



**Cyfoeth  
Naturiol**  
Cymru  
**Natural  
Resources**  
Wales

# Draft Marine Character Areas

Prepared by LUC

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## Marine Character Areas - Purpose

Welsh Government (WG) and Natural Resources Wales (NRW) have commissioned a national marine character area (MCA) assessment for Welsh inshore waters.

The aim is to provide a strategic understanding of the character of marine areas that will be meaningful to people by subdividing our seas into recognisable areas.

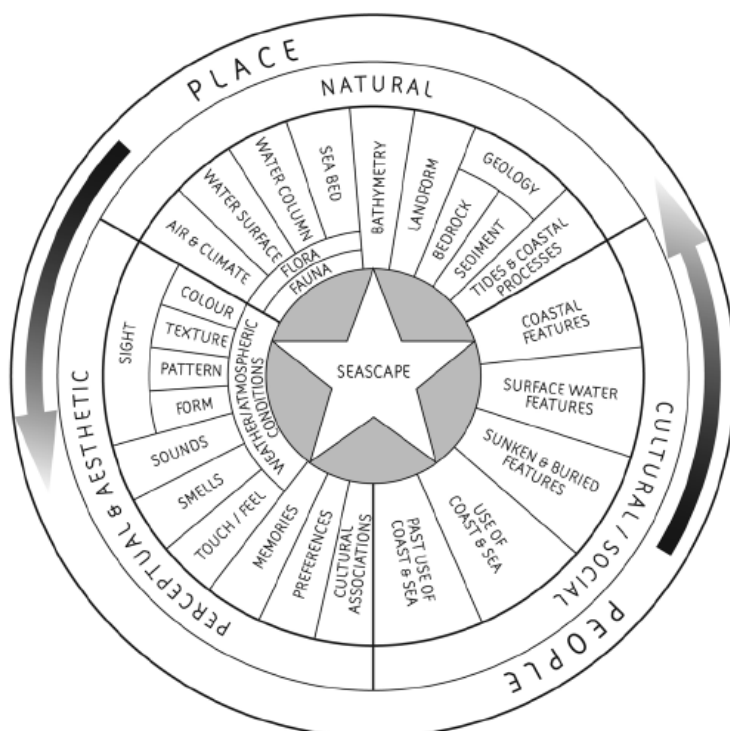
The study will complement similar studies undertaken elsewhere in the UK and build upon existing local seascape character area studies for coastal and marine areas off Pembrokeshire, parts of Gwynedd and Anglesey.

The objectives of the marine character area assessment work are to:

- **Identify broad-scale** character areas
- **Cover all parts** of the inshore Marine Plan area (because all areas have character and all areas matter)
- **Map, name and describe** the character of each area
- Do this in a **value-neutral** way i.e. not to prejudge what should or should not happen in each area.

## Marine Character Areas - context

Marine character assessment reflects the relationship between people and place. Character is a product of the interaction of the natural and cultural components of our environment and how they are perceived and experienced by people. The approach to character assessment is well established and has been adapted for seascapes in *An approach to seascape character assessment* (2011), Natural England. The inclusive scope includes natural, cultural and perceptual factors, as illustrated in the 'wheel' below.



Wheel from *'An approach to Seascape Character Assessment'* (2011) Natural England.

Dividing up our seas into recognisable areas that are meaningful to people represents an important step in understanding the Welsh marine area. MCAs would help us to:

- recognise and communicate what is typical or commonplace to find in one area, and how that is distinct or different to that of another area, at the broad scale that we need for strategic planning; and
- provide an integrated spatial context for the identification of drivers for change, and building on that, help us to recognise and better understand the potential opportunities and constraints for each of these areas – a key part of the planning process.

MCAs are not like a designation, they won't pick out 'some areas' as being more special than others. Instead, MCAs are an 'all-areas' concept so nowhere is left out, as all areas have character and all areas matter in planning. We need to show boundary lines for our maps but these will only represent approximate, generalised zones of transition between one area and the next.

## Policy context

Planning for the use of the marine area at the scale of Wales requires a strategic understanding of the distribution and interaction of marine natural resources, the way that people perceive them and the changes that may result from ongoing and changing use.

The **European Landscape Convention (ELC)**, to which the UK is a signatory, forms the context for our understanding and working with landscapes and seascapes. The ELC is "*concerned to achieve sustainable development based on a balanced and harmonious relationship between social needs, economic activity and the environment*", noting that:

- landscape plays an important public interest role
- contributing to human well-being and identity
- all landscapes matter
- landscapes and seascapes are dynamic and evolve over time
- they are shaped by both nature and people and therefore involve everyone.

The **UK Marine Policy Statement (MPS)** (2011, HM Government, Northern Ireland Executive, Scottish Government, Welsh Assembly Government) provides the current policy framework for the preparation of marine plans in accordance with the powers and requirements set out in the Marine and Coastal Access Act (2009).

The MPS sets out that marine planning will:

- Promote sustainable economic development
- Enable the UK's move towards a low-carbon economy, in order to mitigate the causes of climate change and ocean acidification and adapt to their effects
- Ensure a sustainable marine environment which promotes healthy, functioning marine ecosystems and protects marine habitats, species and our heritage assets, and
- Contributes to the societal benefits of the marine area, including the sustainable use of marine resources to address local social and economic issues.

Marine Plans for Welsh inshore and offshore waters will be prepared in accordance with the MPS.

With regard to seascape, the MPS states the ELC definition of landscape (which includes marine areas) as *“an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”*. It adds that in the context of the UK Marine Policy Statement, *“references to seascape should be taken as meaning landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other.”*

In developing marine plans, the MPS states that marine plan authorities should consider at a strategic level visual, cultural, historical and archaeological impacts *“not just for those coastal areas that are particularly important for seascape, but for all coastal areas”*, liaising with terrestrial planning authorities as necessary. In addition, it states that *“any wider social and economic impacts of a development or activity on coastal landscapes and seascapes should be considered”* and take into account *“existing character and quality, how highly it is valued and its capacity to accommodate change”*. It suggests that landscape character assessment methodology may be an aid to this process.

In relation to areas such as National Parks and Areas of Outstanding Natural Beauty, the MPS states that for any development proposed within or relatively close to nationally designated areas the marine plan authority should *“have regard to the specific statutory purposes of the designated areas”* and that *“the design of a development should be taken into account as an aid to mitigation”*.

Welsh Government are preparing marine plans for the inshore and offshore areas of Wales under one plan making process. The published plan will be referred to as the Wales National Marine Plan. The marine character assessment work will provide an important evidence base that will inform the development of the plan. The evidence will also help inform the integration of the Wales National Marine Plan with the land use planning system and the plans and processes outlined in the Planning (Wales) Bill and the Area Based Approach to natural resource management in the forthcoming Environment Bill.

Natural Resources Wales and Welsh Government will work together, using the framework provided by Marine Character Areas, to develop a common evidence base and to make this available through the Marine Planning Evidence Portal.

As marine planning develops and the national plan is implemented, Marine Character Areas will be used to understand local opportunities to support blue growth and the transition to a low carbon economy.

## Seeking your views on draft Marine Character Areas (MCA)

We are seeking your views and comments on our map showing draft Marine Character Areas (MCA) for Wales.

We want to feed in your local or specialist knowledge so we can better reflect sense of place and local distinctiveness as we identify and describe each marine character area.

We have appointed LUC to look at a wide range of spatial information and written literature to begin to compile the map. You can see the map and some key characteristics in this document in the following pages.

We also show the draft MCAs with some other layers of contextual information in a separate pdf document that can also be downloaded from our web page:

<http://www.naturalresourceswales.gov.uk/marine/draft-marine-character-areas/?lang=en>

We are also working with Welsh Government who are placing the draft MCAs on their Marine Planning Evidence Portal. In addition, we are jointly running a workshop to discuss the draft MCAs on 6 February 2015 in Aberystwyth. See the links on our web page for details.

We welcome any comments but offer the following to guide your considerations:

### **1. Do you feel that the MCAs identified for Wales adequately reflect key areas of distinct character at a strategic (national) scale? Do you have any comments on their names?**

- A map showing MCAs follows.
- Maps showing MCAs with contextual information are in the other pdf that can be downloaded from our web page.

### **2. Would you like to suggest any boundary amendments to the draft MCAs? Please provide reasoning for any suggested changes.**

- We explain our choice of boundary lines in the written descriptions for each MCA in the following pages.

### **3. Do the key characteristics for the Marine Character Areas provide a good overall summary of their character?**

- Please feel free to review the areas relevant to you or all of the MCAs.
- We have looked at a lot of maps and literature but we also want your local or specialist knowledge to better reflect sense of place and local distinctiveness.

### **4. Can you suggest additional or more relevant key characteristics?**

## How to respond

Please ensure that you use the MCA numbers in your response(s) so we know which ones you are referring to.

You can reply in the following ways:

Email:

[seascape@cyfoethnaturiolcymru.gov.uk](mailto:seascape@cyfoethnaturiolcymru.gov.uk)

Post:

Marine Character Areas (Seascape)  
Natural Resources Wales  
Maes y Ffynnon  
Ffordd Penrhos  
Penrhosgarnedd  
Bangor  
Gwynedd  
LL57 2DW

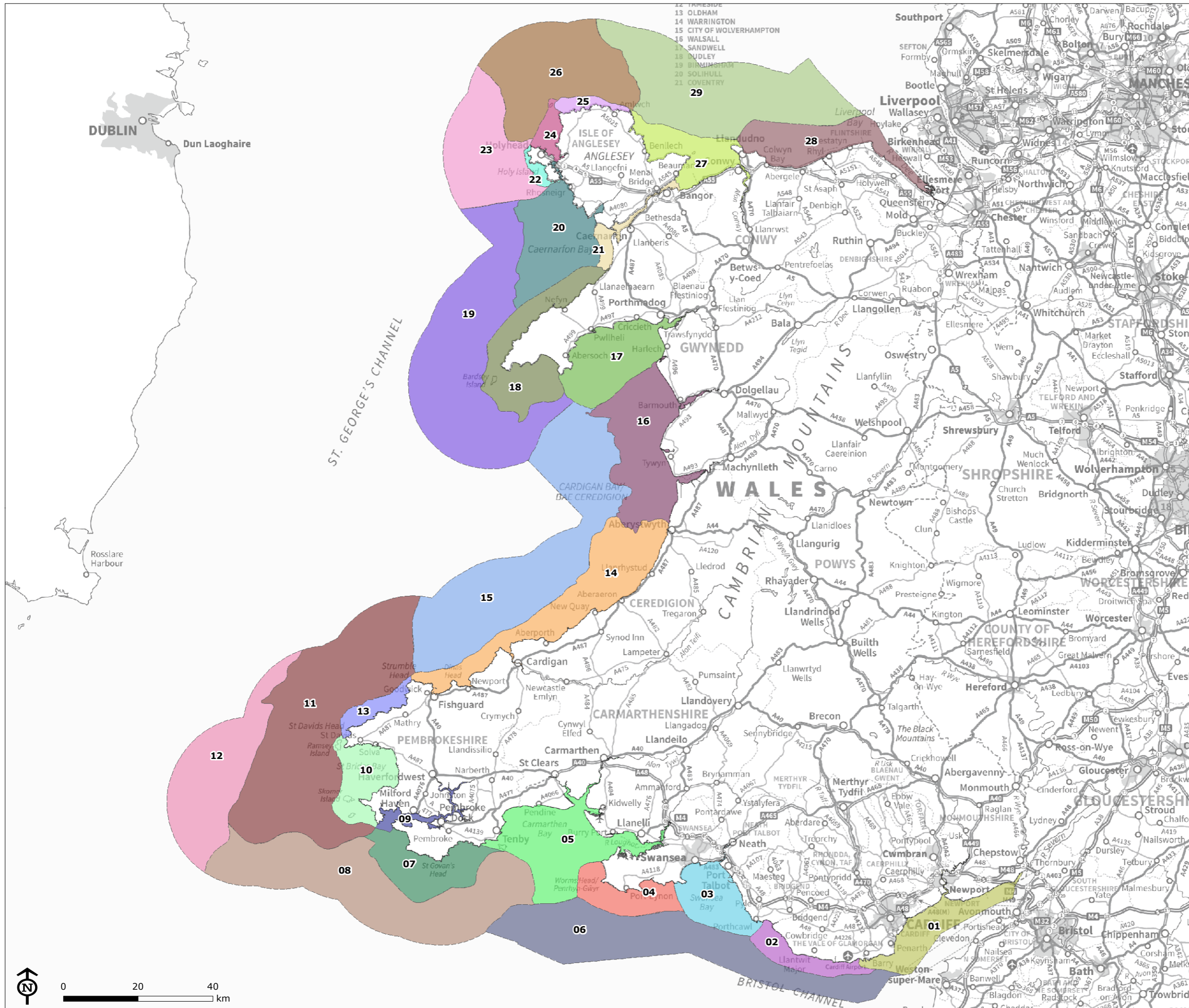
**Please submit your comments by 9am on 16th February 2015.**

# Wales National Seascape Character Assessment

**Figure 1: Draft Marine Character Areas**

- 01: Severn Estuary and Cardiff Bay
- 02: Nash Sands and Glamorgan Coastal Waters
- 03: Swansea Bay and Porthcawl
- 04: Helwick Channel and The Gower
- 05: Carmarthen Bay and Estuaries
- 06: Bristol Channel
- 07: South Pembrokeshire Coastal and Inshore Waters
- 08: South Pembrokeshire Open Waters
- 09: Milford Haven
- 10: Western Bays and Coastal Islands
- 11: West Pembrokeshire Islands, Bars and Inshore Waters
- 12: Irish Sea Offshore
- 13: St David's to Strumble Head Coastal Waters
- 14: Cardigan Bay (south)
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- 16: Cardigan Bay (north) and Estuaries
- 17: Tremadog Bay and Dwyryd Estuary
- 18: Llŷn and Bardsey Island
- 19: Llŷn and South West Anglesey Offshore Waters
- 20: Caernarfon Bay
- 21: Menai Strait
- 22: Holy Island West and Penrhos Bay
- 23: West Anglesey Open Waters
- 24: Holyhead Bay and The Skerries
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- 26: North-West Anglesey Open Waters
- 27: Conwy and Red Wharf Bays
- 28: Rhyl Flats and Dee Estuary
- 29: Outer Liverpool and Conwy Bays

Map Scale @ A3: 1:1,000,000





## MCA 1: Severn Estuary and Cardiff Bay

### Draft key characteristics

- Expansive funnel-shaped Severn Estuary, sitting at the mouth of four major rivers (the Severn, Wye, Usk and Avon).
- The immense tidal range of the estuary is second only to the Bay of Fundy in Canada.
- Soft Triassic and Jurassic rocks exposed along the shore, creating a wide rocky intertidal area. Elsewhere the shore is defined by extensive tidal flats.
- Mud, sand and gravel sediments deposited in the Holocene period producing a varied sea bed of flats and bars, with associated shallow waters and numerous shoals presenting hazards to navigation.
- Flat Holm island (SSSI and LNR) forms a gateway feature in the west – an outcrop of harder limestone rising out of the surrounding sediments. Steep Holm forms a similar ‘twin’ feature in English waters to the south.
- Estuary important for the interpretation of coastline dynamics and land-forms, and also past changes in sea level, sediment supply, climate and river flow.
- 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, salt marshes and the extensive wet grasslands are of international importance for wintering waterfowl and migratory birds.
- 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.
- MCA’s rich natural resources exploited by humans for millennia, from the earliest hunter-gatherers roaming what was previously a much larger coastal plain (prior to sea level rise around 6,000 BC).
- Long-standing strategic importance for international trade and maritime navigation, particularly as the ports of Cardiff, Bristol and Gloucester expanded from the medieval period onwards. Steep Holm formed a strategic ‘eye’ for the Roman fleet.
- Numerous ship wrecks littering the sea floor, particularly in the west – including examples mined and sunk during WWII.
- Local trawlers catch plaice, turbot, whiting and rays from the MCA’s sandbanks.
- Salmon, eels and trout fished commercially and recreationally in the rivers feeding the estuary, including through the traditional method of putcher fishing.
- Flat coastline backed by the Wales Coastal Path, affording long views across this MCA. Cars travelling along the M4 via the Severn Bridge also overlook the area.
- Views to major commercial, port and industrial development at Cardiff and Avonmouth, as well as the two road bridges, contrasting with the open, empty vistas characterising the Gwent Levels.
- Seascape’s open character affording strong intervisibility with the Somerset coastline, including Portishead, Clevedon and Weston-super-Mare. The higher hill summits of the Quantock Hills AONB form a distinctive upland backdrop to southward views.
- 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.

### Boundary rationale

- Marine area coincident with the majority of the Severn Estuary SAC (Wales) and full extent of the marine plan area. South western boundary broadly follows bathymetry, with the aim of excluding the deepest parts of the inshore channel.

- The proposed MCA also includes all of the Severn Estuary SPA, Ramsar and SSSI within the offshore and intertidal zones.
- It makes landfall in the west to be coincident with regional LCA 35: Newport, Cardiff and Barry (developed coastline which spreads out from Cardiff Bay)

## MCA 2: Nash Sands and Glamorgan Coastal Waters

### Draft key characteristics

- Dramatic coastline of Jurassic and Triassic mudstones and limestone; with near vertical cliffs, shingle or rock pavement beaches, and occasional sandy bays.
- South and south-westerly aspect with gently shelving waters reaching a maximum of 18m bathymetry.
- Jurassic mudstone seabed overlain by bands of sand and gravel in the west, forming the distinctive linear Nash Bank with associated shoals, shallows and changing depths.
- Tusker Rock, an extensive reef, forms a key seascape feature in the west. It is exposed at low tide and surrounded by shallow waters.
- Strong tidal streams, high wave climate and exposure to winds funnelling up the Bristol Channel form further hazards to navigation.
- Sections of SSSI designated coastline nationally valued for species rich neutral, calcareous and maritime grassland. Dunraven Bay SAC is home to the rare shore dock.
- Internationally important habitats on Methyr Mawr Warren including sand dunes and slacks, saltmarsh, limestone grasslands and swamp habitats.
- Commercial trawling and rod and line fishing, the sand banks in the west being rich grounds for plaice, turbot, whiting and rays.
- The iconic 19th Century Nash Point Lighthouse constructed of limestone from the beach below, is a key navigational feature and symbol of the area's maritime heritage (the last manned lighthouse in Wales).
- A further navigation mark guides vessels through the Nash Channel for safe passage to/from Porthcawl and Swansea.
- Tusker Rock – a notorious wrecking site – claimed the ships Maleny (1929) and Steepholm (1968). Other wrecks are testament to the often dangerous sea conditions of the MCA.
- The coastal settlements and beaches of Southerndown, Ogmore and St Bride's Major have long been popular tourism destinations for visitors to the Heritage Coast.
- The often wild qualities of the area are interrupted locally by air traffic associated with Cardiff International Airport.
- Long views across the Bristol Channel to Somerset and Exmoor; these views being appreciated by users of the clifftop Wales Coast Path.

### Boundary rationale

- Landward area encompasses all of the Glamorgan Heritage Coast (western landward boundary formed by the designation).
- Apart from Merthyr Mawr in the west (within the Heritage Coast designation), the landward boundary extent falls within regional Landscape Character Area 36: Vale of Glamorgan.
- Offshore – in the west, the MCA takes in the full extent of Nash Sands to West Nash. Also includes Tusker Rock in the bay of Merthyr Mawr.

## MCA 3: Swansea Bay and Porthcawl

### Draft key characteristics

- Large south and south-easterly facing bay backed by a developed coastal plain.
- Shallow waters of the inner bay of less than 10m bathymetry; depths reach a maximum of 20m in the outer bay.
- The dramatic Mumbles Head, formed of two limestone islands with lighthouse and pier, forms a distinctive western gateway into Swansea Bay.
- Varied coastline between development, comprising estuaries (Loughor, Tawe, Neath and Ogmore), sandy bays, dunes and low limestone cliffs and pavements.
- Kenfig Dunes are the largest sand dune system in Wales and include Kenfig Pool: the largest freshwater lake in the country (designated as SAC, NNR, LNR and SSSI).
- Seabed of Devonian and Carboniferous sandstones and mudstones, overlain by Holocene deposits of sand, gravel and mud - dredged to maintain port access.
- Linear sandbanks in the south-east: Scarweather Sands, Hugo Bank and Kenfig Patches. The associated shoals, shallows and changing depths are notorious hazards to navigation, marked by a number of buoys and fog signals.
- Carboniferous limestone reefs and rocks (including Fairy Rocks) extending from the Porthcawl coastline, with associated turbulence and shallow water.
- The bay has long provided safe refuge from heavy weather, although the seas can still be very steep in south or south-westerly storms.
- A higher wave climate is associated with the outer parts of the MCA, where the shelter provided by the land diminishes. The area around Scarweather Sands is a licenced Wind Farm Area (we will mention Swansea Bay tidal lagoon in full profile)
- Varied marine life supporting a range of commercial fishing activities including trawling, set netting, rod and line fishing, whelk potting and mussel seed harvesting.
- MCA has historic associations with native oyster catching – however, overfishing in the 19th century means few beds now remain.
- Origins as a Viking trading post, Swansea expanded significantly in the 17th to 19th centuries, its position allowing international maritime trade in a wide range of products – most notably locally produced coal and copper (termed "Copperopolis").
- Concentration of wrecks in the bay, a number torpedoed or mined during WWII.
- Swansea was the birthplace of poet Dylan Thomas – the famous link marked by an imposing statue in the Maritime harbour.
- A busy seascape, with major port-related developed and the Port Talbot steelworks forming strange geometric apparatus; chimneys and smoke plumes dominating the landward skyline.

### Boundary rationale

- Western and eastern coastal extents compatible with the regional Landscape Character Area 38: Swansea Bay. In the west this refers to the developed coastline around The Mumbles, with the western extent of the MCA making landfall at Whiteshell Point.
- Offshore boundaries informed by bedrock geology – the mudstone/sandstones of the bay itself, and protrusions of limestone extending from Merthyr Mawr.
- The sandbanks and related navigation marks (cardinal buoys South Scar, West Scar and Ledge) at the southern/SE entry to the Bay are also included.
- Smooth offshore boundary line broadly coinciding with depths of around 17-20m bathymetry.
- Fairy Rocks in east are also included – a feature of the eastern passage into the Bay.

## MCA 4: Helwick Channel and The Gower

### Draft key characteristics

- Rugged coastline of cliffs and sandy bays backed by elevated land at Rhossili Down, Llanmadoc Hill and the prominent Cefn Bryn ridge (180m AOD).
- Worms Head forms a thin, strangely profiled peninsula at low tide, becoming an island at high tide. It dramatically frames the MCA to the west.
- Coastline displaying cliffs of Carboniferous limestone, with an inlier of Old Red Sandstone outcropping at Rhossili Bay and southern bays carved into softer shales.
- Cliffs traversed by faults and folds, with evidence for past glacial activity in the form of raised beaches and cliffs. The coastal geomorphology is of national importance.
- SSSI-designated coastline with heathland and maritime grasslands and regionally important seabird nesting sites.
- Offshore, the seabed comprises a mixture of limestone, mudstone, sandstone and halite overlain by Holocene-derived sands and gravels.
- Long, narrow shoal of Helwick Sands extending westwards for over six miles from Port-Eynon Point – safe passage around this feature is assisted by cardinal buoys.
- Strong tidal streams off Worms Head, combined with the location of Helwick Sands and associated overfalls requires careful navigation, particularly during westerly weather.
- Western half of the MCA falls within the Carmarthen Bay & Estuaries European Marine Site, which recognises the variety of seabed habitats in the area.
- Rich marine environment attracting commercial and recreational fishing activity, including trawling and netting for herring and sprat, squid fishing and whelk potting.
- Helwick Sands is licensed for dredging by the aggregates industry.
- Concentration of wrecks from vessels foundering off the south coast, including a ship laden with iron ore travelling from North Africa to Port Talbot in 1940.
- Cliff-top Iron Age promontory forts, Neolithic burial chambers and Bronze Age cairns provide evidence for a long history of human occupation.
- A popular tourism and recreational destination for a range of activities, including cliff climbing, coasteering and walking (via the Wales Coast Path). Significant areas of coastline are under National Trust ownership.
- The exceptional scenic qualities of the coastline led to the Gower becoming Britain's first AONB in 1956, it is also defined as Heritage Coast.
- The MCA's iconic coastline gives rise to a number of 'voted best' views. These include wide vistas to the South Wales valleys and across the Bristol Channel (MCA 6) to the Exmoor hills and Lundy Island.
- A marked change in character between the adjacent developed, urban edge of greater Swansea to the east (MCA 3), and the more remote, strongly rural and often 'wild' qualities of this seascape.

### Boundary rationale

- Landward boundary extends from Burry Holms tidal island (at the southern estuary mouth of the Loughor) around to Whiteshell Point (to explore whether to extend this further east to Snaple Point – thoughts welcomed).
- Western offshore extent takes in the majority of the Helwick Channel and includes all of West Helwick sandbank, including the associated navigation mark.
- Western offshore boundary partially consistent with the edge of Pembrokeshire local SCA 42: Carmarthen Bay.

- Southern offshore boundary broadly follows the change to moderate/high wave energy associated with the Bristol Channel.

## MCA 5: Carmarthen Bay and Estuaries

### Draft key characteristics

- A large scale, open south facing tidal bay, the MCA extending into the large-scale estuaries of the Taf/Tywi and Loughor.
- Diverse shoreline with cliffs, rocky shores, a series of minor headlands and wide sandy beaches as well as dunes, marshes and estuarine mudflats.
- Gently shelving, shallow sandy sea floor less than 30m deep along the outer edge of the SCA.
- Edges of the bay are sheltered by the adjacent land, with wave exposure increasing in the centre. The estuaries are associated with low wave stress and low tide speed.
- Large areas designated for nature conservation interest (particularly for overwintering wildfowl) including Carmarthen Bay SPA and Carmarthen Bay and Estuaries SAC.
- The international designations combine to form the Carmarthen Bay & Estuaries European Marine Site, which also recognises the diversity of seabed habitats.
- Very few wrecks within the open Bay, with a small number of wrecks clustered around the Taf, Tywi and Loughor estuaries.
- Prominent coastal features include the monastery and lighthouse on Caldey Island and the deserted settlement on neighbouring St Margarets Island.
- Long wide sandy beach of hard sand provided ideal conditions for a previous land speed record at Pendine Sands.
- MOD training area and restricted zone at Pendine and Laugharne Burrows. The beach, dunes and part of the marsh are owned by MOD with firing range and military exercises extending out into Carmarthen Bay.
- Dredgers and commercial craft may be visible on the horizon within the Bristol Channel (MCA 6).
- Busy waters around Tenby with its harbour for fishing vessels and lifeboat station. The sheltered coastal waters are used for sailing, sail training and pleasure boating including trips to Caldey Island.
- Very well used commercially managed beach at Lydstep, with activities including jet and water skiing, as well as leisure boating. Climbing is popular on the limestone cliffs around Lydstep Point.
- A popular area for tourism due to accessibility of beaches. North Beach and South Beach flank the popular resort town of Tenby as well as beaches at Saundersfoot, Amroth and Wiseman's Bridge.
- In contrast, the eastern half of the MCA is associated with higher levels of tranquillity and remoteness, especially when MOD Pendine and Penally are not operating.
- Dylan Thomas made his home on the banks of the Taf – the dramatically located Boat House, now a visitor attraction.
- Wide unspoilt views out to sea from along the coast and the Coast Path, across to the Gower including Worms Head. There are also views across to Caldey Island, Tenby and Saundersfoot to the west.
- Key visible coastal features are Rhossilli Down and the Carmarthenshire coastal hills with Caldey Island and its lighthouse plus Tenby spire to the west. Coastal settlements and caravan parks (Lydstep Haven) are noticeable and detractive in parts.
- Offshore the sea is simple and open, large in scale and dominated by swell, waves and winds with a sense of remoteness.

### Boundary rationale

This draft MCA comprises a merge of the following Pembrokeshire local SCAs:

- 38: Lydstep Haven Coastal Waters
- 39: Tenby and Caldey Island (note this excludes the southern part of Caldey Island)
- 40: Carmarthen Bay West
- 41: Carmarthen Bay North to Pendine Sands (SCA cut off in east by local study area boundary).
- 42: Carmarthen Bay (note - SCA cut off in east by local study area boundary).

In addition:

- It includes all of Caldey Island and all of the Pendine offshore military practice area
- It covers the Loughor Estuary up to HWM, and northwards to cover Taf/Tywi Estuaries.
- The boundary with the Gower MCA formed by the tidal island of Burry Holmes, and in the marine area – the Helwick Channel (strongly associated with navigating around the Gower peninsular).



## MCA 6: Bristol Channel

### Draft key characteristics

- Open sea with medium depth water between 20 and 60m bathymetry.
- Along with the Severn Estuary (MCA 1), the Bristol Channel has the second highest tidal range in the world.
- Channels run perpendicular to the east-west tidal currents, which accelerate in the east due to the funnelling effect of the land.
- Exposure to weather rolling in from the Atlantic creates areas of high wave climate, along with an associated sense of danger during stormy conditions.
- Jurassic mudstone and limestone seabed, in parts overlain by Holocene deposits of sand and gravel which are licensed for dredging.
- This includes the sand bank of Culver Sand, marked by light buoys warning of shallow water and changing depths.
- Includes the southern edges of the Carmarthen Bay and Estuaries SAC/SPA, which recognises the area's wide variety of seabed types.
- Number of ship wrecks littering the sea floor, including those as a result of collisions (e.g. early 20th century coal ships en route to worldwide destinations from Cardiff), and others mined during WWII.
- Long-standing busy transport and trade route serving the major ports of South Wales and South West England (including Avonmouth), with thousands of ship movements per day.
- Leisure sailing by larger boats and commercial craft also takes place within the MCA.
- Sea with simple, open characteristics at a vast scale dominated by swell, waves and winds with a sense of remoteness.
- The seascape's open character affords strong inter-visibility between the South Wales and North Devon coastline, including Rhossili Down and Lundy Island.

### Boundary rationale

- MCA forms an extension eastwards from the Pembrokeshire local SCA 43: Bristol Channel Offshore to meet MCA 1: Severn Estuary.
- The proposed MCA includes significant areas of moderate to high and high wave climate, and 'moderate energy rock'.
- The outer boundary is formed by the Wales Inshore Marine Plan Area.
- Its extent is also consistent with how the Bristol Channel is depicted on the marine charts.

## MCA 7: South Pembrokeshire Coastal and Inshore Waters

### Draft key characteristics

- Diverse, rugged coast with rocky sections, steep cliffs, arches and stacks interspersed with small coves and scalloped sandy bays and beaches.
- Large area of sea, mainly 30-60m deep on gravelly sand bed with shallower waters over sand on St Gowan Shoals to east (10-30m depth)
- Internationally important and diverse coastline with rocky outcrops, deep red sandstone, white limestone cliffs (designated SAC) and wave cut platforms as well as numerous sandy coves, beaches and large sand dune systems.
- Limestone Coast of South West Wales SAC are protected for their rare and scarce plants, other designations include the European protected Pembrokeshire Marine SAC which is recognised for its rich marine life (eight Annex I habitats and seven Annex II species), the Castlemartin Range SSSI and the Stackpole Head NNR.
- Generally low wave stress except off St Anne's Head which has the potential for steep seas, large waves and strong dangerous currents with a wild character. Shallow sometimes treacherous waters en route to Millford Haven.
- Manorbier Castle is a strong coastal landmark with associated traditional settlement, designated as a Conservation Area.
- Buried archaeological landscape on cliff top and The Devil's Quoit standing stone dating from the Bronze Age indicates a long history of human inhabitants in the area.
- Several wrecks litter the shallow waters offshore from Linney Head and on the approach to Milford Haven.
- Offshore waters are used by ferries, commercial shipping and fishing boats.
- MOD practice ranges dominate the MCA with large areas restricted at Manorbier and Castlemartin.
- Millford Haven Harbour limits extend out into the west of the MCA.
- Popular with walkers using the Pembrokeshire Coast Path and network of footpaths with good access to beaches. The area is also popular with climbers, kayakers, motor and sailing cruising.
- Wide, unspoilt views out to sea and along the coastline from headlands and cliff tops, as well as from sections of the Pembrokeshire Coast Path, including views to Caldey and Lundy Islands and the North Devon coast.
- Very tranquil, remote and often wild coastline when the firing ranges are not operating. Long stretches of coastline have little or no settlement.
- Offshore open sea area with unspoilt, simple, consistent and unified marine character at a vast scale and a significant sense of openness, remoteness and exposure.

### Boundary rationale

This draft MCA comprises a merge of the Pembrokeshire local SCAs:

- 29: Southern Inshore Waters (for the purposes of the MCA, we have split off the western part of this SCA level with St Ann's head, as after this point the area takes on a westerly aspect)
- 34: Freshwater West
- 35: Castlemartin Coastal Waters
- 36: Stackpole Coastal Waters
- 37: Freshwater East and Manorbier

## MCA 8: South Pembrokeshire Open Waters

### Draft key characteristics

- Very large area of sea, 30-100m deep on gravelly sand seabed with low wave stress.
- Mudstone and limestone seabed overlain by a veneer of sand and gravel sediment.
- Small areas of the Pembrokeshire Marine SAC extending across the northern MCA boundary. The area is protected for its diverse habitats (subtidal rocky reef) and species (Allis and Twaite Shad and grey seals).
- A small section of the Carmarthen Bay and Estuaries SAC (and wider European Marine Site) covers the MCA in the east – which includes recognition of a diverse seabed.
- Relatively calm waters offshore with low wave energy strengthening along the coastline.
- There are numerous wrecks dispersed across the area including the HMS Marjoram, HMS Tormentor and the Ionian SS which struck a mine/torpedoed two miles west from St Govan's Head in 1917.
- The area is used for ferries, commercial shipping and fishing including drift lines, otter trawling and beam trawling.
- Inter-visibility with the southern Pembrokeshire coastline to the north and east, with the MCA itself forming part of an unspoilt backdrop, including in views from the Pembrokeshire Coast Path.
- Open sea area with unspoilt, simple, consistent and unified marine character at a vast scale and a significant sense of openness, remoteness and exposure.
- The area's qualities are determined almost entirely by the natural forces of water, through swell and waves, and wind.

### Boundary rationale

- The MCA boundary is consistent with the Pembrokeshire local SCA 30: Southern Offshore Waters.
- The outer boundary is formed by the Wales Inshore Marine Plan Area.

## MCA 9: Milford Haven

### Draft key characteristics

- Drowned ria with red steep sandstone cliffs and sheltered bays and shallow creeks surrounded by rolling and occasionally steep sided hills with distinctive woodland down to the water's edge.
- The sheltered tidal estuary creates a natural harbour with mudflats, sandy inlets and marshes, creeks and bays.
- Strong currents and swell at mouth of the estuary becoming more sheltered the further inland travelled where tidal changes take over as the main influence factor on the character.
- Very dispersed settlement with single dwellings and some small medieval and traditional villages. Limited transport links and no bridges.
- Historically rich area associated with the sea with the main urban settlements of Milford Haven and Pembroke Dock, with oil refineries, gas/oil storage and power station.
- Historic quays which contribute to the historic character and sense of place as do Carew Castle and tidal Mill, a promontory fort at Picton Point and local Parks and Gardens.
- Busy harbour mouth and commercial shipping channel with tanker terminals, ferry terminal and marinas.
- Popular for sailing and other recreation especially around Dale although fair low key recreation including small boat moorings elsewhere. High numbers of walkers using the coastal path runs around the entire sea edge.
- Busy harbour mouth and commercial shipping channel to the west contrasting to the high levels of tranquillity within the sheltered tidal estuary to the east.
- Views within the estuary vary with views being contained and channelled by the surrounding steep hills along the narrow estuaries then opening up towards the wide estuary mouth.
- The oil refinery and associated infrastructure dominates views into the MCA, including from the surrounding seas (MCAs 7, 8, 10 and 11).

### Boundary rationale

This draft MCA comprises a merge of the Pembrokeshire local SCAs:

- 31: Outer Milford Haven
- 32: Inner Milford Haven
- 33: Daugleddau

## MCA 10: Western Bays and Coastal Islands

### Draft key characteristics

- Diverse and spectacular coastline with rugged steep cliffs that are punctuated by sandy foreshores and isolated bays. St Brides Bay is a broad scalloped bay with a westerly aspect, gently falling away from the beaches at Newgale Sands and Broad Haven. The isles of Skomer, Skokholm, Ramsey and smaller Bishops and Clerks mark the entrance to St Bride's Bay. Each island has its own unique characteristics with an array of coastal features including rocky shores, stacks, arches, caves and small coves.
- Hazardous seas around the islands with strong tidal streams, races and eddies, especially along the Ramsey Sound which forms a north-south tidal sea passage.
- Biodiverse waters and coastline for birds, porpoises and seals. Skomer is designated as a Marine Nature Reserve and MCZ; Skokholm NNR is an important bird sanctuary.
- Subtidal rocky reefs, large shallow bays, sandflats and caves are some of the habitats that create such rich marine environment within the Pembrokeshire Marine SAC (covering all of the MCA).
- Exposure to westerly and southerly winds, with strong surf over long shallow beaches. The MCA's position affords shelter to northerlies. Drying or submerged rocks are shipping hazards.
- There are virtually no wrecks within the bay, however, around the islands there are numerous wrecks including downed planes lost during WWII.
- Historic landscape on Skomer with many remains dating from prehistoric times.
- Rich seas attract much fishing activity, including beach seining, set nets, lobster and crab potting.
- The MCA is used by commercial ships anchoring while waiting to access Milford Haven.
- Popular coastline and marine area for a range of recreational activities including sailing and motor craft, diving, angling, wildlife watching, island boat trips, surfing, kayaking and swimming.
- Uninterrupted vistas define character, including to famous cliffs (Wooltack Point, Nab Head, Black Cliff & Dina Fawr), islands (Ramsey, Skomer and the Bishops) and open sea from several high viewpoints – many accessible via the Coast Path.
- Numerous coastal settlements acting as key landmarks; the lighthouse on Skokholm is also a strongly associated coastal and maritime feature – both in the day and at night.
- The open sea has an unspoilt, simple, consistent and unified marine character at a vast scale and a significant sense of openness, remoteness and exposure.

### Boundary rationale

This draft MCA is created from a merge of the following Pembrokeshire local SCAs:

- 17: Ramsey Sound
- 18: Ramsey Island Coastal Waters (note outer boundary extended for the MCA to ensure associated waters are within)
- 24: St Brides Bay
- 25: Skomer Island and Marloes Peninsula.
- 23: St Brides Bay South Coastal Waters – The Nab Head
- 22: St Brides Bay South Coastal Waters – Borough Head
- 21: St Brides Bay Coastal Waters East
- 20: St Brides Bay Coastal Waters North

- 26: Skokholm and Gateholm Coastal Waters (note that we have ensured that the tidal races and shoals associated with Skokholm are included within this MCA (the Pembrokeshire assessment includes them with SCA 29))
- 29: Southern Inshore Waters (note we have split off the eastern part of this component SCA level with St Ann's head, as after this point the area takes on an easterly aspect. Have rounded southern boundary around Skokholm following bathymetry and nautical mile lines).

## MCA 11: West Pembrokeshire Islands, Bars and Inshore Waters

### Draft key characteristics

- Varied offshore MCA with a large area of sea, ranging from 30-100m in depth on a gravelly sand seabed. A striking east-west volcanic bedrock ridge extends west of Skomer.
- A series of rock islets and reefs along submarine ridges, interspersed with moderately deep channels off the west coast.
- Two elongated offshore bars of gravelly sand lie on the seabed parallel to the coastline, shaped in line with tidal stream.
- Bais Bank (parallel with St David's Head) includes shallows of less than 10m depth and dangerous shoals/overfalls.
- Rich marine wildlife, especially around rocks including puffins, seals, porpoises and dolphins, a large gannetry is present on the isolated rugged island of Grassholm, part in the Pembrokeshire Marine SAC.
- Exposed seascape area with high wave stress, strong tidal currents and tidal rips and overfalls around rocks create hazardous waters.
- Numerous wrecks in the area especially around the Smalls, Grassholm and North Bishop rocks.
- The area is used for sea angling, fishing, ferries and commercial shipping.
- Some recreation including wildlife trips, sailing and diving.
- The Smalls and Bishop lighthouses are prominent features on isolated islands marking the surrounding hazardous waters.
- Unspoilt views from the western coast, including from the Pembrokeshire Coast Path with distant views to and from mainland, Ramsey Island and Skomer Island.
- Forms a maritime backdrop to the iconic Pembrokeshire Coast National Park view from Carn Llidi to Ramsey Island.
- Open sea area with unspoilt, simple, consistent and unified marine character at a vast scale and a significant sense of openness, remoteness and exposure.
- The area's qualities are determined almost entirely by the natural forces of water, through swell and waves, and wind.

### Boundary rationale

This draft MCA is created from a merge of the following Pembrokeshire local SCAs:

- 12: Strumble Head Deep Water
- 14: Western Sand and Gravel Bars
- 19: Bishops and Clerks
- 28: West Open Sea
- 27: Grassholm and The Smalls

In addition:

- It also includes the western part of local SCA 8: North Open Sea.
- The boundary between this MCA and MCA 15 (Outer Cardigan Bay) has been smoothed to reduce the kinks created from the local SCA boundaries. The revised, smoothed boundary is consistent with a change from low energy sub-littoral sediment in the eastern part of this MCA to moderate/high energy sub-littoral sediment influencing MCA 15.

## MCA 12: Irish Sea Open Waters

### Draft key characteristics

- Very large area of sea, over 100m deep on gravelly sand and sand seabed with low wave stress.
- Mudstone and sandstone covers the majority of the area with a slither of slate breaking through the middle and an area of chalk bedrock in the southern corner.
- A very small part is in the Pembrokeshire Marine SAC – important for its rich marine life supported by a diverse mix of habitats including reefs and subtidal sandbanks.
- There are a moderate number of wrecks in the area including the Churchill, Solitude and the Flint Stones cargo ship which was captured during WWI by a German submarine and blown up.
- The area is used by commercial shipping with a traffic separation zone west of the Smalls, for ferries and for fishing.
- Deep water submerged cable crosses the area south to north connecting England with Ireland.
- Open sea area with unspoilt, simple, consistent and unified marine character at a vast scale and a significant sense of openness, tranquillity, remoteness and exposure.
- The area's qualities are determined almost entirely by the natural forces of water, through swell and waves, and wind.

### Boundary rationale

- This draft MCA incorporates all of the Pembrokeshire local SCA 44: Western Offshore – very deep water, which is consistent with the Marine Character Type 'Low energy sub-littoral sediment: deep water'.
- The MCA sits within the Inshore Marine Plan Area outer boundaries.



## MCA 13: St David's to Strumble Head Coastal Waters

### Draft key characteristics

- An indented north-west facing coastline with rugged cliffs and headlands rising between 50m to 140m AOD.
- Clifed coastline interspersed with steep narrow valleys, harbours, sandy beaches and inlets with rocky islets and stacks slightly offshore.
- St David's peninsula backed by the highly prominent landform of Carn Llidi: an abrupt rocky volcanic outcrop.
- The western extent of the MCA falls within the Pembrokeshire Marine SAC, with valued marine habitats including subtidal reefs and sea caves, and rare species such as Shore dock.
- Other designations include the St David's SAC, Ramsey and St David's Peninsula Coast SPA and Strumble Head SSSI – all important for their range of coastal and maritime habitats.
- Severe pattern of wave disturbance along the majority of the exposed coastline.
- The area boasts many prehistoric remains including hill forts on Garn Fawr, promontory forts and ancient settlement remains.
- Industrial heritage at Porthgain and Aberiddi derived from quarrying and other trade.
- The sea is used for handline fishing and lobster/crab potting. The Fishguard ferry passes nearby within MCA 11.
- The Coast Path extends around the cliff tops, affording walkers with outstanding views across the MCA and beyond. Pwll Deri is a popular destination for climbers.
- The inaccessibility of long sections of the foreshore means that Strumble Head and its lighthouse are a key attraction for visitors.
- Sandy coves including Whitesands Bay and Aberiddi Bay provide visitors with a rare opportunity to access the sea for surfing, swimming, kayaking and diving.
- A small links golf course lies behind the dunes at Whitesands Bay.
- Occasional caravan parks and camping sites are evident in views from the sea and along the coast.
- Unspoilt, long views out to sea from the coast and panoramic views from Garn Fawr.
- Prominent, exposed rocky coastline with a wild and remote character, particularly due to the lack of access to the shoreline in many locations.

### Boundary rationale

This draft MCA comprises a merge the following Pembrokeshire local SCAs:

- 16: Whitesands Bay
- 15: St David's Head
- 13: Penbwchdy to Penllechwen
- 11: Strumble Head to Penbwchdy

Note that the offshore extent of the MCA has been extended from that of the above SCAs, into Pembrokeshire SCA 28: West Open Sea, following logical bathymetry lines marked on the marine charts. The distance from Strumble Head has also been extended to take in the associated waters influenced by the headland (this also applies to MCA 14).

## MCA 14: Cardigan Bay (south)

### Draft key characteristics

- Diverse coastline with spectacular craggy high cliffs rising to over 175m AOD, jagged rocky foreshore with cliff arches, sinuous estuaries with mudflats and sandy bays,
- High sandstone and mudstone cliffs characterise the headlands to the south. The landform is lower to the north and on Cardigan Island at around 50m AOD.
- Prominent whale-backed headland dividing and containing Newport Bay and Fishguard Bay.
- Gently shelving sea bed of a medium depth water on sandy gravel seabed. Islets lie just offshore, linked at low tide.
- Highly exposed seas, especially in north or north westerly winds, with over-falls around the headlands.
- High wave climate associated with the coastline from New Quay northwards, facing the full brunt of weather conditions sweeping in from the Atlantic.
- Highly designated stretch of coastline and surrounding waters (Afon Teifi SAC, Cardigan Bay SAC and several SSSIs), with valued sandbanks, reefs and sea caves supporting species such as the bottlenose dolphin.
- A busy sailing centre forms a focus of summer activity at Newport.
- Few wrecks, concentrated on the approaches to Fishguard Harbour, north of Strumble Head.
- Area boasts many prehistoric remains including burial chambers, promontory forts, standing stones and field systems. The last (abortive) invasion of Britain by the French Republican La Legion Noire occurred at Carregwastad Point.
- Rich seas attracting fishing activity – otter trawling, set netting, handline fishing and lobster/crab/prawn potting all take place.
- Much coastal and marine recreation, including leisure sailing, beach angling, sea kayaking and use of Celtic longboats, swimming and beach-based activities, as well as dolphin spotting trips to Cardigan Island.
- Hub of activity at Fishguard, including commercial fishing and leisure craft – the ferries travelling to and from Rosslare (Ireland) forming frequent seascape features.
- The Coast Path provides access for walkers along the cliff tops and headlands, affording expansive views out to sea, including outer Cardigan Bay (MCA 15) and north towards Anglesey.
- Large parts of the coastal waters within the Aberporth military training area. During periods of live firing, an overriding sense of remoteness is broken.
- Parts of the sea near Llannon are licensed for oil and gas exploration.
- Coastal landmarks visible in landward views include Cemaes and Dinas Heads, fronting a backcloth of coastal hills including Mynydd Carningli.
- The lighthouse at Strumble Head forms a strong night-time feature; the beam sweeping across a dark, empty sky.

### Boundary rationale

This draft MCA comprises a merge of the following Pembrokeshire local SCAs:

- 1: Teifi Estuary
- 2: Cardigan Island Cemmaes Head
- 3: Pen y Afr to Pen y Bal
- 4: Newport Bay
- 5: Dinas Island

- 6: Fishguard Bay East
- 7: Fishguard and Goodwick Harbours
- 8: North Open Sea (note that in creating the MCA, we have ensured that Strumble Bank and surrounding waters are kept with Strumble Head, within this MCA. The boundary of the MCA here is guided by bathymetry).
- 10: Crincoed Point and Strumble Head

Please note that the offshore extent of the MCA between Pembrokeshire and Anglesey is guided by sediment geology; consistent with the approach taken by the local studies either side. This also pulls in a logical extent of coastal waters where the interrelationships between coast and sea are strong.

The northern extent of the MCA loops around the Cynfelyn Patches following logical sediment geology lines (again consistent with approach to similar features further north). This sarn (rocky reef) is kept with the others as distinctive characteristics of MCA 16: Cardigan Bay (north) and Estuaries.

## MCA 15: Outer Cardigan Bay

### Draft key characteristics

- MCA comprises the outer edges of Cardigan Bay with a north-westerly and westerly aspect.
- Mudstone and sandstone seabed overlain by Holocene deposits of sand and gravel – forming hummocks on the sea floor and associated areas of shallower water depth (particular examples off Dinas Head).
- Water is deeper in the south (up to 40m), compared with shallower water (up to 20m) in the northern section.
- Wave climate increases significantly in the central and northern part of the MCA, as the sea becomes fully exposed to prevailing westerly weather conditions creating a wild and dramatic quality.
- Robust infauna (invertebrates that burrow into the seafloor substrate) are adapted to the MCA's mobile coarse sediment.
- Important demersal fish spawning and scallop fishing grounds. Other commercial fishing activity includes beam and otter trawling, as well as whelk/lobster/crab potting.
- The rich fish life found in the area means cetaceans are regularly sighted, including bottlenose dolphins.
- Few wrecks, concentrated on the approaches to Fishguard Harbour including the Gramsbergen cargo vessel which broke free from her anchor chain and hit rocks before sinking off Penrhyn, and the Flying Dream which burnt at its moorings.
- Large section within the Aberporth military training area, used for missile testing. During periods of live firing, an overriding sense of remoteness is broken.
- Parts of the sea are licensed for oil and gas exploration.
- Used for leisure sailing by larger boats, commercial craft and ferries to and from Fishguard Harbour.
- Commercial shipping can be seen to the west. Flashing Cardinal Marks (buoys) at the ends of the sarnau can also be seen, especially at night.
- Coastal landmarks visible in landward views include Cemaes and Dinas Heads, fronting a backcloth of coastal hills including Mynydd Carningli.
- The lighthouse at Strumble Head forms a strong night-time feature; the beam sweeping across a dark, empty sky.
- The street lights of Fishguard and the ferry port can also be discernible from closer distances to the shore; however much of the adjacent coast is free from light pollution reflecting its lightly settled character.

### Boundary rationale

The draft MCA includes the following Pembrokeshire local SCAs:

- 8: North Open Sea (note amends in MCA 14 with regards to excluding waters around Strumble Bank to keep these with Strumble Head)
- 9: Newport and Fishguard Outer Sand Bar

It also takes in the following Snowdonia local SCA:

- 36: Cardigan Bay

The northern edge of the MCA responds to the transition from exposed (high energy) to the more sheltered (low energy) waters of the southern Llŷn. The boundary between this MCA and MCA 11 (West Pembrokeshire Islands, Bars and Inshore Waters) has been smoothed to reduce the kinks created from the local SCA boundaries. The revised, smoothed boundary is consistent with a change from low energy sub-littoral sediment in

the eastern part of MCA 11 to moderate/high energy sub-littoral sediment influencing this MCA.

The MCA sits within the Inshore Marine Plan Area outer boundaries.

## MCA 16: Cardigan Bay (north) and Estuaries

### Draft key characteristics

- Tidal and long-shore drift processes resulting in the formation of a swash-aligned landform comprising long sandy beaches backed by dunes at Morfa Dyffryn and Borth Sands, and much shell deposition.
- Around Llwyngwriil, steeply sloping cliffs drop to a narrow, pebbly beach. In the south of the MCA near Borth, the sea hits west-facing cliffs creating dramatic spray and crashing waves, causing ridges to form on cobble beaches.
- The Mawddach and Dyfi estuaries flow into the sea in this MCA, along with a number of other rivers draining from the mountains of Snowdonia to the east.
- Seabed comprising a thin layer of quaternary sand and gravel overlying Oligocene, Permo-Triassic and Jurassic sedimentary rock. It includes rare carbonate reefs.
- Shallow, mobile sand substrate, regularly disturbed by wave action. The MCA is characterised by weak to moderate tidal currents.
- MCA includes part of the Pen Llŷn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC, recognised for its varied maritime habitats and species including seals and dolphins.
- Other internationally and nationally designated areas at Morfa Dyffryn, the Mawddach Estuary, Broadwater and the Dyfi, reflecting the rich coastal and estuarine habitats of the area.
- The rich marine environment also provides nursery grounds for commercially important demersal fish, habitats for invertebrate communities and feeding grounds for sea birds.
- Offshore historic and cultural features include Barmouth harbour and the associated historic shipbuilding and fishing industries. Summer ferry from Barmouth to Fairbourne.
- Strong historic associations between Borth and the sea. Originally a fishing village but now much expanded for coastal tourism.
- Historic harbour and former fishing village at Aberdyfi with associations with herring fishing and the export of lead ore.
- Wrecks are found along Sarn Badrig to the north of the MCA. And include the Protected Wrecks of the Diamond and the Tal y Bont. Lighthouses form charismatic day and night-time maritime features.
- Recreational and commercial fishing activity including potting, netting and light trawling and boating.
- Marine area popular for sailing and fishing, with a small harbour and slipway at Aberdyfi.
- At low tide, Mawddach estuary contains rich variety of colours and textures. At high tide, it can appear lake-like.
- An open, large-scale seascape framed to south by cliffs, and to north by Tywyn sands. Open views afforded over Cardigan Bay, with hills of the Llŷn peninsula appearing like islands on northern horizon.

### Boundary rationale

The draft MCA includes the following Snowdonia local SCAs:

- 35: Aberdyfi Bay
- 27: Dyfi Estuary
- 25: Tywyn and Sarn-y-bwch
- 34: Barmouth Bay
- 23: Mawddach Estuary
- 22: Mochrasto Fairbourne and Sarn Badrig

Note that the northern and western boundaries of SCA 22 have been extended to form the MCA extent, taking in the rough, shallow waters associated with Sarn Badrig which include areas of high energy rock and high energy sub-littoral sediment (Marine Character Types). This contrasts with the calmer gently shelving waters of MCA 17 (adjacent to the north).

## MCA 17: Tremadoc Bay and Dwyryd Estuary

### Draft key characteristics

- A sweeping, shallow bay with wide sandy beaches, and a distinctive swash-aligned coastal landform at Morfa Harlech. To the north, the rugged coastal peak of Moel-y-Gest is a prominent landmark.
- Extensive intertidal area at the mouth of the estuary, with a meandering channel running through it, and continuing inland. River flows through a notable rocky gorge near Penrhyndeudraeth before the valley widens again.
- Shallow mud and sand substrate overlying Oligocene and Permo-Triassic sedimentary rock with a diverse infaunal community. Historically, mariners used sounding leads on entering the bay, both for measuring water depth and observing changes in sediment.
- Includes part of the designated Pen Llŷn a'r Sarnau/ Llŷn Peninsula and the Sarnau SAC, recognised for its reefs, shallow inlets and estuaries.
- Extensive intertidal habitats and river channels designated SAC and SSSI (Morfa Harlech and Glaslyn) provide important bird feeding and overwintering sites and habitat for rare plants and insects.
- Nursery grounds for commercially important demersal fish including sole and plaice.
- The rocky reef of Sarn Badrig forms the southern boundary to this MCA and supports a diverse reef community.
- A fairly sheltered MCA with weak to moderate tidal currents. Wave action generates little disturbance in central, muddy areas of the MCA.
- Glaslyn and Dwyryd estuaries flow into the sea in this MCA.
- Marine environment strongly influenced by the relatively high water temperatures and turbidity associated with Tremadoc Bay.
- Wrecks are found along the southern MCA boundary of Sarn Badrig, including the schooner Vigilant (1858) and the Pride of the Sea.
- Historic and cultural features associated with the estuary include a former coastal warehouse with river access at Ynys, the harbour at Porthmadog, the associated 'cob' railway embankment in connection with the transport of slate from quarries inland and its export by ship; the former trestle bridge and toll house near Llandecwyn Station (now replaced by modern bridges), and the Italianate model village at Portmeirion, with its picturesque estuary location, designed by Sir Clough Williams-Ellis.
- Recreational and fishing boats seen accessing Porthmadog harbour and Pwllheli. There is limited fishing activity of light otter trawling and potting.
- Tourism and recreation are important uses, with recreational boating, water sports, sea angling and popular beaches.
- A relatively enclosed offshore MCA with views of the Llŷn peninsula to the north and the Gwynedd coastline to the east throughout the MCA.
- Long views across the length of the sweeping bay create an open quality and large scale to the MCA. Weather and season have strong influences on the perceptual qualities of the area.

### Boundary rationale

This draft MCA includes the following Snowdonia local SCAs:

- 33: Tremadoc Bay
- 20: Porthmadog and Glaslyn Estuary
- 21: Dwyryd Estuary and Morfa Harlech
- 19: Cricchieth to Mochras



In creating the MCA, the area covered by the above local SCAs has been extended to cover the bay up to Trwyn Cilan headland in the west. Coinciding with low energy sub-littoral sediments and gently shelving water. Bathymetry contours and sediment geology information was also used to inform logical boundary lines to create the MCA.

## MCA 18: Llŷn and Bardsey Island

### Draft key characteristics

- This MCA encompasses the waters around the Llŷn Peninsula, with a varying coastline of pebbled beaches, sandy bays and rugged cliffs and rocky headland. These waters also include Bardsey Island, 3 kilometres from the mainland.
- The depth of the water is varied with shallow sandbanks and deeps ranging from <10m to 75m.
- Sandy and gravelly sediment overlays mudstone, siltstone and slate bedrock.
- Sandbanks including Devil's Ridge to the east of Bardsey Island and Bastram Shoal.
- The majority of this MCA is contained within the Pen Llŷn a'r Sarnau SAC, recognised for its reefs, shallow inlets and estuaries which are home to wildlife include seals, otters and dolphins. The Sea cliffs of Llŷn (Clogwyni Pen Llŷn) are also an SAC.
- Ynys Enlli (Bardsey Island) is designated a SSSI and NNR for its maritime vegetation and importance to species including seals and chough.
- High wave exposure found on the south facing coast of the Llŷn Peninsula, whilst there is lower wave exposure on the more sheltered north western facing coast.
- The Bardsey Sound experiences some of the strongest tidal streams in the Irish Sea.
- Several wrecks found on the coast of the Peninsula and Bardsey Island, including the Cyprian, Stewart and the Ilesha, which was wrecked on Bardsey Island in 1915 on a voyage from Liverpool to West Africa.
- The waters in this MCA are mainly used for fishing for shellfish, scuba diving and angling.
- It a notable area for cetacean and bird watching, with a dedicated observatory located on Bardsey Island.
- This MCA is used extensively for recreation, particularly in the summer, and the Wales Coast Path follows the edge of the Peninsula, with pockets of common land found along the path. Many parts of the coast are under National Trust ownership.
- Views and perceptual qualities (to be completed post fieldwork – thoughts welcomed)

### Boundary rationale

- Boundary lines in the south informed by sediment geology and marine charts, indicating areas of rougher water (and shallows) associated with Devil's Ridge, Bastram's Shoal, Caswenan Rock and Bardsey Island. This area also coincides with moderate to high-energy wave climate, as opposed to surrounding areas of low energy.
- The distinctive break in bedrock geology along the western and northern peninsula (from mudstone-dominated to slate and siltstone) is used to inform the offshore extent of the SCA, in conjunction with bathymetry. The MCA makes landfall in the east to meet the boundary with Regional Landscape Character Area 4: Llŷn.

## MCA 19: Llŷn and South West Anglesey Offshore Waters

### Draft key characteristics

- This MCA includes the offshore waters to the west and broadly outlines the Llŷn Peninsula. Most of the water in this MCA is between 30m and 80m, although there are some trenches which plunge to 115m.
- Mudstone and sandstone bedrock overlaid by a layer of sandy-gravelly sediment. The Devil's Tails sandbank is located in the south of the MCA.
- A small portion of this MCA is contained within the Pen Llŷn a'r Sarnau SAC, recognised for its reefs, shallow inlets and estuaries.
- Cetaceans have been sighted in these waters.
- Generally the area has a low wave exposure, although rougher waters occur in the area around the Devil's Tail sandbank.
- Wrecks provide evidence of war time losses including the Erica, Knut and the Chelford.
- War Grave site at wreck of H5 Submarine, a British submarine rammed by a British ship in 1918 whilst on surface patrol. At the time, ships were instructed to ram any sighted submarines without checking which side they were on. Site now controlled under the Protection of Military Remains Act 1989.
- This MCA contains part of a large firing practice area used by the Royal Navy which stretches down to the south of Cardigan Bay.
- Part of the MCA is also licensed for oil and gas exploitation.
- Commercial ships can be seen moving through this MCA.
- Fishing uses include heavy beam trawling and lobster and crab potting.
- A vast, empty seascape with high levels of wildness and remoteness – perceptual qualities are dominated by the wind, waves and a feeling of being at the mercy of nature.

### Boundary rationale

- This draft MCA includes the western part of Anglesey local SCA 32: Caernafon Bay
- All of the MCA comprises low energy sublittoral sediment, the majority also falling within the medium depth category (50-100m).
- Boundaries also informed by breaks in sediment geology which coincide with patterns in bathymetry.
- The MCA sits within the Inshore Marine Plan Area outer boundaries.

## MCA 20: Caernarfon Bay

### Draft key characteristics

- Low, wide, plateau-like headlands with smooth profiles dividing rocky bays and wide sandy beaches. Shallow near-shore bathymetry associated with beaches.
- Rocky islands just offshore are the remains of former headlands eroded by the sea.
- Moderate tidal currents result in coarse sediment offshore with finer sand in the eastern portion of the MCA.
- Large range in depth from less than 10m in the east to a maximum of nearly 100m where this MCA meets MCA 19.
- This is a sediment-dominated MCA with sand found close to the shore and coarser sediment further offshore. Wave action disturbs the sediment particularly in shallower inshore areas.
- A layer of Quaternary sand and sandy gravel overlays a mosaic of Carboniferous, Precambrian and undivided lower Palaeozoic bedrock. Active bedforms such as sand waves are found in the mobile sediment.
- The area around Ynys Feurig is SSSI and SPA designated for its importance for birdlife as the largest tern colony in Wales breeds on Ynys Feurig. Habitats that contribute to the special interest include maritime grassland and intertidal habitats (rock pools).
- Other SSSIs at Llyn Maelog (freshwater lagoon), Rhosneigr Reefs (designated for seaweed communities), Rhosneigr and Ty Croes (designated for heathland, grassland and rock habitats).
- Atlantic waves combine with shallow bathymetry and wide beaches to create rolling breakers. Crigyll river flows into the sea at Rhosneigr.
- A dangerous stretch of coastline for shipping, often with treacherous conditions and hidden rocks.
- Crigyll Rocks are notorious for wrecks, and ruthless wreckers (known as the Crigyll Wreckers) robbing the cargoes of stricken vessels. Wrecks include the Caernarfon Bay lightship and the Defiant which sunk in 1995. .
- The wreck of the Norman Court is a popular recreational diving site.
- Another important historic and cultural feature is Cribinau Church, sited on a causewayed island.
- Transatlantic communications cables make landfall at Porth Tre Castell.
- Fishing activity includes towed mobile gear as well as potting and set nets.
- Commercial shipping seen in the western part of the MCA, with recreational boats often observed closer to shore.
- Popular for offshore recreation including surfing, kite surfing and sailing.
- The seascape is visually contained by headlands, but views are afforded to near-shore islands and the Llŷn Peninsula on the southern horizon.

### Boundary rationale

This draft MCA includes the following Anglesey local SCA:

- 32: Caernarfon Bay

Also note that the above local SCA has been extended southwards to form the MCA, taking in the full extent of the Bay, but limited in its western extent where waters extend 50m bathymetry (the contour forms the western boundary). This also reflects the recognition of the extent of the Bay in the Irish Sea Pilot (Imray, 2009).

## MCA 21: Menai Strait

### Draft key characteristics

- The Menai Strait occupies a glacially-eroded bedrock trough which has subsequently flooded, separating mainland Wales from Anglesey. It reaches a maximum depth of 20m.
- The Strait is tidal and has rocky islets throughout, creating hazardous navigation conditions. These include the Swellies, a famous stretch of the channel with islets, including Church Island and Ynys Gored Goch.
- The bedrock is a mixture of mudstone, sandstone, limestone and slate. Coarse sediment is found in the centre of the main channel, with finer mobile sand habitat found towards the edges and in the delta.
- The whole of the Strait is a designated SAC, representing a wealth and complexity of habitats: one of Wales' jewels in terms of marine biodiversity. These include mudflats, intertidal rocky shores, rare rocky islands and sessile oak woodland.
- Very complex tidal patterns with changing conditions in the channel due to geological variation and sediment processes.
- These give rise to constantly changing channels and sandbanks around Abermenai point, and modifications to the active dune system at Newborough Warren.
- Two iconic bridges cross the Menai Strait (The Menai Suspension Bridge designed by Thomas Telford and the Britannia Bridge designed by Robert Stephenson), which provided the first fixed road and rail connections to the Welsh mainland. The Swellies are found between the two bridges.
- Other important historic and cultural features include disused fish weirs, Church Island chapel, Bangor pier, historic harbours at Port Dinorwic and Porth Penrhyn and Ynys Llanddwyn, associated with the Welsh saint of love.
- St Dwywen Island contains the remains of a chapel, a lighthouse and the lighthouse and pilots' cottages.
- Channel contains numerous small rocky islands (including the Swellies) associated with treacherous currents, eddies and whirlpools and the scene of many shipwrecks, including the Pwll Fanog and the HMS Conway.
- Channel used for commercial and recreational shipping. Surrounding land used for estate parkland, farmland and settlement.
- Mussels and Pacific oysters are cultivated in this MCA on the northern shore of the Menai Strait.
- There is tourism development around Caernarfon, including modern harbour-side development. Recreational boating takes place in this MCA, particularly during summer.
- Views dominated by the ever-changing channel of the Menai Strait, and framed by the surrounding wooded landform. The central section of the Strait is visually dominated by Menai Suspension Bridge and Britannia Bridge.
- Spectacular views afforded to the Anglesey AONB, and southwards towards the mountains of Snowdonia National Park, further enhancing the MCA's scenic setting.

### Boundary rationale

This draft MCA includes the following Anglesey local SCAs:

- 4: Menai Strait
- 17: Caernarfon
- 18: Abermenai (here, the MCA boundary is extended southwards to meet MCA 18 – following the same bathymetry line)

## MCA 22: Holy Island West and Penrhos Bay

### Draft key characteristics

- A crenulated coastline of dramatic cliffs, geos and rocky bays. Small sandy beach at Trearddur and white sea arch, Bwa Gwyn – a well-known coastal feature.
- The steep sides of Holy Mountain plunge down to the sea as sheer rock faces, frequently punctuated by caves.
- The rocky islet of North Stack forms the northern point of the MCA. To the south is the 'twin' islet of South Stack. Waters beneath both stacks dangerously obstructed by rocks.
- The coast at South Stack displays exposures of folded sedimentary rocks, documented by Greenly (1919) as 'an amazing revelation'.
- Offshore, the schist bedrock is overlain by a thin layer of coarse sediment (mainly in the east; the western seabed is largely exposed bedrock).
- Extensive SSSIs and SPAs covering cliffs and coastal habitats. Breeding populations of guillemots, razorbills and puffins combine to create one of the largest colonies of breeding auks in North Wales.
- A high energy wave environment with the coastline feeling the full force of Atlantic breakers in prevailing south-westerly winds.
- Rocky coastal waters affected by strong tidal races (including the 'Holyhead Race'), over-falls and changes in water depth.
- A steep, confused and breaking sea is characteristic, especially when the wind and tide are opposed. Dangers are marked by a warning beacon off Rhoscolyn Point and the tall 19th century South Stack lighthouse.
- Documentary references to shipwrecks refer to the 'back of Holyhead'. It remains a notoriously dangerous stretch of coastline.
- The wrecks of the Borthwen, The Beacons, and the Missouri (off Porth Dafach) are popular diving sites.
- Treacherous conditions offshore limit sea uses to potting and recreational angling.
- Sheer cliffs plunging to the sea provide an exhilarating challenge for climbers; elsewhere cliff climbing, recreational boating and water sports are popular.
- Seascape setting contains offshore islands (e.g. Ynysoedd Gwylanod and Maen Piscar), with views across Caernarfon Bay to the Llŷn Peninsula.
- Panoramic sea and coastal views afforded from the cliff tops and Holyhead Mountain; which itself forms a prominent feature from across the western Anglesey sea and coastline.
- A wild seascape at the mercy of the elements and defined by the sounds, sights and movement of the sea and its marine life (particularly the thousands of seabirds).

### Boundary rationale

Includes the following Anglesey local SCAs:

- 13: Holyhead Mountain (split to from west/east sections to ensure North Stack and South Stack are in the same MCA – outer boundary also amended to more closely follow bathymetry and rough waters off the headlands)
- 14: Rhoscolyn (MCA boundary extended offshore to ensure all waters with close association with the coastline are included, such as the shoals off Penrhyn Mawr, following bathymetry contours).

## MCA 23: West Anglesey Open Waters

### Draft key characteristics

- An offshore MCA to the west of Holyhead with a water depth of 40-60m with deeper sections in the far north and in Holyhead Deep.
- Mostly coarse sediment in deep water with exposed Precambrian bedrock in the east.
- Robust polychaetes, crustaceans and bivalves make up the infaunal community while rocky habitats are colonised by a varied community that includes sponges, ascidians, hydroids and bryozoans among many other taxa.
- High energy water due to strong tidal currents and wave action, and high turbidity due to suspended particulate matter.
- A variety of fishing activity with towed mobile gear in the offshore sediment and static gear used closer to the shore.
- Commercial shipping and ferries seen offshore, with recreational boats more common close to the coast, particularly close to Trearddur.
- Long history of trade and communication between Holyhead and Ireland. The cargo ship Slieve Bloom was wrecked in 1918 while carrying passengers, cattle and mail from Dublin to Holyhead.
- The Dublin to Holyhead and Dublin to Liverpool ferry routes pass through the north of this MCA.
- Holyhead Mountain is a landmark in the southern part of the MCA, with the Isle of Man visible from the northern part of the MCA in clear conditions.

### Boundary rationale

- This draft MCA Includes all of the Anglesey local SCA 31: West of Anglesey (note change to inshore boundary to exclude coastal waters strongly associated with Holy Island, which fall within MCA 22)
- The MCA sits within the Inshore Marine Plan Area outer boundaries.
- The more intricate boundary lines of the local SCA have been 'smoothed out' for consistency and to fit the purposes of the national study.

## MCA 24: Holyhead Bay and the Skerries

### Draft key characteristics

- This MCA encompasses the large-scale Holyhead Bay, reaching from Carmel Head in the north to Porth Namarch on Holy Island. The rocky islets of the Skerries (with associated rough seas) are found to the north of Carmel Head.
- Bay fringed to the east by low cliffs with occasional sandy bays and deep wave-cut platforms/ reefs. Shelter is provided to the south by the rising mass of Holy Island.
- The seabed substrate follows the energy gradient, with exposed rock in the north and areas of coarse sediment in the south.
- The Skerries designated as SPA, SSSI and Important Bird Area, managed as a reserve by the RSPB. The islets are important for Arctic Terns and as a seal haul site.
- Extensive SSSI (Beddmanarch-Cymyran) covering intertidal areas, including the Afon Alaw estuary, as well as the seagrass bed, sand and rock found in Beddmanarch Bay.
- Nationally important tracts of coastal heath at Carmel Head (partially designated SSSI), with further long sections of cliff tops in National Trust ownership.
- Very strong tidal currents and wave climate around the Skerries in the north, with a more sheltered region of water within Holyhead Bay to the south.
- Many wrecks, including the protected wreck of the 17th century Royal Yacht Mary and the dangerous wreck of the Castilian, which sank in 1943 with live ordnance on board. The Meath lies close to the ferry routes and is marked with a buoy.
- Breakwaters, beacons and shipping markers mark passage into Holyhead. The Skerries lighthouse is visible over long distances, used in conjunction with other nearby land and sea markers for safe navigation.
- The wider bay is used by many different types of shipping for transport and trade – a long-standing use, particularly the connections with Ireland.
- Popular recreational dive site is the wreck of the Hudiksvall off Fydlyn Island/ Carmel Head, and the surrounding beaches are popular tourism destinations, particularly in the summer.
- Seascape setting dominated by the Skerries to the north, and by Holyhead Mountain to the south.
- Ferries (Holyhead- Dublin) are features on the seaward horizon. The Isle of Man is also visible in distant views north from Carmel Head.

### Boundary rationale

The proposed MCA includes the following Anglesey local SCAs:

- 11: Holyhead
- 12: Inland Sea
- 13: Holyhead Mountain (for the purposes of this study, the SCA has been split to put North Stack together with South Stack in MCA 22)
- 10: Carmel Head to Penrhyn



## MCA 25: North Anglesey Coastal Waters

### Draft key characteristics

- A rocky, high energy north-facing coastline with extensive wave-cut platforms and deeply incised bays. Surface rocks include West Mouse and Harry Furlough's rocks.
- Marine processes of long-shore drift creating crescent-shaped shingle beach at Cemlyn Bay - a dynamic landform.
- Steeply sloping bathymetry, with deep water of up to 25m coming in close to the shore.
- Subtidal substrate of bedrock and boulders with some coarse sediment and sand. Exposed rock colonised by marine species including featherstars and sponges.
- A range of wetland habitats associated with the brackish water of the Cemlyn Bay lagoon (designated a Nature Reserve, SSSI, SPA and SAC for its importance for bird life – especially terns).
- Other SSSIs at Henborth and Cae Gwyn notable for geological interest and plant life.
- Tidal rapids and strong currents visible from land in certain conditions, notably west of West Mouse.
- Despite navigational aids, many ships have been lost on the offshore rocks, especially around the West Mouse. Wreckage including boilers, iron hull plates and fittings still lie on the seabed, as well as cargoes such as roofing slates.
- Fishing activity along the rocky coast is mainly potting for crabs and lobsters, and recreational angling. Recreational charter fishing boats also depart from Amlwch port.
- Evidence of both modern and historic industry visible along the coast including historic brickworks, disused factories and the dominant form of Wylfa power station
- Until recent years, Amwlch Harbour was used for export of copper ore, as well as supporting industries such as shipbuilding.
- Point Lynas is a popular location for spotting cetaceans. The Isle of Anglesey Coast path runs along the coast.
- Popular recreational dive sites include wrecks of Abbotsford near Wylfa power station, Deo Gratis on the Archdeacon Rock and Edith Owen and Fawn on Coal Rock.
- Low-lying coast creates strong visual and physical connection between land and sea. The box-like, bright form of Wylfa Nuclear Power Station, with associated lighting at night, stands out in stark scale contrast.
- Seascape features include the lighthouse on Point Lynas, the offshore islands of West Mouse, Middle Mouse and East Mouse and expansive views including the Skerries and the Isle of Man on the horizon.

### Boundary rationale

The proposed MCA includes the following Anglesey local SCAs:

- 9: Cemlyn Bay
- 8: Amlwch and Cemaes
- 29: North of Anglesey

Note that the offshore extent of the MCA has been extended from the lines formed by SCAs 8 and 9 to take in the coastal waters with close association with coastline and associated features (e.g. the shoals off Archdeacon Rock). New line formed through a combination of bedrock geology – schist – and bathymetry).

## MCA 26: North-West Anglesey Open Waters

### Draft key characteristics

- The seabed drops steeply away from the north coast of Anglesey, with water depth greater than 30m bathymetry, increasing to more than 80m in the north-west.
- Preserved glacial bedforms found offshore. Sediment is suspended in the water leaving a substrate of mostly exposed Precambrian rock and boulders with shallow patches of coarse gravel, pebbles and cobbles.
- Robust infauna colonising the harsh seabed environment supporting a mixture of demersal fish species. Marine mammals can be sighted on the water surface.
- Sand scour limits the amount of life found on the rocks particularly in the south. In lower energy areas diverse reef communities are found with many filter feeders.
- Strong/very strong tidal currents and wave climate, particularly to the south west.
- A large number of wrecks, including from both World Wars, representing a wealth of seafaring heritage.
- Wartime losses include the Apapa which was sunk by a U-boat in 1917, and HMS Westphalia which was also sunk by a U boat.
- Potting takes place close to the shore with trawling and scallop dredging occurring further offshore.
- Glimpses of ferries and the Holyhead harbour breakwater are signs of significant human activity in adjacent MCA 24, while commercial shipping can be seen passing further offshore.
- Recreational boats can also be seen in coastal waters during the warmer months.
- The Skerries are prominent seascape features viewed from this MCA, with the Isle of Man and Holyhead Mountain also visible in clear conditions.
- In the south, visual relationships with the adjacent rocky north coast of Anglesey, with small bays and inlets, contribute to character.
- The box-like form of Wylfa Power Station forms a prominent man-made feature in views to the coast, standing out against a rugged and open coastal scene.

### Boundary rationale

The draft MCA includes the following Anglesey local SCAs:

- 29: North of Anglesey
- 30: North-West of Anglesey (note changes to inshore extent to parts now within MCA 25; the eastern offshore boundary has also been amended to ensure the frequent shoals marked on the marine charts are kept within the same character area, rather than being split and causing the current 'kink' in the SCA boundary).

In addition:

- The western and eastern MCA boundaries formed from the local SCAs have been 'smoothed' for the purposes of this study.
- The MCA sits within the Inshore Marine Plan Area outer boundaries.

## MCA 27: Conwy and Red Wharf Bays

### Draft key characteristics

- This MCA incorporates the Conwy Estuary, the Conwy Bay and the north-east facing coast between Red Wharf Bay and Dulas Bay.
- It is contained by the headlands and Tywyn Eilian and Great Orme, with offshore waters deepening to a maximum of 20m. There is an extensive intertidal area around the mouth of the Conwy Estuary.
- North-east aspect in the west of the MCA unusual for Wales, with Great Orme prominent in many land-to-sea views; providing shelter from prevailing south-westerlies.
- Varied coastal geology of cliffs and rocky or sandy beaches enabling diverse habitats within a relatively small area. E.g. Great Orme Coastal Grassland (SSSI and SAC grazed by herd of distinctive Kashmir goats) and Conwy Mountain coastal heathland with land cover of heather and bilberry.
- Limestone cliffs of the Great Orme host a variety of birds including Guillemot, Razorbill, Kittiwake, Fulmar and Peregrine. Grey Seals haul out on the rocky beaches. Great Orme is the largest headland on the North Wales mainland coast.
- Mostly sand and gravel marine substrate with epifauna such as brittlestars and burrowing anemones. Subtidal limestone rock around Ynys Dulas supports sponges and anemones.
- A mosaic of seabed types found in the north of the MCA with algae and fauna covered bedrock and boulders amongst sand and mixed sediments.
- Significant area within the Liverpool Bay SPA, designated for overwintering populations of red-throated diver and common scoter. Traeth Lafan (SPA/SSSI) is also designated for its birdlife.
- MCA also within the Menai Strait and Conway Bay SAC, recognised for its unusual and varied coastal and intertidal habitats and the associated reef communities.
- Migratory salmon and trout pass through these waters on their way to and from the river Conwy.
- Great Orme headland is exposed to the full force of the sea, especially in northerly wind conditions.
- Historic and cultural features include historic harbours/ quaysides (e.g. Conwy) and more modern marinas (e.g. Deganwy) and channel beacons. The 12th Century Conwy Castle (Scheduled Monument and World Heritage Site) and its defensive walls dominate Conwy harbour.
- Evidence of past industrial processes including kelp burning, brick making and lime burning. Copper mines were serviced by small craft, with an anchorage off Freshwater Bay.
- A number of ship wrecks, including the tragic loss of the Royal Charter in 1859, the Mona, and locally-owned slate-trade schooners. Wreck of the Flying Foam visible in the intertidal area on the eastern side of the Conwy Bay.
- The Northern Menai Strait mussel fishery is located within this MCA and is the UK's biggest, producing 7-10,000 tonnes of mussels per year (up to 75% of the UK's production). Red Wharf Bay is used for bait digging.
- Popular tourist destination, evidenced in development in towns along this coast. Activities include swimming, angling and diving, with a number of recreational dive sites are along the coast.

- The Wales Coast Path etches round the coastline in this MCA. There is also a large amount of common land found around adjacent to the coast around Conwy, and some coastal heath managed by the National Trust near Penmon.
- Views dominated in the west of the MCA by the open expanse of Conwy Bay, its colours and textures continually changing in response to weather and tidal conditions, and numerous boats.
- Puffin island a key feature of the seascape setting in views north, with Great Orme being a more distant feature to the east.

### Boundary rationale

The draft MCA includes the following Anglesey local SCAs:

- 7: Dulas Bay
- 6: Red Wharf Bay to Moelfre
- 5: Penmon
- 3: Traeth Lafan
- 1: Conwy Estuary
- 2: Conwy Bay (note that the offshore extent marked by this SCA has been extended for the MCA to include all of Four Fathom Bank; with a combination of bedrock geology and bathymetry helping to inform an extended, smoother outer boundary linking across the bays. Eastern extent also amended to bring all of Great Orme's Head into the MCA as a logical eastern gateway to Conwy Bay).

The outer (offshore) boundaries formed by the local assessment have also been 'smoothed' for the purposes of this study, guided in the west by sediment geology (sand).

## MCA 28: Rhyl Flats and Dee Estuary

### Draft key characteristics

- The MCA encompasses the shallow waters (<20m) and human influenced coastal edge of the North Wales coast.
- The Dee Estuary to the east forms a natural border between Wales and England.
- The Little Orme headland (along with Great Orme in MCA 27) to the west adds a wild and dramatic character to the coastline with high, steep coastal cliffs.
- The coastline is defined by numerous sea defences, tourism development and wide sandy beaches.
- Extensive marine sediments of sand and gravel extending from the Dee Estuary and forming long, linear sandbanks running roughly parallel to the shore.
- Constantly shifting sandbanks with changing depths; hazards marked by numerous buoys, lights and fog horns. Main entry channel to the Dee maintained by dredging.
- Most included in the Liverpool Bay SPA, designated for its international importance to overwintering populations of red-throated diver and common scoter.
- The Dee Estuary has extensive designations including SPA, SAC, Ramsar and SSSI, due to the extensive intertidal sand, mudflats and saltmarsh which are internationally important for birds including shelducks, teals, godwits, waders and tern.
- Wave exposure generally low closer to shore, increasing in more open waters where the sheltering effect of Great Orme's Head diminishes.
- Numerous wrecks dotted throughout the MCA including the Ant which sank in 1907 with a cargo of roofing slate and the Four Brothers which was found abandoned off Great Orme and sank whilst under tow in 1923.
- Both Colwyn Bay and Rhyl are popular shore and boat angling areas, with whiting, plaice, dab, tope, rays and gurnards being caught. Rhyl includes the only harbour along this stretch of coast.
- Rhyl Flats Offshore Wind Farm forms a dominating offshore feature, sited on Constable Bank. The moving turbines are supplemented by further turbines beyond (in MCA 29).
- Recreational activity including water sports such as jet skiing and speed boating.
- Wales Coast Path runs the length of the coastline, continuing down the southern side of the Dee Estuary. The coastal edge is also crossed by the A55, A548 and main Holyhead to Chester railway line.
- The north coast of Wales serves as a traditional holiday destination for Wales and people from north west England, with numerous tourist development including Victorian seaside resorts at Rhyl and Colwyn Bay.
- Dramatic backdrop provided by the steeply sloping foothills of northern Snowdonia, restricting inland views from the sea.

### Boundary rationale

- This draft MCA takes in the sand banks and flats (including Rhyl Flats offshore windfarm) which have a key influence on character.
- Includes the Dee Estuary up to the high water mark – at the national scale, the physical and cultural associations with the wider area (including sediment flow to the surrounding sand flats) give good reasoning for including.
- Marine chart used as a guide for boundary lines in the absence of other additional physical data in digital format.

## MCA 29: Outer Liverpool and Conwy Bays

### Draft key characteristics

- An offshore MCA where depth increases gradually from approximately 15m below chart datum near Conwy Bay to over 50m in the north west.
- A thin layer of mostly coarse quaternary sediments overlying Carboniferous and Triassic sedimentary bedrock. Finer sand is found in the south east of the MCA.
- Includes a significant proportion within the Liverpool Bay SPA and Menai Strait and Conwy Bay SAC.
- A rich variety of life on the sea bed, including high levels of phytoplankton, provides important feeding grounds for sea birds, particularly in the south east. Marine mammals including bottlenose dolphin and grey seal can be sighted.
- Moderately strong east-west tidal currents. The strongest currents are found in the south west.
- A number of wrecks can be found in the MCA, including wartime losses (e.g. HMS Derbent, sunk by a U-Boat in 1917 and Visgnes sunk by a U-Boat in 1945), and also mine-laying activity (e.g. Kinforth steam-driven long-liner mined in 1941).
- Dominant maritime character is one of transit: recreational vessels entering or leaving the Menai Strait/ Conwy, or commercial vessels passing east and west to and from the Mersey and Dee.
- Large fishing boats target demersal fish and scallops offshore with smaller potting boats seen closer to the coast.
- Gwynt-y-Mor offshore wind farm dominates the east of the MCA, and to the north – access is restricted around the Douglas Oil Field (marked by a series of lit buoys and shipping lanes depicted on marine charts).
- Commercial shipping seen offshore, including large vessels waiting for Liverpool Pilots to guide them safely into port.
- Recreational boats seen particularly in the south east of the MCA during the warmer months.
- Several wrecks are visited by recreational divers and diving clubs, including the HMS Derbent, Cartagena, Kinforth, Delfina, Cork and Vigsnes.
- The landward view changes considerably throughout the MCA, with rocky headlands, islets and large bays found to the west and the large shallow opening of Conwy Bay to the east, with a backdrop of the mountains of Snowdonia.

### Boundary rationale

- Includes the Anglesey local SCA 28: North East of Anglesey
- Sits within the Inshore Marine Plan Area outer boundaries.
- Character defined by wide open seas, low energy littoral sediment up to 50m bathymetry and the presence of offshore wind turbines marked on the marine chart.

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