fully submerged, such as Cape Bank or Carn Base, whilst others such as Longships rise out of the deep water, forming dangerous shipping hazards.
- Majority of the seabed formed of Devonian and Carboniferous mudstone, sandstone and limestone overlain by sand and gravel sediments.
- Exposed rocky shores and upstanding rocky reefs recognised within the Land's End and Cape Bank SAC (and proposed MCZ) and Runnel Stone MCZ, supporting a thriving marine life.
- Marine turtles, cetaceans and occasionally basking sharks can be seen off Land's End. The coastal islands provide haul-out sites for a local breeding population of grey seals.
- Lighthouses and numerous lit buoys marking the treacherous reefs, including Wolf Rock lighthouse (1861) situated offshore between Land's End and the Isles of Scilly.
- The towers of St Sennen's and St Buryan churches are conspicuous navigation marks on land.
- Numerous historic wrecks testament to the hazardous sailing conditions on the trading route around Land's End; many of 19th century vessels trading in coal from South Wales and exporting Cornish copper back to Wales for smelting. More recently associated with the notorious wreck of the *Torrey Canyon* oil tanker in 1967, and the loss of the Penlee lifeboat, from Mousehole, in 1981.
- Rich and highly distinctive coastal archaeology including prehistoric field systems, cliff castles, funerary and ritual monuments. Rocky headlands at Gurnard's Head and Bosigran bear evidence of Iron Age cliff castles, occupying commanding positions.
- Abandoned tin mines and engine houses, often perched perilously on the cliff edge, providing evidence of rich industrial heritage. At Botallack Mine the seams extended

400m offshore, with mining undertaken some 500m below sea level.

- Small isolated ports built as havens for the local fishing fleet; Mousehole noted as a prime pilchard port from as early as the 14th century. Small harbours were also established for the export of metal ores and granite, including at Lamorna Cove.
- Generally low levels of fishing activity today owing to exposure; visiting trawlers from Brixham and North Devon fish offshore, targeting Dover sole, squid, haddock and monkfish. Smaller local boats patrol the inshore waters for mackerel, eel and pollock.
- A high volume of international shipping and cargo vessels use the major north-south shipping route (with Traffic Separation Scheme) off Land's End, between Seven Stones and Longships.
- Porthcurno cable station (1870) the first landing point of multiple international cables connecting to the UK. A number of submarine cables cross the seabed, with clusters making landfall at Whitesand Bay and Porthcurno.

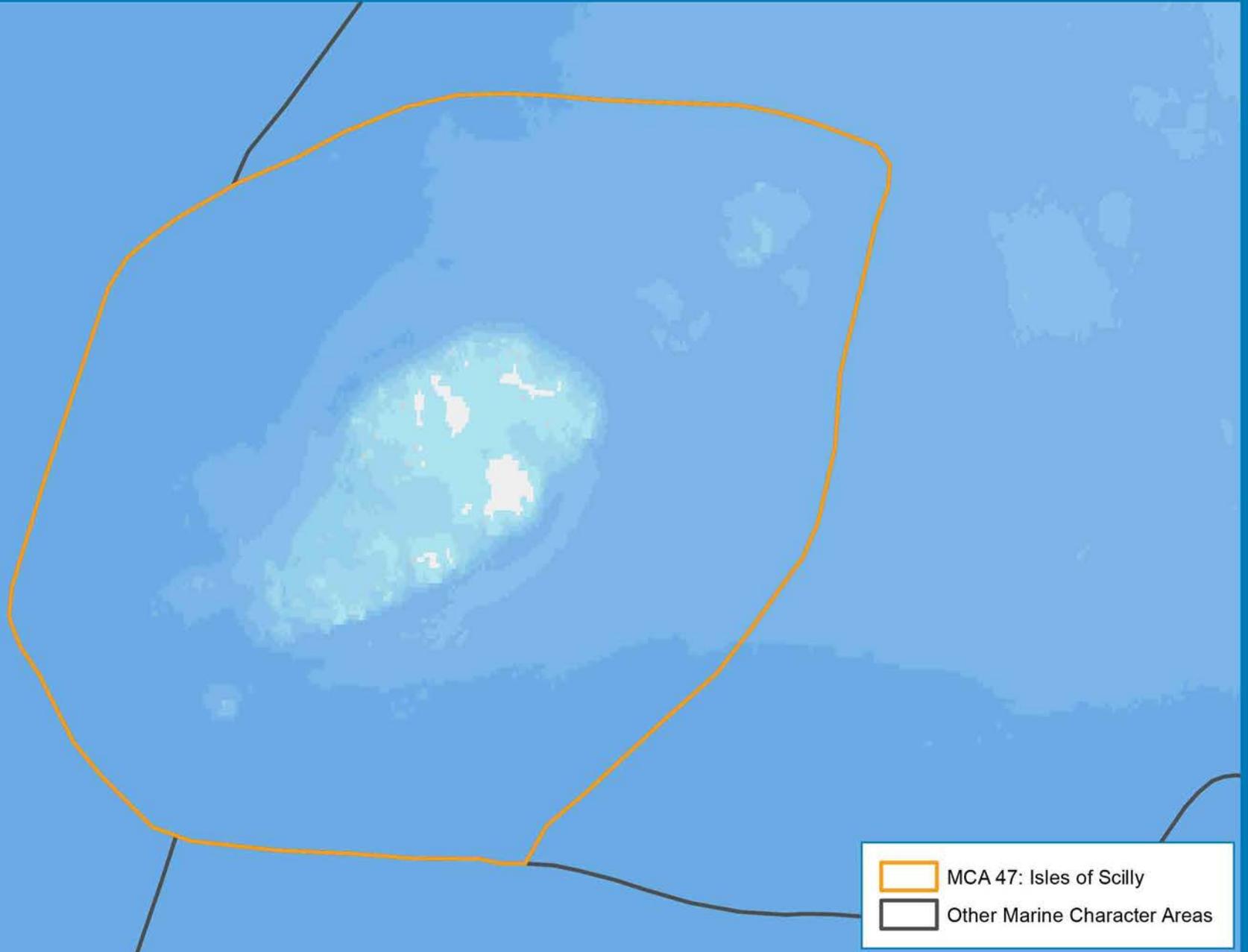
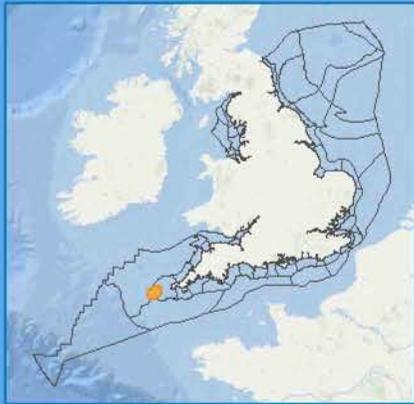
- The sandy coves, South West Coast Path, Land's End visitor attraction and the area's wild, undeveloped character are a significant tourism draw. There is little recreational sailing in these waters.
- Panoramic views from Land's End frequently marked by maritime transport; the flashes of lit navigation buoys and sweeping beams of the lighthouses contributing to night-time maritime character.
- Wide imposing views from the sea inland to the granite bastion of Land's End jutting into the Atlantic, ringed by sea swept high cliffs.
- The MCA forms part of a wider maritime seascape setting to the Cornwall AONB and Penwith Heritage Coast.
- The dramatic rugged cliffs and wild Atlantic swells have provided a source of inspiration for generations of writers and artists, including D H Lawrence and Sickert in the 19th century and the artists based at St Ives.
- A cliff-top open air theatre above Minack Point forms a dramatic setting for outdoor plays, including the maritime-themed Shakespeare play '*The Tempest*'.



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Figure 15 - MCA 47, Isles of Scilly

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0 1.5 3
Nautical Miles

 MCA 47: Isles of Scilly
 Other Marine Character Areas

3.11.1 Profile for MCA 47: Isles of Scilly

Location and boundaries

This MCA covers the waters between and around the 200 granite islands that make up the Isles of Scilly, the MCA's eastern boundary located approximately 25km off the Cornish peninsula. The MCA extends to 70km offshore and reaches a maximum depth of 100m, enclosing defined inshore fishing areas. The boundary with MCA 46: Penwith Maritime, MCA 51: Bristol Channel Approaches and MCA 52: Western English Channel Approaches reflect the changes in character from shallower water and high fishing activity defining this MCA, to the Traffic Separation Schemes (TSSs) that surround the islands within the adjacent MCAs. The north-eastern area of the MCA encompasses the granite reef of the Seven Stones along with its lit navigation mark/horn sited on the edge of the north-south orientated TSS in MCA 46.

Overall character

This is a complex seascape made up of the exposed seas around the islands, islets and reefs of the Isles of Scilly archipelago. Isolated in the Atlantic the deep seas of the outer MCA contrast with the shallow interior seas between the islands. The severe wave and weather conditions combined with the submerged rocks and ledges are a formidable hazard to shipping and have led to numerous wrecks. Due to the exceptionally high diversity of habitats and species, the MCA includes 11 MCZs as well as a Marine SAC covering the islands and their surrounding reefs, including the Seven Stones, a rocky reef 11km east-north-east of the Isles of Scilly which shares the same granite bedrock as the islands. There is a remarkable abundance of archaeological remains, especially of later prehistoric features, including some intertidal and below current sea levels which can be seen during the low spring tides. The area has a rich history of maritime trade with the mainland, changing over time from pilotage, smuggling, fishing to shipbuilding. Most of the maritime economy today is based around tourism with small amounts of local fishing. The perceptual character of the MCA is influenced by the sense of remoteness from the UK mainland and the insignificance of the low lying islands against the expanse of sky and sea. Views out to the Atlantic are only broken by the large scale cargo ships using the deep water shipping lanes offshore.

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 158: Isles of Scilly

Adjacent and inter-visible nationally designated and defined landscapes

The Isles of Scilly are designated as an AONB and defined as Heritage Coast.

3.11.2 Key characteristics for MCA 47: Isles of Scilly

- A complex seascape made up of the five inhabited islands of the Isles of Scilly and around 140 low-lying islets, plus offshore rocks and reefs isolated in the open water of the Atlantic, 45km south west of the mainland.
- Churning seas and rugged rocky coastline on the outer edge of Scillies contrasting with shallow interior sea with broad sandy beaches and sheltered coves.
- Numerous half submerged rocks and ledges around the Scillies with names such as Tearing Ledge and The Crim, a formidable hazard to shipping in the west.
- Islands and rocks are the exposed parts of a granite batholith extending from Dartmoor. Erosion and partial submergence by the sea created the oceanic archipelago of the Isles of Scilly.
- Granite intrusion extends across much of the seabed (approximately 24km by 12km) until the seabed geology changes to Devonian and Carboniferous mudstone, sandstone and limestone with sediments of sand or gravel.
- The sea bed slopes steeply down from the islands' outer shoreline, with a number of submerged cliffs dropping vertically to depths of 70m, contrasting with a shallow gently shelving and drying internal sea.
- Severe wave conditions are some of most extreme in the UK. Fully exposed to the full force of the prevailing wind, with a long Atlantic fetch, and a steeply sloping sea bed, the Isles of Scilly experience 25 days of gales per year.
- Tidal range is high for an open sea location; the maximum at St Mary's is 5.99m. Moderate tidal currents are strongest between the Isles of Scilly and the mainland.
- Broad range of physical conditions supporting an exceptionally high diversity of habitats and species (much designated as SAC and MCZ), including subtidal sandbank and intertidal features. The isles are home to important colonies of seabirds and grey seals.
- Remarkable abundance and variety of archaeological remains on the Isles of Scilly from over 6,000 years of human activity. Greatest density of Scheduled Monuments in England, particularly associated with later prehistoric focussed around the islands coastal peripheries, intertidal and now submerged areas.
- Shallow interior sea makes it possible to walk between some islands at low spring tides. Archaeological sites, stone field boundaries and causeways from periods of lower sea level can be found in this 'drowned landscape'.
- Numerous wreck sites, including the fleet of Sir Cloudesley Shovell which struck the Western Rocks in 1707, with the loss of 1,600 men. More recently, the *Torrey Canyon* sank on the Seven Stones reef in 1967, causing the worst oil spill on the UK's coast.
- Many of the islands' most important landmarks associated with the sea, such as lighthouses, rows of coastguard cottages and fishermen's shacks.

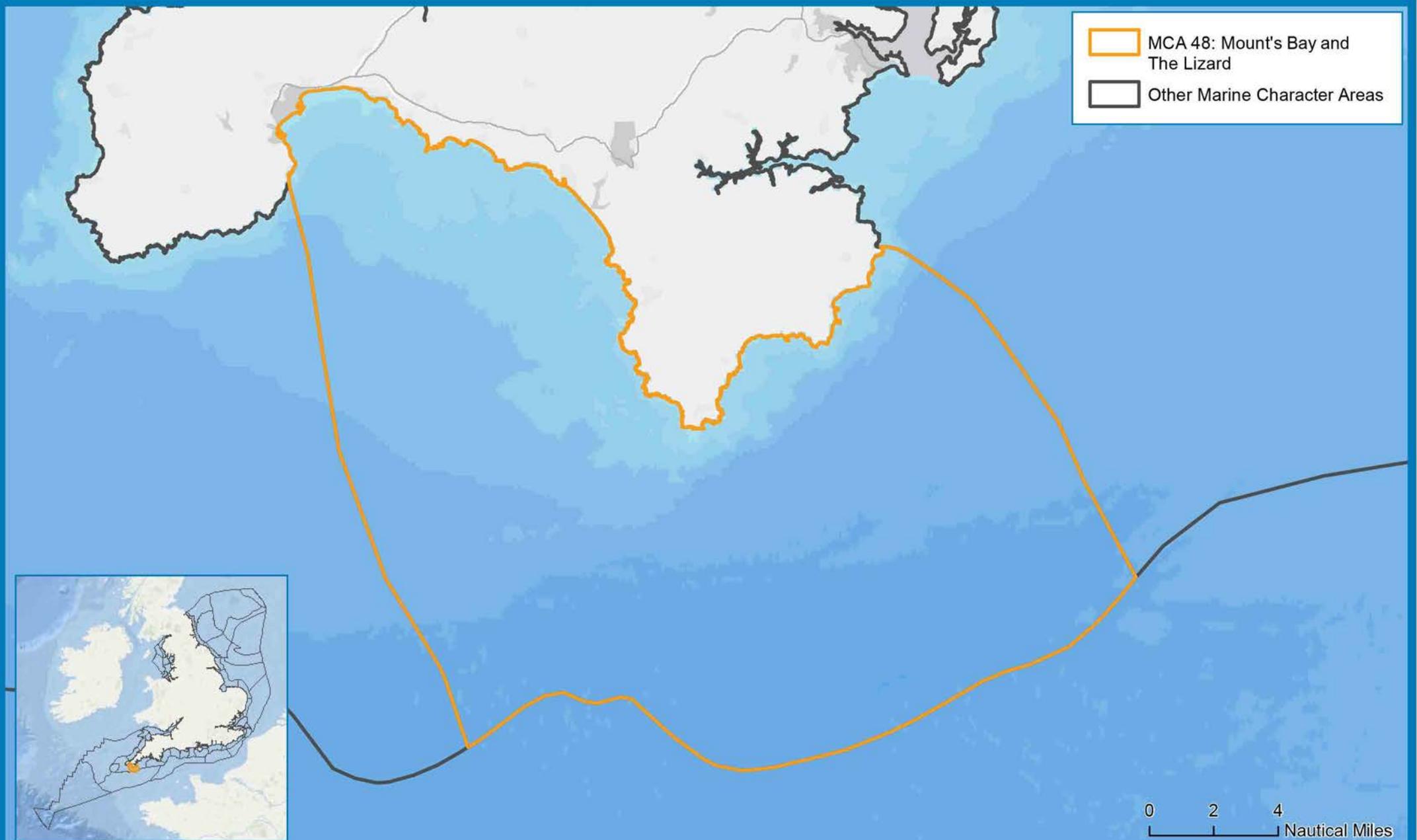
- Wide range of post medieval coastal fortifications from mid-16th century to WWII; a testament to the strategic importance of the islands.
- Long standing reliance on trade with the mainland, changing over time from pilotage, smuggling, fishing, shipbuilding and most recently, flower farming.
- Kelp burning was a major industry from 17th to 19th century, with the soda ash being shipped to Bristol and used in the manufacture of glass, soap and alum. About 12 shoreline kelp pits survive.
- Gig sheds on the shore and the popular gig races between the islands are a reminder of the tradition of piloting incoming vessels off the Atlantic.
- Most of the maritime economy today is based around tourism. A popular destination for sailors in the summer, although Atlantic swells can affect even the most sheltered coves and inlets.
- Small amount of local fishing based in St Mary's. Shellfish accounts for two thirds of total landings but mostly exported via Newlyn.
- Perceptual character strongly influenced by weather and atmospheric conditions – the tranquil turquoise inner seas of summer contrast with a grey thundering sea that is typical of autumn and winter in the Western Rocks or during Atlantic storms.
- Remote from the UK mainland, the low lying islands appear insignificant against the expanse of sky and sea. Lighthouses, such as Bishops Rock, stand out as single vertical elements in a horizontal plane.
- Sense of remoteness broken by views of large-scale cargo ships and tankers using the deep-water shipping lanes offshore, and increasing inshore mooring of large cruise liners.



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Figure 16 - MCA 48, Mount's Bay and The Lizard

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3.12.1 Profile for MCA 48: Mount's Bay and The Lizard

Location and boundaries

This MCA covers Mount's Bay and the Lizard Peninsula, running from Mousehole in the west to Manacle Point in the east. Its southern boundary with MCA 52: Western English Channel Approaches extends to a maximum distance of approximately 20km offshore from Lizard Point. The boundary with MCA 46: Penwith Maritime to the west indicates where there is a change from the rough waters around the Land's End Peninsula to more sheltered and busy waters of Mount's Bay. To the east the boundary with MCA 49: South Cornwall Coastal Waters and Estuaries occurs where overfalls associated with Lizard Point cease and also follows a submarine cable route.

Overall character

Encompassing the southern-most point of mainland Britain, this MCA is backed by a distinct area of coastline with numerous iconic features, particularly the tidal island of St Michael's Mount which forms a focal point within the bay and is steeped in history and folklore dating back to the Neolithic period. Lizard Point is a notorious shipping hazard, with the wild conditions of the west of the peninsula contrasting with the calmer more settled conditions to the east. The submerged reef habitats are highly valued for marine biodiversity, with the Manacles and part of Mount's Bay both designated as MCZs. As a large bay protected and sheltered from Atlantic storms, the area has a strong maritime culture relating to historic trade. Many of the settlements including the town of Penzance have their origins in fishing communities which continues to be an important economic activity in the area to this day, along with tourism. Panoramic views are afforded across the bay and out to sea, including by users of the South West Coast Path along the more remote and undeveloped Lizard peninsula.

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 152: Cornish Killas
- 156: The Lizard
- 157: West Penwith

Adjacent and inter-visible nationally designated and defined landscapes

Apart from a small section from Penzance to Marazion, all of the adjacent coastline is designated as part of the Cornwall AONB. The coastline from Porthleven to Cadgwith also falls within the Lizard Heritage Coast. Part of the Cornwall and West Devon Mining Landscape WHS is found on the coast at Trewavas Head.

3.12.2 Key characteristics of MCA 48: Mount's Bay and The Lizard

- Expansive crescent-shaped Mount's Bay, the largest Bay in Cornwall. The bay is carved from soft Devonian slates, with ongoing cliff erosion.
- Flat-topped plateau of the Lizard peninsula fronted by dramatic metamorphic and igneous cliffs, steep-sided coves and spectacular stacks; the unusual geological exposures maintained by the action of the sea. Famed for its serpentine rock as exposed at Kynance Cove.
- Seabed primarily of Devonian slates, mudstones, siltstone and sandstone, overlain by sandy gravel. Bare rock is found off Lizard Point and Cudden Point.
- Tidal island of St. Michael's Mount formed from a granite intrusion off Marazion, joined to the mainland by a causeway. The sandbar of Loe Bar separates the River Cober from Mount's Bay, forming Loe Pool.
- Depth ranges from less than a metre adjacent to shore to over 100m in the south of the MCA.
- Strong tidal streams around Lizard Point creating a notorious shipping hazard. Lighthouses at Lizard Point and St Anthony's alert vessels to these dangers.
- Due to the angle of the bay, waters are relatively sheltered from the prevailing westerlies from the Atlantic, although it can be more exposed during gales from the south and south-east.
- The Manacles rocks off the Lizard are popular dive sites with rich marine life (the area is an MCZ for habitats including rocky reefs and maerl beds) and numerous shipwrecks.
- Mount's Bay MCZ includes exposed high-energy rock, tidal reefs and *Zostera* seagrass beds, which are an important nursery area for fish. Lizard Point SAC is recognised for its rocky reefs. Common sighting of cetaceans and marine turtles within the area.
- Treacherous waters around the headlands creating notorious shipwreck sites, particularly off the Manacles and Lizard Point. The Protected Wreck of the *St. Anthony* is located in Gunwalloe Bay – a Portuguese carrack sunk in 1527 with the loss of 41 men.
- Porthleven is the most southerly port in England with a long history of boatbuilding. Many of the ports and harbours have a history of smuggling that often accompanied the prosperous sea trading of the 18th and 19th centuries, including Penzance.
- Today, fishing is economically important in the area (Newlyn being one of the most important fishing harbours in England), targeting mackerel, bass, sole, squid and turbot. Potting also occurs across the bay.
- Location of Marconi's ground breaking radio communications including first transatlantic communications –from Poldhu Cove to Newfoundland in 1901 and subsequent shortwave experiments. Historic importance of Lloyd's Signal Station reporting movements of shipping entering the English Channel. Submarine cables running to France and the Channel Islands make ground at Kennack Cove.

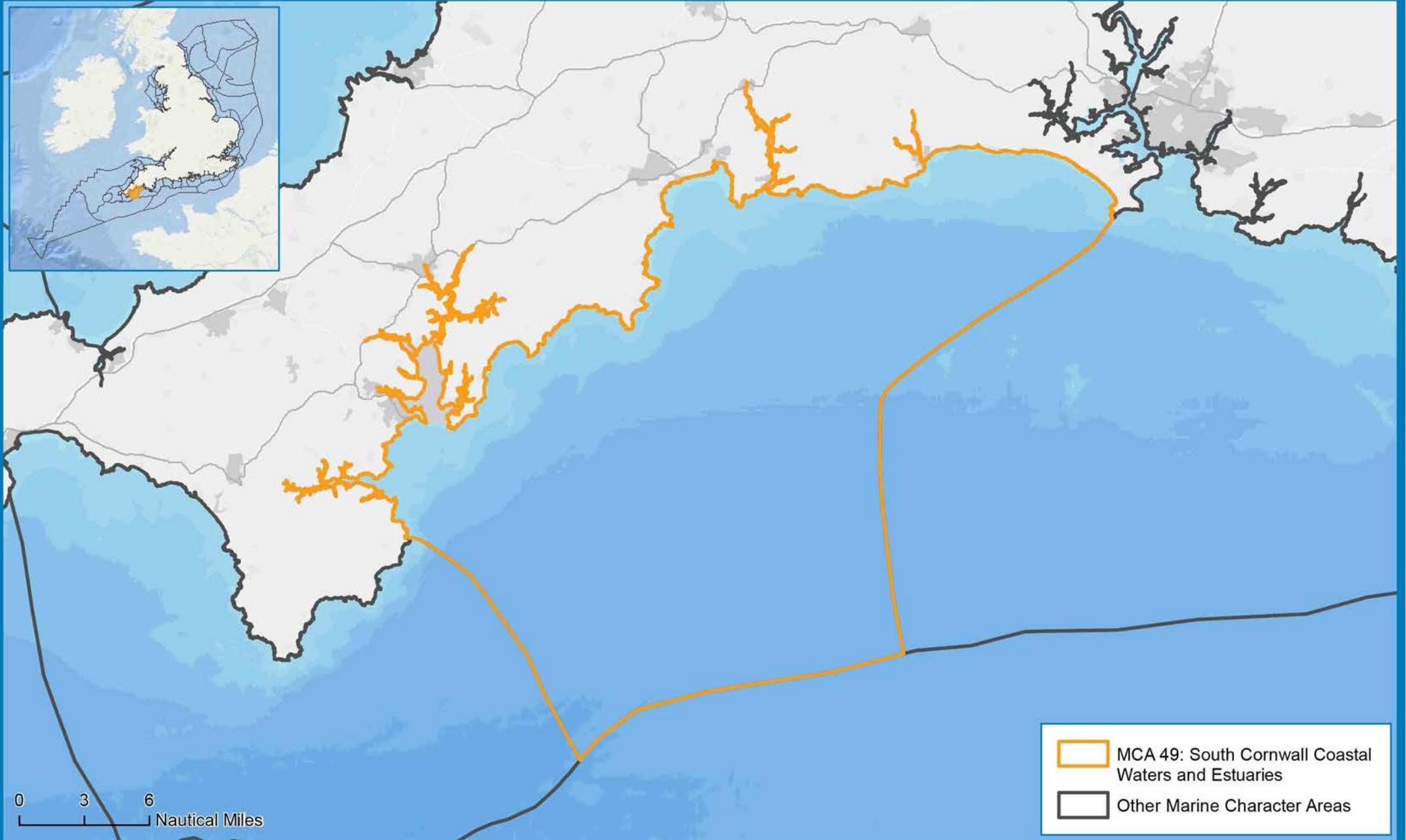
- Offshore, the waters are used for military practice, including a submarine exercise area and firing practice area.
- The bay is very popular for water sports, including powerboating, canoeing, sailing and water-skiing. Marazion beach is noted for kite surfing. Sea–angling is also a popular activity.
- St. Michael’s Mount with its medieval church and castle forms a unique feature on the water and skyline. The seascape is seasonally busy, with a surge of visitors in the summer.
- Long sections of undeveloped, rugged coastline define the Lizard peninsula, creating a contrasting sense of remoteness often only accessible via the South West Coast Path. Iconic nature of Lizard Point at most southerly mainland point in Britain drawing many visitors.
- The relatively sheltered conditions of Mount’s Bay contrast with the seas off Lizard Point and the Manacles with unpredictable tidal races and the sense of being at the mercy of the sea and weather.
- The MCA forms a dramatic marine setting to parts of the Cornwall AONB and The Lizard Heritage Coast, with expansive sea views enjoyed by users of the South West Coast Path.



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Figure 17 - MCA 49, South Cornwall Coastal Waters and Estuaries

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3.13.1 Profile for MCA 49: South Cornwall Coastal Waters and Estuaries

Location and boundaries

This MCA encompasses several bays and estuaries along the South Cornwall coast from Manacle Point to Rame Head. Its western boundary with MCA 48: Mount's Bay and the Lizard coincides with the transition to the rough seas and overfalls associated with Lizard Point (as marked on the marine charts) and a submarine cable route, extending around 23.5km offshore to meet MCA 52: English Channel Approaches. The transition to MCA 52 is also marked by a change in bedrock geology from slate and breccia to chalk. In the east, the MCA boundary reflects a change in marine traffic with more activity occurring close to Plymouth Sound.

Overall character

The South Cornwall Coastal Waters and Estuaries MCA is backed by a varied coastline, from intimate rias enclosed by woodland to wide and exposed sandy bays. The waters within the MCA are generally sheltered from the prevailing Atlantic conditions and the sea and its harbours support a great number of boats and ships from large trading vessels to small fishing and recreational boats and yachts. Despite the relatively calm conditions, large volumes of historical shipping and hazards including tidal races and partly submerged rocks have resulted in many wrecks including some which are now popular sites for diving. Important areas for biodiversity are found in the estuaries and in offshore areas, including valued intertidal rock, seagrass, and sandbank and mudflat habitats. These waters were an important defensive location in the past, with the impressive form of Pendennis Castle at Falmouth playing a key role in defending against the threat of the Spanish Armada and in many conflicts since. The settlements along this stretch of coast are steeped in maritime history, with a long past of trade, fishing and smuggling. The warm and mild weather conditions coupled with the picturesque bays and beaches make this area an attractive holiday destination, with tourism now forming an integral part of the economy, along with emerging industries such as marine renewable energy and traditional fishing activity.

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 152: Cornish Killas
- 156: The Lizard

Adjacent and inter-visible nationally designated and defined landscapes

Long sections of the adjacent coast are designated within the Cornwall AONB, with the exception of Falmouth, parts of St Austell Bay to Par, and Looe and Whitsand Bays up to Rame Head. The Roseland and the coastline from Gribbin Head to Polperro are also defined as Roseland Heritage Coast, as is a small part of Rame Head in the east of the MCA. Parts of the Cornwall and West Devon Mining Landscape WHS are located at Perranarworthal.

3.12.2 Key characteristics of MCA 49: South Cornwall Coastal Waters and Estuaries

- A seascape comprising numerous south-facing bays of varying scale and shape, including Whitsand, Looe, Mevagissey, Veryan and Falmouth Bays.
- Numerous rivers flowing into the sea. The distinctive drowned valleys ('rias') of the Helford, Fal, Fowey and Looe create significant sheltered and wooded indentations into the coastline.
- Water depth ranges dramatically. The Fal Estuary is the third largest natural deep water harbour in the world.
- Several rocks and islands off the coast including the Gwineas, Killyvarder Rock, Cannis Rock and Looe Island.
- Inshore waters are mostly sheltered from the prevailing Atlantic westerlies, although tidal races off Looe Island, Dodman Point and the Bizzies can prove treacherous to navigation.
- Close to shore underlying geology is comprised of Devonian slate and sandstone whilst further offshore, Permian and Triassic breccia, mudstone siltstone and sandstone are overlain by sand and gravel sediments, with bare rock off Zone Point and Gribbin Head.
- Important marine habitats including subtidal sand and coarse sediment supporting commercially important fished species at the Whitsand and Looe Bay MCZ. Upper Fowey and Pont Pill MCZ protects the upper tidal reaches of the estuary.
- The Fal and Helford SAC recognises the sandbanks, mudflats and Atlantic salt meadows fringing the rias. The Falmouth Bay to St. Austell Bay potential SPA reflects populations of overwintering birds.
- Numerous wrecks due to the long history of shipping and heavy traffic in these waters. Wrecks are concentrated around Falmouth; including wartime losses such as the *Alexander Kennedy* and HMS *Trentonian*.
- Fortifications on the headlands guarding the main harbours are common, including the Scheduled Monument of Pendennis Castle, recognised as one of Henry VIII's finest coastal fortresses. WWII D-Day preparation and embarkation sites with extant features and memorials along the coastline.
- Numerous lighthouses and lit buoys guiding vessels into the local harbours and warning of rocks and headlands, including on St Anthony's Head at the entrance to the Fal (constructed 1835).
- The red and white striped daymark on Gribbin Head is a distinctive local landmark and destination for walkers on the South West Coast Path. The silhouette of churches on the cliffs also form important day marks.
- The area includes many legends associated with smuggling, piracy and privateering, particularly at Fowey and Polperro. Fowey literary associations or inspiration relating to Du Maurier and Quiller-Couch.
- Many of the harbours and ports grew exporting natural resources from the local area including china clay, iron, copper and tin.

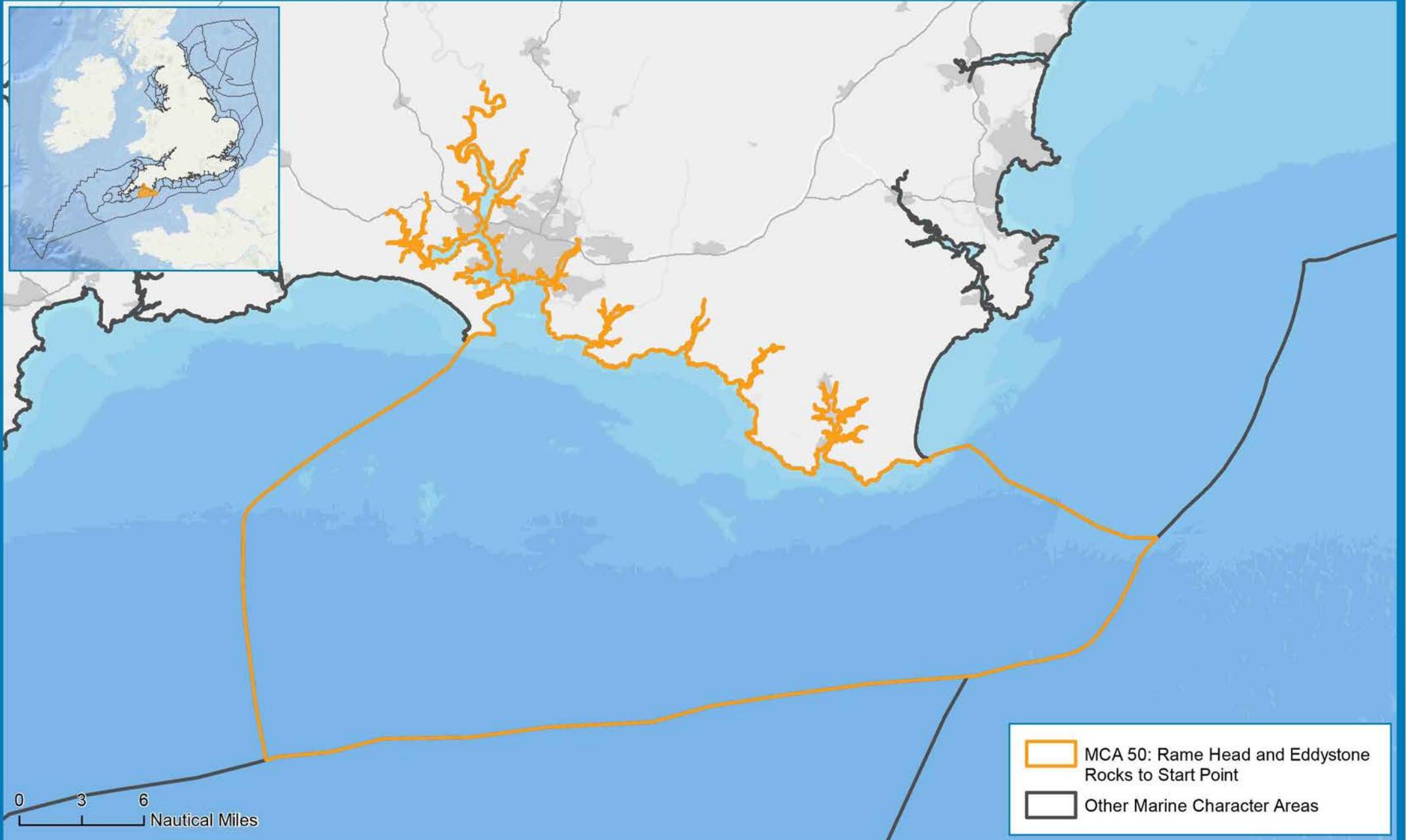
- Naval and shipping use and heritage. Falmouth Docks include substantial ship repair facilities used for refitting civilian and naval vessels. Falmouth waterfront houses part of the National Maritime Museum, and site of numerous maritime festivals including tall ships regattas.
- Commercial boats continue to work the harbours at Fowey and Falmouth, including large-scale china clay ships and cruise liners docking at Falmouth. Local ferries add to local character. Large ships on Falmouth Roads, waiting to enter the harbour are a feature of the seascape.
- Fishing is economically important to the area, particularly the historic harbours of Looe, Polperro and Mevagissey. Species include mullet, bass, mackerel, lobster and cuttlefish.
- Oyster and mussel beds are traditionally associated with Falmouth Bay.
- A wave energy test area is located in Falmouth Bay. FaB Test is a 2.8km² area for trialling renewable energy devices. Submarine cables cross the seabed, making landfall at Pentewan.
- Military firing practice and submarine exercise areas located offshore, indicating the past and present military importance of these waters. An explosives dumping ground is located in Whitsand Bay.
- This area is a popular holiday destination, with caravan and camping sites often visible along the coast, extending out from the coastal settlements.
- Recreational activities include sailing (with a large marina at Falmouth and safe moorings in many harbours); fishing, diving, water-skiing and surfing, and popular wildlife watching trips.
- Important dive sites throughout the area including HMS *Scylla* (sunk in 2004) and SS *James Eagan Payne* (lost during WWII) located off Whitsand Bay.
- Marked contrast between the well-sheltered areas of the all-weather harbours at Helford River, Falmouth and Fowey and changeable and exposed conditions offshore and around rocky headlands.
- The MCA forms part of the wider seascape setting to the Cornwall AONB and sections of Heritage Coast.
- Perceptual qualities vary significantly from the busy coastal ports and harbours to long sections of undeveloped coast and the quiet backwaters of the rias.



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Figure 18 - MCA 50, Rame Head and Eddystone Rocks to Start Point

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3.13.1 Profile for MCA 50: Rame Head and Eddystone Rocks to Start Point

Location and boundaries

This MCA comprises the southern facing coastline between Rame Head and Start Point and the inner waters of the English Channel. Its western boundary reflects where there is a greater density of marine traffic associated with the ports and harbours at Plymouth, as well as enclosing a marine SAC and the outcrops of Hand Deeps and Eddystone Rocks. The boundary runs approximately 35km offshore to meet MCA 60: English Channel Approaches. The eastern boundary occurs where there is a change in sea conditions from the more exposed choppy waters to the south of Start Point to the calmer waters in the south of Lyme Bay (MCA 1).

Overall character

This MCA covers an iconic coastline and an area of sea with immense historical, cultural and nature conservation value. Offshore islands including Drake's Island, Burgh Island and the Great Mew Stone form distinctive features and contribute to the MCA's unique sense of place. The natural harbour of Plymouth Sound has provided shelter to boats for centuries and has a long association with national defence, including the Spanish Armada and the docks playing a key part in the both World Wars, the later including D-Day preparation and embarkation. This is also evident from the remarkable number of historic defences found along this stretch of coast. Large military ships moving in and out of harbour remain a frequent sight, along with cargo ships and large passenger ferries. The ria at Salcombe also has a wealth of maritime history relating to shipbuilding and fishing. Many parts of the MCA are internationally or nationally designated for biodiversity owing to the numerous valued estuarine and marine habitats including sandbanks, inshore reefs, extensive mudflats and saltmarsh. Sea conditions are generally calm but become hazardous in some localities due to tidal races and overfalls off the numerous headlands. A high concentration of wrecks attest to these potential dangers and lighthouses and beacons provide a warning to passing traffic. The South Devon coast possesses a warm and mild climate which is characterised by busy beaches in holiday season and many small recreational craft on the water. All year round, vessels can be seen in the estuaries and further out to sea catching a variety of fish and seafood including crabs, lobster and native oysters.

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 151: South Devon
- 152: Cornish Killas

Adjacent and inter-visible nationally designated and defined landscapes

The western section of the coastline lies within the Rame Head section of the Cornwall AONB, whilst the Tamar Valley AONB can be found adjacent to the Lynher, Tamar and Tavy Rivers. The eastern part of the coast is within the South Devon AONB. Parts of the Rame Head Heritage Coast and the South Devon Heritage Coast lie within the MCA. Dartmoor National Park forms an upland backdrop to the MCA.

The Cornwall and West Devon Mining Landscape WHS in upper tidal reaches of the Tamar around Cotehele, Calstock and Morwellham Quay.

3.13.2 Key characteristics of MCA 50: Rame Head and Eddystone Rocks to Start Point

- Complex and varied coastal landform with rocky cliffs and crags punctuated by sandy bays and coves. Several estuaries discharge into the sea including the Tamar, Plym, Yealm, Erme, and Avon.
- Offshore bedrock geology of Permian/Triassic sandstones and mudstones interspersed with Devonian slates and schists. Close to shore the seabed is bare rock, whilst offshore and close to estuaries the rock is overlain by a mix of sand and gravel sediments.
- Water depth varies greatly from less than a metre within some of the estuaries to a maximum depth of approximately 70m.
- Distinctive offshore islands including Drake's Island, The Great Mew Stone and Burgh Island. Eddystone Rocks and Hand Deeps are located 14km south west of Rame Head.
- Tidal flow increases around Salcombe and Start Point, in contrast to the relatively calm waters in the west of the MCA. Tidal races often occur off the headlands, including Prawle Point and Bolt Head.
- A highly important area for biodiversity including Plymouth Sound and Estuaries SAC, Tamar Estuaries Complex SPA (and MCZ), Start Point to Plymouth Sound and Eddystone SAC and Skerries Bank and Surrounds MCZ – recognising varied habitats including estuaries, sandbanks, extensive mudflats, saltmarsh and inshore reefs.
- Rich marine life; including pink sea fans, plumose anemones, hornwrack, rosy feather stars and the sea fan anemone. The MCA contains an Allis shad spawning ground.
- Numerous wrecks frequently clustered around the headlands and submerged rocks. This includes the protected wreck of the *Coronation*, sunk in 1691 drowning 480 men.
- Legendary associations with smuggling activity, with the isolated beaches and coves providing ideal hiding places for contraband. Literary association/inspiration with Agatha Christie at Burgh Island.
- Historically important fishing grounds, with many of the settlements based around fishing. The commercial importance of fishing continues with boats targeting mackerel, bass, whiting, turbot, squid and lobster.
- Military history; particularly around Plymouth, with remarkable surviving sequence of naval fortifications, spanning five centuries including Palmerston Forts along the coast. A military firing area and submarine exercise area is found in the deeper waters to the south of the Plymouth Breakwater.
- Naval heritage and infrastructure throughout Plymouth Sound and its estuaries, including at Devonport, location of the largest naval dockyard in Western Europe. The docks have played a crucial role in conflicts including both World Wars.
- Plymouth maritime/marine heritage – embarkation point for the Pilgrim Fathers on the *Mayflower* (1620) and for

Darwin on the *Beagle* (1831). Plymouth a long time and internationally renowned centre for marine research.

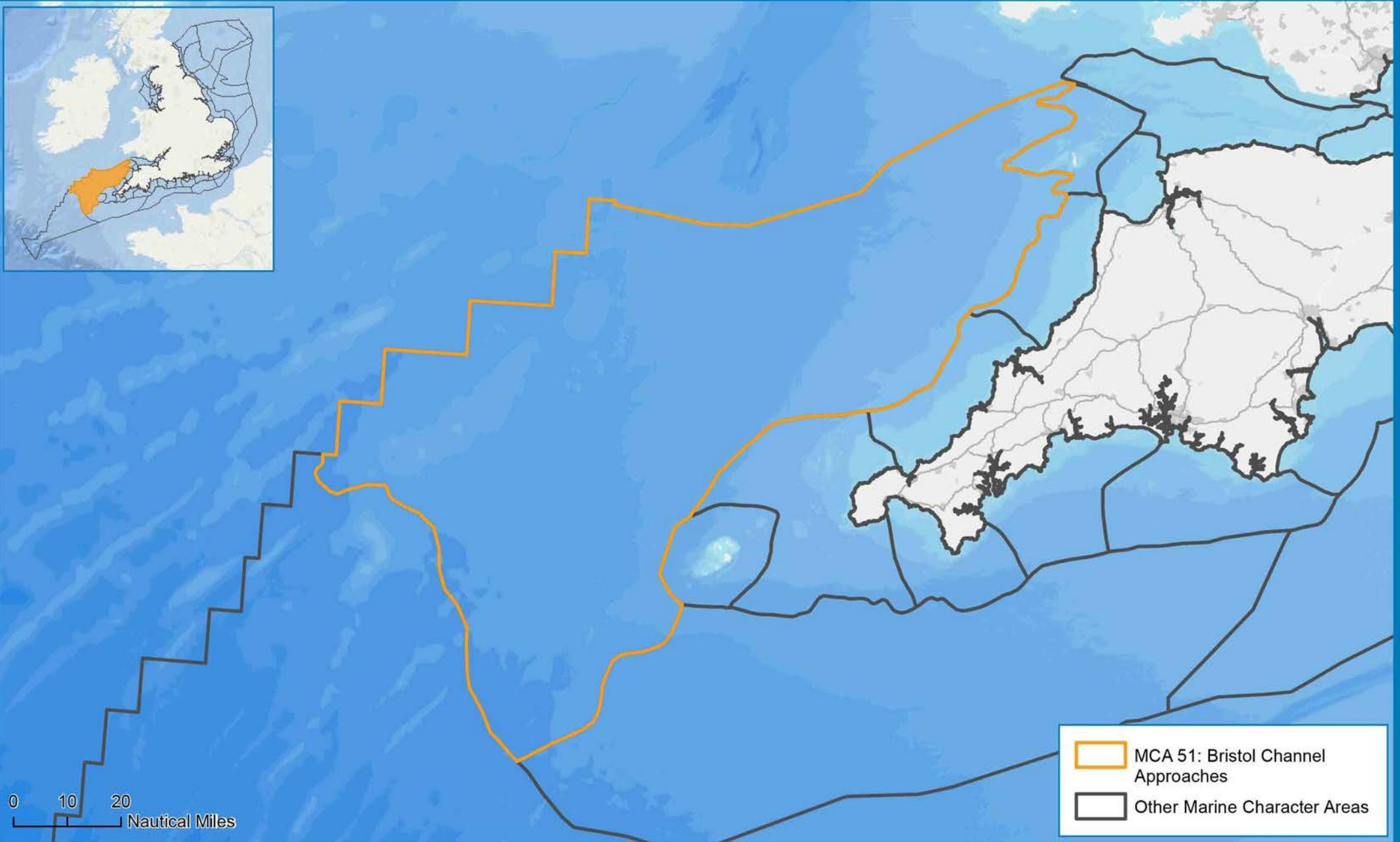
- Lighthouses at Eddystone Rocks, Start Point, and the Plymouth Breakwater providing navigational aids to maritime traffic. The former lighthouse of Smeaton's Tower is an iconic feature on Plymouth Hoe.
- In the summer passenger ferries link across the numerous estuaries. Large ferries travelling to Santander and Roscoff from Plymouth form imposing moving features, as do naval ships on practice exercises across the MCA.
- A popular area for water sports; the area is a Royal Yacht Association sailing area with a racing area located within and to the south of Plymouth Sound and at Salcombe. Bigbury Bay is noted for surfing.
- Several National Trust estates are found adjacent to Plymouth Sound and estuaries, including the Saltram, Antony and Mount Edgcumbe Estates – with vistas across the seascape.
- A busy seascape during pleasant weather with dense recreational boat traffic and many tourists on the coast. During stormy weather the sea conditions can become wild and unpredictable.
- The seascape provides a key maritime setting to the Cornwall (Rame Head), Tamar Valley and South Devon AONBs. There are also views to the sea from the uplands of Dartmoor National Park, which also provide a backdrop in views from the sea.
- Enclosed and relatively calm waters of Plymouth Sound contrasting with more exposed conditions off Start Point and Salcombe.
- Stark difference between the activity and developed nature of Plymouth Sound and long sections of surrounding undeveloped AONB-designated coastline often only accessed via the South West Coast Path.



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Figure 19 - MCA 51, Bristol Channel Approaches

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3.14.1 Profile for MCA 51: Bristol Channel Approaches

Location and boundaries

This MCA covers the western approaches to the Bristol Channel and the north-eastern extent of the Celtic Sea. Its eastern inshore boundary broadly follows changes in bathymetry and marine sediments. The MCA's western boundary extends offshore to the edge of the Marine Plan Area, picking up the territorial waters boundary between Ireland and England, extending to a maximum distance of approximately 180km from Land's End. Its south-western boundary (shared with MCA 53: Celtic Shelf and Banks) is defined by a clear break in offshore geology between the younger mudstone and siltstone to the south and the older chalk to the north. The area's south-eastern boundary excludes the Transport Separation Scheme 'South of the Scilly Isles', picking up changes in the character of the underlying seabed sediments.

Overall character

The Bristol Channel Approaches MCA has a rich natural environment and important heritage. The deep offshore waters extend to Haig Fras, a submerged rock outcrop which locally reduces bathymetry to only 38m from 100m. This is one of several designated or proposed areas for MCZ due to their nationally and internationally important sediment habitats. Forming part of the Celtic Sea, the MCA has important historical connections with the Celtic nations of Wales and Ireland which are still apparent today with ferries, pleasure craft and submarine communication cables crossing from England to Ireland. Ship wrecks on the seafloor indicate the areas strategic positioning during periods of conflict, more recently during WWII.

Adjacent National Character Areas (NCAs)

N/A – this MCA does not include an adjacent coastline.

Adjacent and inter-visible nationally designated and defined landscapes

Although this MCA does not include an adjacent coastline, it may be possible to gain views across neighbouring MCAs to/from the North Devon AONB and parts of Cornwall AONB.

3.14.2 Key characteristics of MCA 51: Bristol Channel Approaches

- Extensive offshore MCA covering deep offshore water extending to the Ireland International boundary, approximately 180km from Land's End.
- Mudstone, sandstone and lignite (from three distinct geological periods Palaeogene, Devonian and Carboniferous) covering the majority of the sea floor, broken in the south by a large area of chalk and to the north where the geology is more intricate.
- Mixed coarse sediments of sand, mud and gravel forming thin mobile layers which can collect to form submerged dunes up to 10m deep.
- Isolated granite features near the country median line between England and Ireland forming the North West Bank and Haig Fras; a valuable submerged outcrop of bedrock.
- Gently westward sloping seabed extending to the edge of the Continental shelf, from a depth of approximately 45m at the mouth of the Bristol Channel to a maximum depth of 123m in the south west corner. The North West Bank reduces bathymetry locally from approximately 100-120m to 38m at Haig Fras.
- Large waves experienced as a result of the long 'fetch' caused by strong prevailing westerly winds across the Atlantic Ocean and the Gulf Stream.
- Greater Haig Fras MCZ and Haig Fras SAC rocky reef includes internationally important sediment habitats. The East of Haig Fras MCZ is valued for coarse subtidal sediment ridges topped by rocky features. Several other proposed MCZs are located across the MCA.
- The Celtic Sea (north-east) has a rich heritage relating to maritime trade between Wales and Ireland with England, dating back to at least the Iron Age.
- Rich waters providing ideal conditions for a diverse mix of cetaceans (17 species) that frequent the area, including common dolphin and long-finned pilot whale.
- Ship wrecks dramatically increasing in density, tightly clustered offshore from Padstow, depicting its historic importance as a port and difficult offshore sea conditions.
- Sunken vessels indicating the area's rich and often violent heritage, especially during periods of war when cargo ships and military fleets were targeted by enemy attack.
- Vessels guided through the notoriously dangerous waters off the Isles of Scilly (MCA 47) by the West of Isles of Scilly TSS. Ferries from Cork and Rosslare pass through the MCA bound for France.
- Submarine communication cables crossing the seafloor, playing an important role in the exchange of information between England, Ireland, Canada and America.
- Extensive fishing grounds of national and international significance providing an abundance of fish and shellfish species including monkfish, Dover sole, red mullet, scallops and edible crab.

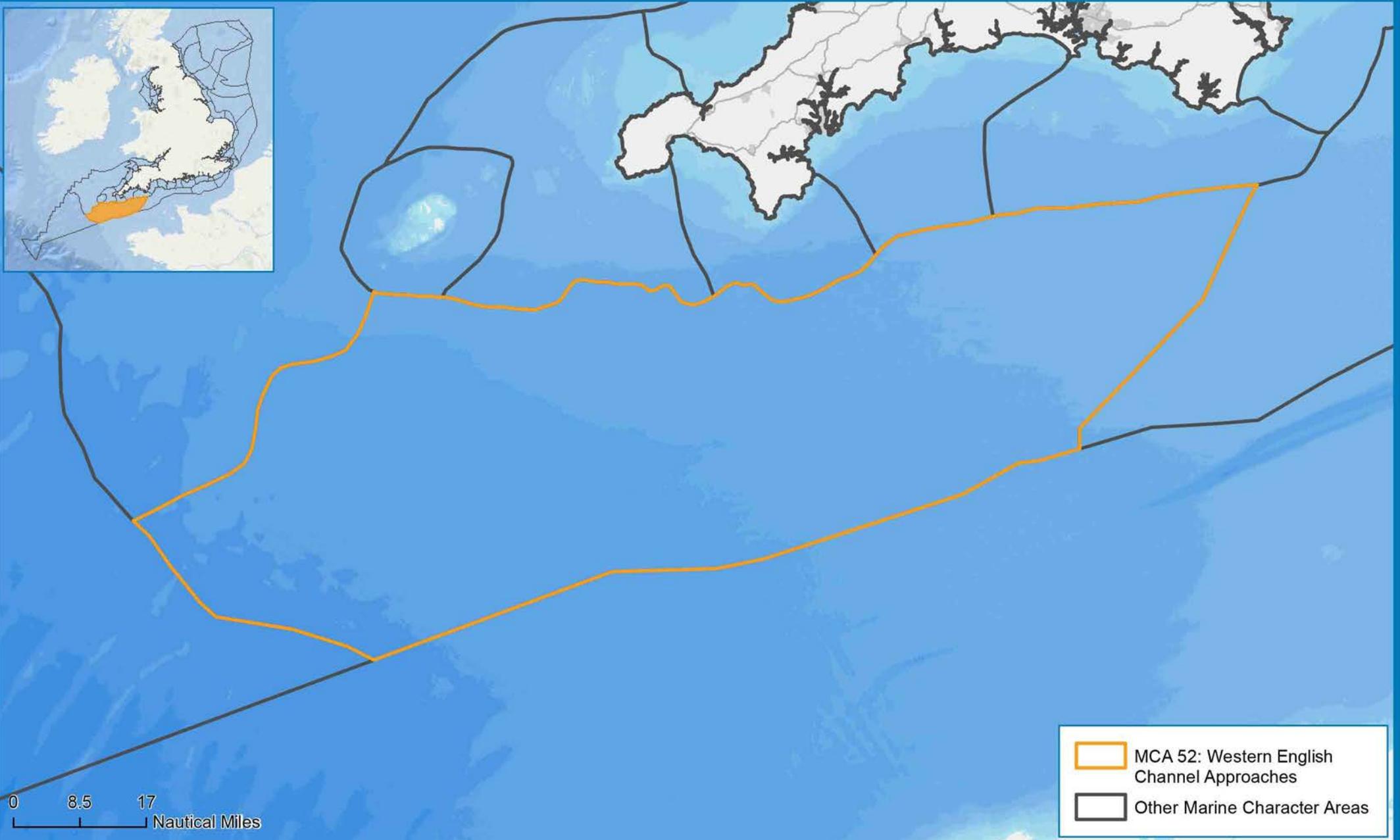
- Recreational sailing routes connecting English harbours with Cork, Ireland and Milford Haven and Anglesey, Wales.
- Large area of open water with distant empty horizons west to the open Atlantic, contrasting to important views back to the shore including Lundy and the Isles of Scilly.
- The MCA forms part of a wider marine backdrop to the coasts including parts of the Cornwall, North Devon and Isles of Scilly AONB.
- Westerly gales and the Atlantic swell creating strong feelings of exposure. These perceptual qualities increase further offshore, increasing a sense of true isolation when sight of land ceases.



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Figure 20 - MCA 52, Western English Channel Approaches

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0 8.5 17
Nautical Miles

-  MCA 52: Western English Channel Approaches
-  Other Marine Character Areas

3.15.1 Profile for MCA 52: Western English Channel Approaches

Location and boundaries
This MCA covers the western most extent of the English Channel and its approaches, from approximately 144km offshore from Lizard Point in the west and 17km offshore from Prawle Point in the east, extending to the edge of the offshore Marine Plan Area and national territorial limits. In the west, the inshore boundary is shared with several coastal MCAs, following a geological break before moving north excluding inshore traffic movements.
Overall character
The English Channel Approaches MCA borders French waters to the south covering a large area of open water. Below the surface, a gradually shelving seafloor consistent of distinct geological bands is covered by mobile sediment layers which migrate to form crescent-shaped submerged dune systems. Seafloor features combine with aquatic thermal fronts to create a unique and rich marine environment; making this one of the most diverse habitats for fish, cetaceans and sea birds in the UK. The area has a long maritime heritage associated trade and military use which continues today – with much of the area used as a submarine training area, and crossed by ferries or fishing vessels. Sea conditions can be difficult with strong prevailing winds regularly reaching gale force, creating high waves. Away from the main shipping channels, feelings of isolation and exposure are strong.
Adjacent National Character Areas (NCAs)
N/A – this MCA does not include an adjacent coastline.
Adjacent and inter-visible nationally designated and defined landscapes
Although this MCA does not include an adjacent coastline, it may be possible to gain views across neighbouring MCAs to Isles of Scilly, Cornwall and South Devon AONBs. In addition, it may be possible to gain views to and from Dartmoor National Park due to the elevation of the upland landscape.

3.15.2 Key characteristics of MCA 52: Western English Channel Approaches

- Extensive offshore MCA covering deep offshore water extending to the Ireland International boundary, approximately 180km from Land's End.
- Broad east to west channel forming the western approaches to the busy English Channel, defined by the French median line to the south and shallower inshore MCAs to the north.
- Distinct east to west geological bands formed of Miocene mudstone and siltstone, Eocene limestone, and Upper Cretaceous chalk.
- To the east and along the northern MCA boundary, geology is more complex with smaller pockets and a narrow band of older sandstone, mudstone, siltstone and limestone rocks.
- Generally homogenous sediment layer consisting of gravelly sand with small pockets of sand and muddy sand.
- Bathymetry gradually increases as the seafloor shelves to the west, reaching depths of approximately 117m from the shallow eastern water (with an approximate depth of 52m).
- Barchans (crescent-shaped) dunes formed of mixed sediments and shaped by ocean currents create distinct and interesting seafloor features.
- Extensive area of open water, exposed to the full force of westerly swells from the Atlantic combining with the Gulf Stream to create large, high energy waves and challenging sea conditions.
- Western Channel MCZ recognises regionally important subtidal coarse sediment and sand habitats. South of the Isles of Scilly proposed MCZ is also valued for its sediment habitats.
- Rich marine environment, created along the thermal front, providing unique conditions for fish spawning and nursery sites, visiting cetaceans and feeding birds.
- Submerged dune systems supporting a diverse range of animal life including polychaete worms, bivalve molluscs, echinoderms (sea urchin and starfish), and fish species (e.g. small spotted cat shark and monkfish).
- Strategic military and trade routes both along and across this part of the English Channel since the medieval period, or earlier.
- Dispersed ship wrecks including several U-boats sunk as a result of operations associated with The Battle of the Atlantic during WWII. The area is still used as a submarine training area.
- Ferries from Plymouth transporting freight and holiday makers all cross the MCA on their way to French ports.
- Hydrocarbon wells and submarine telecommunication cables located on the seafloor, connecting the English coastline with France and wider Europe.
- Fishing vessels including beam trawlers, light and twin otter trawlers harvest cuttlefish, monkfish, Dover sole, squid and turbot from rich fishing grounds.

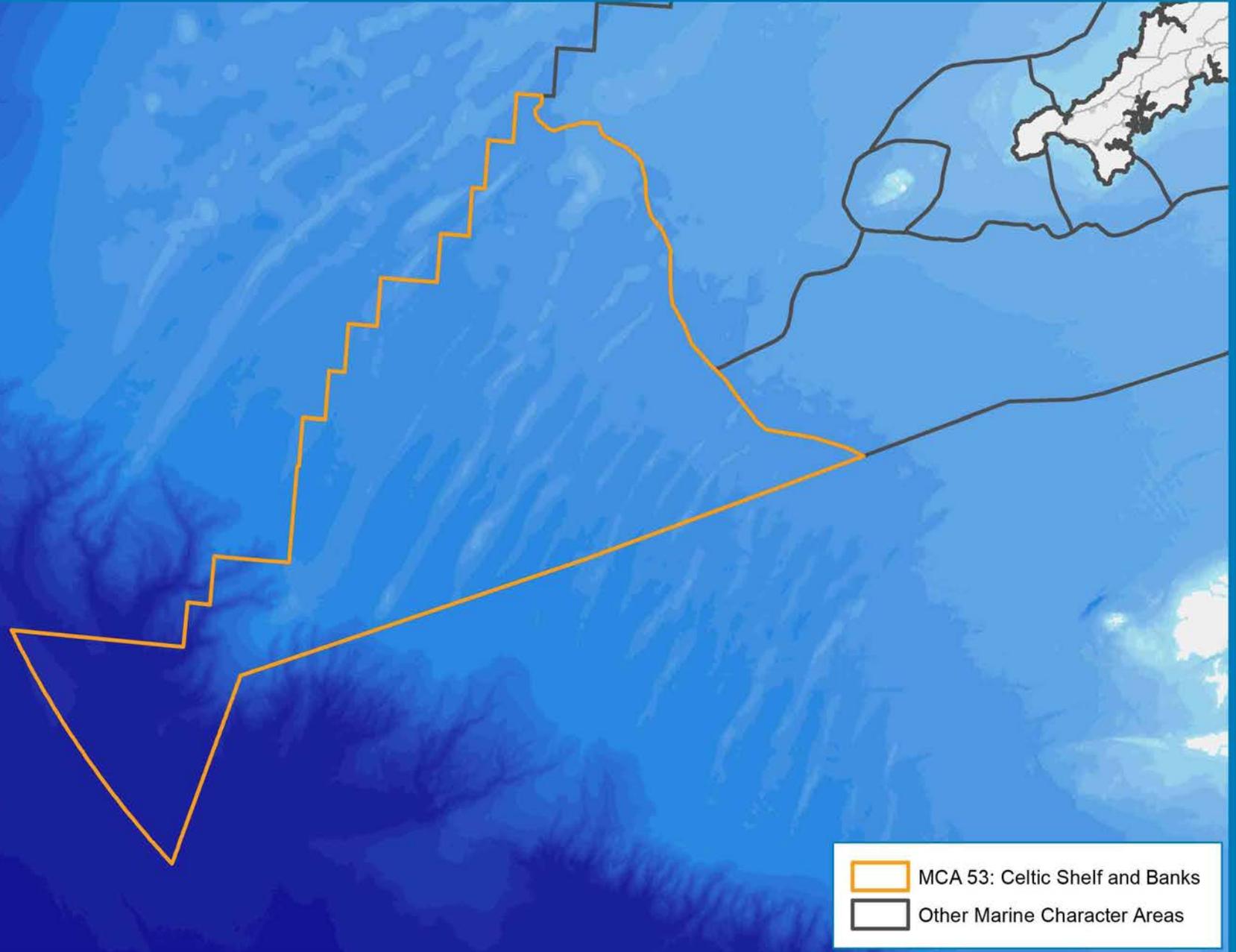
- Strong prevailing winds and Atlantic weather fronts regularly combining to whip up storm conditions, frequently experiencing more days of gales than other parts of the Marine Plan Area.
- In good conditions, vast open horizons can be experienced offshore across the whole MCA, with distant views of the diverse coastline (including the Cornwall AONB) being gained from nearshore areas.
- In turn during clear conditions the sea is visible in horizons, including from parts of the Cornwall AONB, Dartmoor National Park and the closer Isles of Scilly AONB.
- Exposure and feelings of isolation becoming stronger away from the shipping channel, especially in thick weather.



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Figure 21 - MCA 53, Celtic Shelf and Banks

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3.16.1 Profile for MCA 53: Celtic Shelf and Banks

Location and boundaries
This MCA covers the most westerly extent of the English waters and is contained on three sides by the South West Offshore marine plan area boundary. The northern boundary follows the country median line boundary between Ireland and England, the southern boundary meets French waters. The MCA's eastern boundary follows a distinct break in seafloor geology, inclosing a vast area of Miocene rocks. The western boundary extends offshore from Land's End approximately 427km picking up dramatic changes in bathymetry ranging from 100m to over 2000m at The Canyons.
Overall character
The Celtic Shelf and Banks MCA covers a vast area of open water, gradually funnelled between international waters of Ireland and France to the far western reaches of the South West Offshore Marine Plan Area. It covers the English part of the much greater Celtic Shelf and the eastern extent of the Atlantic Ocean. Complex seafloor habitat with deep canyons plunge to 2000m bathymetry, along with shallower ridges and the Jones Bank, one of several submerged banks. The area is unified by its exposed and isolated character, strong Atlantic weather fronts and rough seas.
Adjacent National Character Areas (NCAs)
N/A – this MCA does not include an adjacent coastline.
Adjacent and inter-visible nationally designated and defined landscapes
Although this MCA does not include an adjacent coastline, it may be possible to gain distant views in clear conditions across neighbouring MCAs to and from the Isles of Scilly AONB and western parts of the Cornwall AONB.

3.16.2 Key characteristics of MCA 53: Celtic Shelf and Banks

- Western most extent of English territorial waters, funnelled between the Irish and French international boundaries, reaching the edge of the continental shelf at The Canyons.
- Uniformed bedrock of Miocene mudstone and siltstone rocks extending across the whole of the MCA³. This is covered by a thin layer of loose sediments including mud and sand (north), and pockets of dispersed sand and gravelly sand (south).
- Troughs and ridges created by tidal effects approximately 40,000 years ago plunging to a depth of over 2000m in the west.
- Dispersed banks and wells providing a varied seafloor, including Little Sole Bank (115m), Haddock Bank (106m), Melville Knoll (104m) and the shallowest Jones Bank (82m).
- Bathymetry ranges from approximately 100 to 165m, shelving to the west before it dramatically plunges off the edge of the continental shelf at Brenot Spur into the Dangeart, Day, and Buache Canyons and the West European Basin.
- Steep seas with very high wave exposure resulting from a long 'fetch' across the Atlantic, strong prevailing wind and the warmer waters of the Gulf Stream.
- Atlantic upwelling of deep nutrient-rich waters attracting large numbers of seabirds and cetaceans which feeding on some 46 fish species found in this area.
- Diverse sediment types creating mixed habitats for molluscs, crustaceans and burrowing megafauna, designated areas including South West Deeps (West) and North-west of Jones Bank MCZs.
- The Canyons MCZ is unique due to its depth of over 2,000m, and presence of the only cold-water coral reef (*Lophelia pertusa*) in England. Dangaard Canyon and Explorer Canyon provide topographical complexity and high habitat heterogeneity.
- Much of the area on the continental shelf was exposed as dry land during the last glaciation and likely to have been inhabited. Legends associate Little Sole Bank with the location of the Lost City of Atlantis.
- Important strategic position during both World Wars, evident in the numerous cargo and U-boat wrecks dispersed across the seafloor.
- Territorial Waters boundary shared with the Republic of Ireland and France, forming part of the Celtic Sea, an area with a rich maritime trade heritage between the Celtic nations of Wales, Ireland (via St George's Channel) and France with England.

³ The full extent of the MCA's geology was not able to be confirmed through this study due to incomplete data coverage.

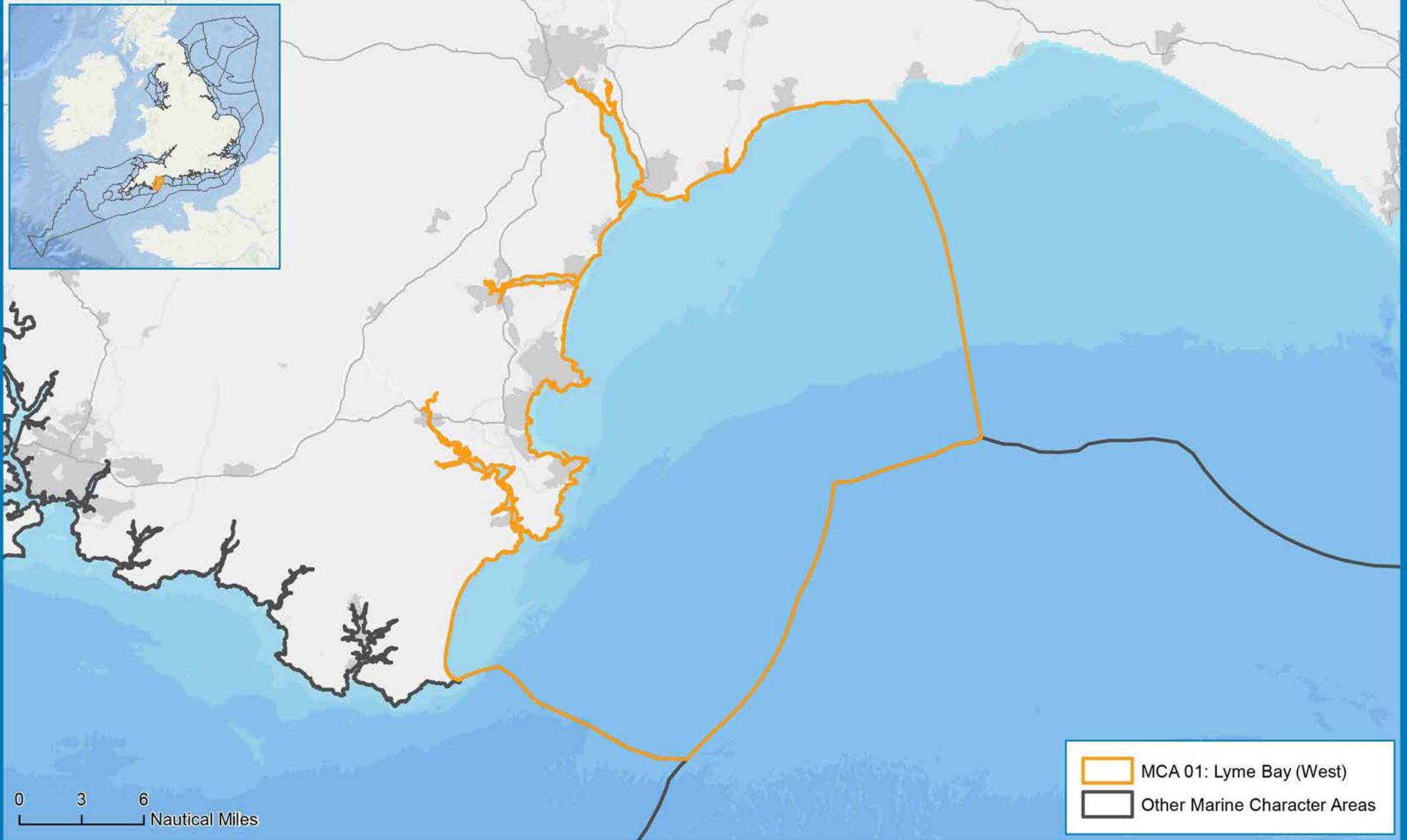
- Gateway to the British Isles via the English Channel, playing a long-standing role in the trade and shipping routes from the Americas, the Mediterranean and Africa. A large number of commercial ships pass through the area on their way to French and English ports.
- Submerged infrastructure including wellheads, communication cables and wrecks create obstructions on the sea floor.
- Nutrient rich waters supporting diverse offshore fishing grounds with deep-water pair trawling and gill nets targeting mackerel, blue whiting, hake and monkfish. The MCA hosts very significant migratory and commercially-important fish stocks.
- Container ships pass across distant, otherwise empty and expansive, oceanic horizons.
- It may be possible to gain distant views in clear conditions across neighbouring MCAs to and from the Isles of Scilly AONB and western parts of the Cornwall AONB.
- Elevated feelings of isolation and exposure, becoming intimidating in rough seas with steep breaking waves and poor visibility. Very little human influence (aside from marine transport) in this offshore area.



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Figure 22 - MCA 01, Lyme Bay (West)

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3.17.1 Profile for MCA 1: Lyme Bay (West)

Location and boundaries

Please note that this MCA straddles the south west and south marine plan areas. It was originally identified and described in the [Seascope Assessment for the South Marine Plan Areas \(2014\)](#). The published text from this is included below, with blue text indicating additional information gathered from this study relating to the area within the south west marine plan area.

This MCA covers the western part of the wider Lyme Bay from [Start Point](#) in the west to Branscombe in the north east, including the estuaries of the Dart, Teign, Exe and Otter. Its seaward boundary with MCA 14 extends to a maximum distance of approximately 35km offshore and a maximum depth of approximately 60m, in part following the South Inshore Marine Plan Area boundary and partly following the 50m bathymetry contour line. Its eastern boundary with Lyme Bay East (MCA 2) is formed by the distinct change in onshore geology. [The boundary extending offshore from Start Point avoids the rougher waters to the south of the promontory and indicates an area of reduced tidal flow.](#)

Overall character

The MCA's warm climate, calm waters and sheltered nature in combination with its many bays and estuaries provides the ideal environment for both people and a diverse mix of wildlife. [The calmer seas in the sheltered Start Bay contrast with 'the chops' which occur off the promontory of Start Point and the tidal races between the headland and the submerged Skerries Bank – marking the western gateway into the bay.](#) Tor Bay, otherwise known as the 'English Riviera', is a highly populated section of coastline and an extremely popular tourist resort with its busy coastal towns and golden sandy beaches. The area's calm and gently shelving waters provide favourable conditions for a wide range of water-based activities and historic refuge for sailing vessels, including tankers from the Channel. In contrast, the northern coastline is more isolated, defined by tall, unstable red cliffs forming part of the wider Jurassic Coast WHS. The coastline includes some of the most ancient rocks in the wider area, including fossils, as well as evidence for early man. Napoleonic defences and strong associations with maritime warfare – including the Spanish Armada (ships built in Exeter and Topsham) and WWII, as well as continuing Naval associations result in an area steeped in history. Internationally important estuarine, coastal and marine habitats support diverse coastal and marine wildlife, including rich fish stocks fuelling the economy of the major fishing port of Brixham. Despite its largely sheltered and calm conditions, the area is exposed to easterly storms; when in force having a dramatic impact on perceptual qualities. Panoramic views are afforded across the Bay, with long views of the distinctive wedge-shaped Isle of Portland (MCA 3) in clear conditions.

Adjacent National Character Areas (NCAs)

The adjacent coastline includes the following NCAs as defined by Natural England:

- 147: Blackdowns
- 148: Devon Redlands
- 151: South Devon

Adjacent and inter-visible nationally designated and defined landscapes

The coastline from Exmouth to the eastern landward extent of the MCA boundary falls within the East Devon AONB with the area around the Dart Estuary [and the south side of Tor Bay and Start Bay falling within the South Devon AONB](#). The northern extent of the coastline from the mouth of the Exe Estuary to Branscombe lies within the wider Dorset and East Devon WHS ('Jurassic Coast'). In addition, the coastline and coastal waters from Southdown Cliff to the south-western extent of the MCA are within the South Devon Heritage Coast; and the north-eastern coast and waters are within the East Devon Heritage Coast.

The UNESCO English Riviera Global Geopark covers the coast and seas of Torbay; internationally recognised for its rich geological, historical and cultural heritage.

3.17.2 Key characteristics of MCA 1: Lyme Bay (West)

- Large sweeping crescent shaped bay punctuated by smaller bays and narrow, steep sided rias and the major coastal estuaries of the Exe, Teign and Dart.
- Internationally valued cliff exposures, displaying varied rock formations spanning some 185 million years of the earth's history.
- Geomorphological features such as stacks and sea caves as well as highly unstable tall, soft red cliffs between Branscombe and Sidmouth subject to frequent mudslides and landslips.
- Smooth sea floors covered by fine sand and mud sediments, particularly thick around Tor Bay and the mouth of the Exe. [The Skerries Bank is located 2km from Start Point, running in a north-east direction for around 6.5km.](#)
- Sheltered location from prevailing winds resulting in favourable conditions for recreational sailing, and safe anchorage for the area's fishing fleet within its harbours and estuaries.
- Generally calm sea conditions within the Bay, with gently shelving waters (reaching a maximum of 60 metres) and a low tidal range. [Tidal races occur between the Skerries Bank and Start Point.](#)
- Estuary mouths with a tidal range of up to five metres, strong tidal streams and shifting channels providing hazards to navigation.
- Internationally and nationally designated coastline and marine habitats including the estuary systems, sand dunes of Dawlish Warren, spits, saltmarshes, coastal reefs and sea caves.
- Thriving marine life on the underwater reefs, boulders and bedrock ledges, as well as sediment deposits from the surrounding rivers. [The MCA contains the Skerries Bank and Surrounds MCZ, recognised for rich wildlife communities found on the seabed.](#)
- Wrecks on the largely sedimentary sea floor offer a hard substratum and further habitats for marine life (as well as popular dive sites).
- [Start Point and Skerries Bank form navigational hazards to shipping, with numerous documented losses.](#)
- Kent's Cavern formed in the early Pleistocene period by water action, and occupied by early native populations of the British Isles. Possible site of earliest anatomically modern human fossil yet discovered in northwestern Europe.
- [The remains of the lost village at Hallsand can be seen on the cliffside. The village was abandoned in 1917 following dredging which removed the protective shingle beach.](#)
- The area had well-established medieval and later trade links with far-flung ports, including in Spain, Italy and the Baltic States – with ships carrying sought-after cargo such as brandy and wine: the wrecks of some providing testimony to this.

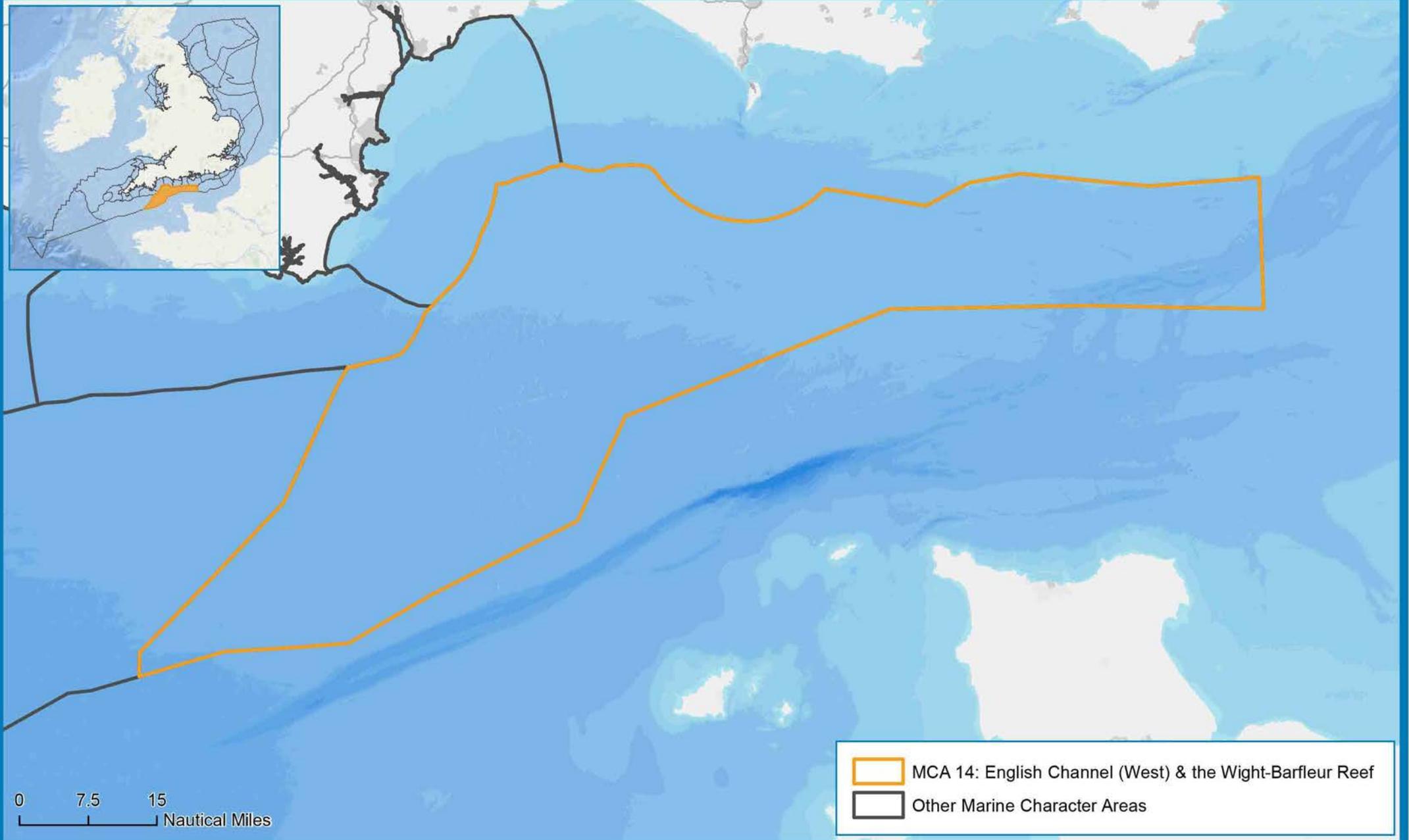
- Defensive coast with strong associations with the Napoleonic War and WWII, including D-Day landing practices. Serious losses in one such practice at Slapton in 1944 is still commemorated there. Shipping, aircraft and other equipment losses across the seabed.
- Nationally important Berry Head Fort and Hardy's Head Battery occupying a prominent position above Tor Bay as part of a strong assemblage of defensive structures along the wider coastline.
- Live firing and military practice at Straight Point Rifle Range and within the Bay. The Royal Naval College at Dartmouth and the Royal Marines at Lymstone on the Exe further strengthens the area's significance to maritime defence.
- Rich literary and artistic associations, with the area favoured by artists capturing the rugged coastline and changing light conditions.
- One of the south west's major commercial fishing and shellfish ports at Brixham, with a large fleet of trawlers, potters, netters and handliners taking advantage of the rich fish stocks of the area.
- Popular tourism destination from the late 18th century onwards following the arrival of the railways. The Tor Bay area is known as the English Riviera for its warm climate and busy coastal resorts.
- Busy waters and coastline around the harbours and estuaries, with extensive commercial and recreational activities. Pockets of contrasting tranquillity within the wooded estuary fringes and sections of undeveloped, remote cliffs.
- Distinctive red sandstone cliffs of the East Devon AONB prominent in views from the sea (long used for navigation), interspersed with often white-coloured houses and hotels standing out in front of a wooded and pastoral backdrop.
- Expansive views across the Bay and out to the Channel, frequently marked by cargo ships and tankers using the shipping lanes.
- Coastal edge crossed by the South West Coast Path offering panoramic sea views and forming part of the wider seascape setting to the East Devon and South Devon AONBs and component Heritage Coasts.
- Start Point lighthouse (1836) is located on the tip of the promontory; the flashing light contributing to night-time seascape character.
- Mainline railway linking resorts in the west providing an opportunity for people travelling through to experience views of the red cliffs and open waters of the Bay. They also experience the wild conditions of the seas when an easterly storm surge is in force.



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Figure 23 - MCA 14, English Channel (West) & the Wight-Barfleur Reef

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3.18.1 Profile for MCA 14: English Channel (West) and the Wight-Barfleur Reef

Location and boundaries

Please note that this MCA straddles the south west and south marine plan areas. It was originally identified and described in the [Seascope Assessment for the South Marine Plan Areas \(2014\)](#). The published text from this is included below, with blue text indicating additional information gathered from this study relating to the area within the south west marine plan area.

This MCA covers the western part of the English Channel, from approximately 35km offshore to a maximum of 88km at the edge of the offshore Marine Plan Area and territorial limits. In the west, the inshore boundary broadly follows the 50m bathymetry contour, and much follows the inshore Marine Plan Area boundary. The eastern part of the MCA encompasses the whole of the Wight-Barfleur Reef candidate SAC. The functional extent of the Channel stretches beyond English territorial waters into France, where the second shipping lane is located. It also extends eastwards into adjoining MCAs 13 and 14; collectively combining to cover the great majority of the English Channel. The shipping lane in English waters (in the south of the MCA) contains south moving traffic, and the two one-way lanes are separated by a Traffic Separation Zone.

This MCA extends west into the south west marine plan area to include an area with shared characteristics, including shallower offshore waters (up to 82m deep) and the busy international shipping channel.

Overall character

This MCA has a rich physical and cultural heritage that is reflected in its character today. It includes part of one of the busiest shipping channels in the world; the organised movement of the many ships, cargo vessels and tankers through the channel evoking a strong sense of place. The MCA is strongly associated with the defence of Britain over the centuries, including its role in the Anglo-Dutch Wars and both World Wars. The seabed includes the wrecks of sea-borne casualties from both World Wars as a legacy of the most recent conflicts. Despite the great influence of human activity over the centuries, beneath the seabed is a wealth of marine habitats, including internationally important high-energy rocky reefs and nursery/spawning grounds for a wide range of commercially fished benthic species.

Adjacent National Character Areas (NCAs)

N/A – this MCA does not include an adjacent coastline.

Adjacent and inter-visible nationally designated and defined landscapes

Although not immediately adjacent to the MCA, the Dorset AONB, South Devon AONB and Dartmoor National Park include land with glimpsed views out to sea, including towards this part of the English Channel.

3.18.2 Key characteristics of MCA 14: English Channel (West) and the Wight-Barfleur Reef

- Broad east to south west **dog-legged** channel forming the western part of the wider English Channel (which stretches into French territorial waters). It reaches a maximum depth of approximately 82 metres.
- Contains a large part of the English Channel Outburst Flood Feature -providing evidence of the flood which created the channel separating England from mainland Europe.
- Mixed solid geology of the sea floor largely concealed by seabed and palaeovalley sediments, including sand, gravels, and mud - rich habitats for benthic species.
- **North of Hurd Deep (in French waters), sediments gather to form isolated pockets of shallow water, decreasing the depth locally to approximately 45m.**
- The widest part of the English Channel between Lyme Bay and the Gulf of St Malo, resulting in high levels of exposure and breaking waves.
- Overfalls and strong tidal streams particularly associated with the Wight-Barfleur Reef in the east.
- Exposed rocky reef of the Wight-Barfleur candidate SAC, an extensive example of circalittoral bedrock reef (and the only known example in the south of England).
- Boulders and bedrock of the reef colonised by corals, sponges, tube worms, anemones and sea squirts.
- Waters of the MCA providing nursery and spawning grounds for a range of fish species, including mackerel, species of ray, sandeel, sole, bass, cod and plaice.
- Direct legacy of the wider Channel in the defence of Britain and the location for successive invasions - Romans, Norman Conquest, Napoleonic and the two World Wars.
- The Channel's turbulent past reflected in the wrecks of cargo and military vessels frequently attacked by torpedo or gunfire during WWI. One of the major D-Day assault routes passed through this MCA on route to Normandy. Much of the area remains a Submarine Exercise Area.
- The long-standing international importance of the Channel for trade also reflected in the international origin of shipwrecks on the seabed.
- Forms part of the first International Maritime Organisation - approved traffic separation scheme in the world - maritime traffic follows a one way system, separated by a central traffic separation scheme.
- Internationally important telecommunications cables passing through the seabed, including the Atlantic Crossing, which transports speech and data traffic between the USA and Europe.
- One of the busiest shipping channels in the world, with high volumes of large commercial freight/cargo vessels and tankers travelling through the southern part of the MCA.
- Important commercial and offshore recreational fishing grounds serving many fishing ports along the south coast, as well as France.

- A busy, dynamic area in the south defined by transport movement. The sight of maritime traffic on the horizon often features in views from adjacent MCAs, including Lyme Bay (MCA 1).
- Weather conditions subject to rapid change. Strong tides and the narrow topography can give rise to rough seas with steep breaking waves.
- Visibility is often poor, changing quickly to dense fog, even in strong or gale-force winds which can last for several days.
- Coastal edge crossed by the South West Coast Path offering panoramic sea views, including from the Dorset and South Devon AONBs.

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Annex 1: Data list

These columns set out how the data layers were used. Some data provided context (i.e. background mapping), some has informed boundary choice/definition, and some has informed the descriptions and key characteristics.

Theme	Data Layers	Source (obtained from)	Basemap / Context	Boundaries	Descriptions
Baseline Information					
Maps and Charts	Admiralty Charted Raster - various scales	UKHO (MMO)	Y	Y	Y
	OS maps - 1:250,000	Ordnance Survey (MMO)	Y		
	OS maps – 1:25,000	Ordnance Survey (MMO)	Y	Y	Y
Boundaries/Extent of Jurisdictions	Mean High Water Mark	Ordnance Survey Open Data (MMO)	Y		
	12 nautical mile limit (UKHO)	UKHO (MMO)	Y	Y	
	UK Continental Shelf Limit (UKHO)	UKHO (MMO)	Y		
	UK Exclusive Economic Zone (2013)	UKHO (MMO)	Y		
	UK Territorial Sea limits	UKHO (MMO)	Y		
	S57 - UKHO Administrative and Regulations boundaries	UKHO (MMO)	Y		
	Local Authority boundaries	Ordnance Survey Open Data (MMO)	Y		
	Harbour limits	UKHO (MMO)	Y		
Marine Plan Areas	MMO	Y	Y		
Character					
Landscape/ Seascape Character	National Character Areas (England)	Natural England (Magic)			Y
	Terrestrial Natural Areas	Natural England (Magic)			Y
	National Character Areas (Wales)	NRW (LUC)	Y		

Theme	Data Layers	Source (obtained from)	Basemap / Context	Boundaries	Descriptions
	Marine Character Areas - South marine plan area	MMO (LUC)		Y	
	Marine Character Areas - Wales	NRW (LUC)		Y	Y
	Devon Character Areas	Devon County Council	Y		
	Cornwall Landscape Character Areas	Cornwall Council (LUC)	Y		
	Exmoor National Park Landscape Character Areas	Exmoor National Park Authority	Y		
	Plymouth Seascape Character Areas	Plymouth City Council (LUC)	Y		
	North Devon & Exmoor Seascape Character Areas and Seascape Character Types	National Trust (LUC)	Y		
	Historic Seascape Characterisation (Bristol/Severn/South West Peninsula)	Historic England	Y		
Natural					
Landscape Designations	National Parks	Natural England (Magic)			Y
	AONBs	Natural England (Magic)			Y
	Heritage Coasts	Natural England (Magic)			Y
Bathymetry and Elevation	S57 - UKHO Depth Areas (line/area)	UKHO (MMO)		Y	Y
	S57 - UKHO Bathymetry - dredged areas	UKHO (MMO)			Y
	S57 - UKHO Bathymetry lines	UKHO (MMO)		Y	Y
	DTM for the Ocean bed from EU and patched with GEBCO Bathymetry for missing areas	European Marine Observation and Data Network	Y		Y
Biodiversity Designations	Special Areas of Conservation (SAC)	Natural England (Magic)			Y

Theme	Data Layers	Source (obtained from)	Basemap / Context	Boundaries	Descriptions
	Marine Candidate SAC	Natural England (Magic)			Y
	National Nature Reserves (NNR)	Natural England (Magic)			Y
	Ramsar sites	Natural England (Magic)			Y
	Site of Special Scientific Interest (SSSI)	Natural England (Magic)			Y
	Marine Conservation Zones	Natural England (Magic)			Y
	Recommended Marine Conservation Zones	Natural England (Magic)			Y
	Important Bird Areas/RSPB Reserves	RSPB			Y
	UK SACs with marine components (Natura 2000)	JNCC			Y
	UK SPAs with marine components (Natura 2000)	JNCC			Y
	OSPAR MPAs Inshore + Offshore	JNCC			Y
	Priority Habitat Inventory	Natural England (Magic)			Y
	Special Protection Area (SPA)	Natural England (Magic)			Y
	Potential Marine SPA	Natural England (Magic)			Y
	Fish Nursery Grounds (CEFAS)	CEFAS (MMO)			Y
	Fish Spawning Grounds (CEFAS)	CEFAS (MMO)			Y
	Harbour Seal density (lower/upper) (MS)	Marine Scotland (MMO)			Y
	LNR	Natural England (Magic)			Y

Theme	Data Layers	Source (obtained from)	Basemap / Context	Boundaries	Descriptions
	UKSeaMap2010_predictive_habitat_model_v8 (Broadscale habitat mapping)	JNCC		Y	Y
	EUSeaMap 2012	EMODnet	Y		
	Biosphere reserves	Natural England (Magic)	Y		
	Seabird summer/winter density (WWT)	WWT (MMO)	Y		
Geology and Geomorphology	Bedrock and Superficial, Faults and Dykes	BGS free download 1:625,000		Y	Y
	Offshore sediment geology	BGS (MMO)		Y	Y
	Offshore bedrock geology	BGS (MMO)		Y	Y
Landcover/Vegetation	OSPAR Habitats	EMODnet -funded by DG MARE			Y
Cultural/Social					
Heritage	Historic Parks and Gardens	Historic England			Y
	Listed Buildings	Historic England	Y		
	Protected Wreck Sites/Other wrecks	Historic England /UKHO (EH/MMO)			Y
	Historic casualties (point and area) - England & Scotland	Historic England (MMO)			Y
	Historic shipwrecks (point and area) - England	Historic England (MMO)			Y
	Scheduled Monuments	Historic England			Y
Recreation	National Trails	Natural England (Magic)			Y
	Country Park	Natural England (Magic)			Y
	Blue Flag Beaches	EA, Blue Flag (MMO)			Y

Theme	Data Layers	Source (obtained from)	Basemap / Context	Boundaries	Descriptions
	Marinas	RYA (MMO)			Y
	RYA clubs	RYA (MMO)			Y
	RYA cruising routes	RYA (MMO)			Y
	RYA racing area	RYA (MMO)			Y
	RYA sailing area	RYA (MMO)			Y
	RYA training centre	RYA (MMO)			Y
	Boat Launch and Slipways UK	www.boatlaunch.co.uk (MMO)			Y
	Volleyball England (South England)	Volleyball England (MMO)			Y
	Bathing water compliance	Environment Agency (MMO)			Y
	Recreational Craft Slipway	www.boatlaunch.co.uk (MMO)			Y
	Recreational Craft Marinas	www.boatlaunch.co.uk (MMO)			Y
Shipping and Navigation	Ports	UKHO (MMO)		Y	Y
	S57 - UKHO Activity and Licence Installation (point/area)	UKHO (MMO)		Y	Y
	S57 - UKHO Navigational Aids (buoy, light, etc.)	UKHO (MMO)			Y
	S57 - UKHO Obstructions (point/area)	UKHO (MMO)		Y	Y
	S57 - UKHO Offshore installations (offshore platform/buoy) (point/line/area)	UKHO (MMO)		Y	Y
	S57 - UKHO Transportation and routes - installations (rescue station, anchorage area, caution area, small craft facility) (point/line/area)	UKHO (MMO)			Y
	S57 - UKHO Wrecks (point/area)	UKHO (MMO)			Y
	Shipping	AIS/Anatec (MMO)			Y

Theme	Data Layers	Source (obtained from)	Basemap / Context	Boundaries	Descriptions
	Ferry routes and infrastructure	UKHO (MMO)			Y
	AIS Shipping density 2011 and 2012	AIS (MMO)			Y
	IMO Routing (line and buffer area)	International Maritime Organization (MMO)			Y
Industry, Energy and Infrastructure	Oil and Gas, aggregates	The Crown Estate (MMO)			Y
	The Crown Estate Aggregate Licence Area	The Crown Estate (MMO)			Y
	The Crown Estate Aggregate Application Area	The Crown Estate (MMO)			Y
	The Crown Estate AggregateOptionArea_TCE	The Crown Estate (MMO)			Y
	CCO Buoy Sites	Channel Coastal Observatory (MMO)			Y
	Tidal power	REA			Y
	Tide	REA			Y
	Tidal flow	REA			Y
	Wave	REA			Y
Military Activity	MOD areas (within Activity and Licence areas)	UKHO (MMO)			Y
Fishing	UK Fishing Limit	UKHO (MMO)			Y
	Days Fished 2005-2007	IFCA (MMO)			Y
	Fish Nursery Grounds	IFCA (MMO)			Y
	National shoreline management plan (SMP)	MMO			Y
	Fishermap data (Dredges & Activity)	MMO	Y		
	Fish Spawning Grounds	IFCA (MMO)			Y

Theme	Data Layers	Source (obtained from)	Basemap / Context	Boundaries	Descriptions
Perceptual/aesthetic					
Light Pollution	Night skies	CPRE			Y
Intrusion	Intrusion mapping	CPRE			Y
Tranquillity	Tranquil Areas	CPRE			Y
Visibility	Land with sea views	MMO			Y
	Sea visibility from land	MMO			Y

Annex 2: List of organisations contributing to consultation

List of organisations attending the Stakeholder Workshop, Bristol, 23 April 2018:

- Natural England
- Devon County Council
- Natural England
- Exmoor National Park Authority
- Fjordr Ltd

List of organisations attending the Stakeholder Workshop, Plymouth, 24 April 2018:

- Wessex Archaeology
- Cornwall AONB Unit
- Marine Management Organisation
- Plymouth City Council
- Seascope Analytics / Plymouth University
- Plymouth University
- South Hams and West Devon Councils
- National Trust
- Historic England

Further email comments were provided by a number of the above organisations.

Annex 3: Acknowledgement for use of EMODNet data in publications

The bathymetric metadata and Digital Terrain Model data products have been derived from the EMODnet Bathymetry portal - <http://www.emodnet-bathymetry.eu>.

This portal was initiated by the European Commission as part of developing the European Marine Observation and Data Network (EMODNet). The overall objective of EMODnet is to create pilots to migrate fragmented and inaccessible marine data into interoperable, continuous and publicly available data streams for complete maritime basins. The Bathymetry portal development started in June 2009 and now provides a range of options for freely browsing and downloading new Digital Terrain Models (DTM) for a large part of the European seas. The downloadable tiles are freely available in a number of formats. The EMODnet digital bathymetry has been produced from bathymetric survey data and aggregated bathymetry data sets collated from public and private organizations. These are processed and quality controlled. A further refinement and expansion is underway, by gathering additional survey data sets, expanding geographical coverage to all European sea regions and upgrading the DTM grid resolution, and will result in new releases in time. The portal also includes a metadata discovery service that gives clear information about the background survey data used for the DTMs, their access restrictions, originators and distributors.