

Location and boundaries

This Marine Character Area (MCA) stretches from Great Orme's Head in the east to the Moelfre headland on the eastern Anglesey coast to the west. It takes in the main Conwy, Red Wharf and Dulas Bays, as well as the tidal stretches of the River Conwy.

- The MCA's offshore extent is informed by bathymetry (reaching a maximum of 30 metres water depth) and offshore sediment geology.
- It takes in the full extent of the main three bays along with their associated sand banks and sediments.
- The shelter and influence of the Isle of Anglesey to the west also informs the offshore extent of the MCA.
- The western extent of the MCA ends at the mouth of the Menai Strait (MCA 10).
- The MCA includes the marine parts of the following local Anglesey SCAs: 1: Conwy Estuary, 2: Conwy Bay, 3: Traeth Lafan, 5: Penmon, 6: Red Wharf Bay to Moelfre, 7: Dulas Bay.

Key Characteristics

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Comprises Conwy, Red Wharf and Dulas Bays , characterised by broad sand flats and low-lying sandy beaches, punctuated by rugged cliffs and prominent limestone headlands .
Offshore waters deepening to a maximum of 30m. There is an extensive intertidal area around the mouth of the Conwy Estuary, extending westwards and including Lavan Sands.
North-easterly aspect of the bays in the west is unusual for Wales, with Great Orme's Head prominent in many land-to-sea views.
Varied coastal geology of cliffs and rocky or sandy beaches giving rise to diverse nationally and internationally important habitats within a relatively small area, including valued maritime grasslands and limestone heath.
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.
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 . Lavan Sands (SPA/SSSI) is also designated for its wintering birdlife, especially the oystercatcher.
Partly 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.
The bays are sheltered by Anglesey with Great Orme headland being the only area exposed to the full force of the sea , especially in northerly wind conditions.
Rich evidence for a long history of human occupation , with large sections of the adjacent coast designated as Landscapes of Outstanding Historic Interest.
The 12th Century Conwy and Beaumaris Castles (World Heritage Sites) overlook the MCA.
Nationally important Bronze Age copper workings on Great Orme are thought to be the earliest metal workings in the UK.
A number of ship wrecks , including the tragic loss of the <i>Royal Charter</i> in 1859 and the planned sinking of the <i>Ghambira</i> . The wreck of the <i>Flying Foam</i> is 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 by several coastal settlements. Activities include swimming, angling and diving, jet-skiing and pleasure trips. There are a number of recreational dive sites along the coast.
The Wales Coast Path follows much of the coastline in this MCA. Most of the adjacent Anglesey coastline is AONB-designated , reflecting its nationally important scenic qualities. Snowdonia National Park rises up dramatically to the south.
Puffin island a key feature of the seascape setting in views north, with Great Orme being a distinctive feature to the east; forming gateway features into Conwy Bay.
Two distinctive bridges, built by Telford and Stephenson cross the river at Conwy and mirror those found in the Menai Strait.

Natural Influences

This MCA forms an embayed area flanked by Great Orme's Head in the east and Point Lynas in the west. The principal intermediate headland, Penmon Point, divides the more enclosed Conwy Bay to the east, with its extensive inter-tidal areas, from the smaller series of rocky headlands and sandy bays to the west, which are characterised by broad, low-lying sandy bays, punctuated by rugged cliffs and prominent rocky outcrops.

The Carneddau Range of mountains rises abruptly behind the coastline of the MCA to over 1,000 metres. The steep, craggy Penmaen Mawr and Penmaen-bach headlands, foothills of the range, emerge dramatically from the sea – necessitating the tunnelling of the main A55 coastal road. Most of the resulting upland area backing the coast forms the northern edge of Snowdonia National Park.

Great Orme's Head forms an iconic coastal feature framing the character area to the east; the largest headland in North Wales. Its rugged slopes plunge into the coastal waters from 207m AOD, topped by limestone heaths which are recognised as some of the finest in the UK. This distinctive headland, the most exposed coastline in this MCA, supports large sea bird colonies, including guillemot, razorbill, kittiwake, fulmar and peregrine. A subtidal limestone reef along the west of the headline is colonised by anemones, hydroids and sponges. Grey seals also haul out on the rocky beaches along this section of coast.

Puffin Island also stands out as a strongly recognisable coastal landform, lying almost exactly opposite Great Orme to the west, sitting between Colwyn and Red Wharf Bays. The aptly named island is designated as SPA for its large populations of puffin and breeding cormorant.



'Puffin Island off Anglesey' by William Daniell (1815) (© Crown Estate, 2013).

The MCA's adjacent coastline displays a varied geology, from the Precambrian rocks strongly associated with Ynys Mon; to the various Ordovician/Silurian types including volcanic acid tuff rocks adjacent to Conwy; and the fine grained igneous rocks at Penmaenmawr. The seabed is similarly complex; defined by a combination of mudstone and sandstone, interrupted by thick, staggered bands of Carboniferous limestone linking Great Orme's Head with Puffin Island and the headlands enclosing Red Wharf Bay to the west. These rocks are covered by shallow mobile sand and muddy gravel sediments, much derived from glacial and post-glacial deposits originating from the wider Irish Sea.

Active bedforms such as sand waves and megaripples are characteristic, whilst the sediments themselves provide habitats for a range of bivalves, carpet shells, cockles and worms. Lower shore cobbles and boulders also support sponges, anemones and sea squirts.

The waters' rich marine sediments along with the area's varied bedrock geology and sheltered aspect provide abundant habitats for a vast number of important and protected species, reflected in several SPA, SAC and SSSI designations. These include a range of water birds, such as oystercatcher, red-throated diver and scoter.

To the south-east of the MCA is the Afon Conwy, tidal upstream to as far as Trefriw, north of Llanrwst. From here the river flows through a broad flat bottomed valley, marking an important division line between the mountains of Snowdonia to the west and the gentle hills to the east, its course and form shaped by glacial melt water. Continuing fluvial processes and a dynamic river environment with swift-flowing tidal currents produce high volumes of suspended sediment. This is deposited at the estuary mouth, which opens out into a broad expanse of sand flats. These comprise Conwy Sands, Lavan Sands in the approach to the Menai Strait, and Dutchman Bank – combining to create a vast inter-tidal area. The sand flats are interrupted by Peamaen Swatch and its Pool, which drops 16 metres into an incised narrow channel. Migratory salmon and trout pass through Conwy Bay on their way to and from the river.



Trwyn Du Lighthouse and Puffin Island

The extending bulk of the Isle of Anglesey protects the MCA's north and north-east facing bays from prevailing south-westerlies. Wave energy within the bays is particularly low compared to neighbouring MCAs. This contrasts with the coastal waters outside the bays. Tidal ranges around Great Orme reach seven metres, with tidal races circling the headland. The strongest currents, however, are associated with Puffin Sound – especially in northerly winds or swell. Here water rushes into the channel from the Irish Sea creating turbulent eddies and races. This challenging stretch is marked by a buoy on Perch Rock and the ringing Trwyn Du lighthouse, painted black and white. Navigation to Beaumaris, and on to Porth Penrhyn and the Menai Strait (MCA 10), is constricted through the narrow Sound, where vessels must pass within shouting distance of Anglesey, watched by visitors and fishermen on Trwyn Du or Penmon Point and from the coastguard station. Beyond

this gateway, arriving vessels reach calmer water, more enclosed by land and in closer proximity to the dramatic mountainous backdrop of Snowdonia. At low tide they must stick closely to the marked navigation channel.

Further rocky outcrops and islets in the shallow coastal waters form hazards to navigation, including Puffin Island, Ynys Dulas and Ynys Moelfre to the west and Abbey Rock, Bwrlingau Rock, and West Bwrling Rock at Conwy Sands in the east.

Cultural/social influences

Evidence for the area's rich cultural heritage is present throughout the MCA and its surrounding coastline. The range of archaeological evidence and well-preserved artefacts brings the past alive, strongly influencing a sense of time depth in today's seascape. Large sections of the coast are designated as Landscapes of Outstanding Historic Interest owing to this wealth of nationally important historical and cultural assets. These assets include the outstanding and well preserved Conwy and Beaumaris castles – two of the finest examples of medieval fortifications in Britain. Built by Master James of St George for Edward I as part of the 'iron ring' of North Wales, both castles are part of the Castles and Town Walls of Edward I World Heritage Site.

Features relating to the area's importance for early Christianity include a monastic settlement on Puffin Island, and the site of a medieval friary at Llanfaes. The monastery on Puffin Island was mentioned by Gerald of Wales who visited the area in 1188. He claimed that, whenever there was strife within the community of monks, a plague of mice would devour all their food. The ruins of several ecclesiastical buildings are visible on the island, including the remains of a 12th century church. Legacies from the past exploitation of the area's natural resources are also traceable today. These include the nationally important prehistoric Bronze Age and post-medieval copper mine on Great Orme, including around five miles of hand-worked tunnels extending underground. Some of these are believed to be the earliest metal workings in the UK. Quarry works at Penmaenmawr are also visible as levels and inclines on mountainside, providing igneous rock for the area's road and rail networks.



Sandflats in Conwy Bay, showing Penmaen Swatch and Puffin Island © John Briggs

As for many other parts of the Welsh coastline this MCA has witnessed conflict and battles. Red Wharf Bay is named after a battle between the Welsh and Viking invaders in 1170 which left the beach soaked in blood. Military associations continue, with the Royal Artillery's Coastal Gunnery School on Great Orme's Head, relocated here shortly after the outbreak of World War II. This is best surviving range of coastal artillery emplacements in Wales. During the war Conwy Morfa was used by civil engineer Hugh Lorys Hughes to construct a prototype of the Mulberry Harbour (floating harbour) used at the D-Day landings in Normandy. Across the bay at Llanfaes, flying boats used in the war were built and repaired on the site of old friary by the company Saunders-Roe.

Wrecks are concentrated off Penmon Point, Dulas Bay and Moelfre reflecting the hazardous seas and rocks found in these areas – and are also associated with the various entrances to the Menai Strait (including channels through Lavan Sands, where vessels would pass to gain the shelter of the anchorages off Beaumaris). A famous shipwreck is the *Rothsay Castle*, an early paddlesteamer which struck on the Dutchman's bank in August 1831 after misjudging the timings of the tides to successfully navigate the Menai Strait. The *Royal Charter* was carrying gold bars and 450 people when it sank off Ynys Moelfre in 1859 during a powerful hurricane. This catastrophe led to the establishment of the Met Office – the wreck is therefore one of the most historically important in Welsh waters. *Ghambira* was used as blockship at Scarpa Flow until it was taken for use as target practice and sunk by gunfire from the Great Orme Gunnery School in 1943. Today, Liverpool pilot boats are based near Trwyn Eilian with a telegraph station on the cliffs nearby.

The River Conwy is crossed by the Conwy Railway Bridge and the Conwy Suspension Bridge (footbridge), built by Stephenson and Telford respectively in the 19th century. They are smaller versions of the equivalent bridges which cross the Menai Strait in the neighbouring MCA 10, and are both Grade I Listed owing to their national importance to engineering and architecture.

The productive shallow waters and the vast muddy sands found along the shoreline have long proved favourable for several fish and shellfish species. There is a legacy of medieval fishtraps in Red Wharf Bay, Tre-Castell, along the south side of Lavan Sands, and at Llandudno West (Cord Faelgwn) associated with the Bishop's Palace. The outer section of the MCA is currently dredged for King and Queen Scallops and potted for whelk, lobster, prawn and crab. Light otter trawling and light beam trawling also takes place in the deeper waters. Shellfish beds are present at Conwy Bay, Lavan Sands, Red Wharf Bay, Moelfre and in Afon Conwy, with the traditional hand gathering of mussels, periwinkles and cockles taking place. The UK's largest mussel fishery is located within this MCA, producing up to 75% of the UK's production with beds at the mouth of Conwy and northern edge of the Menai Strait. Bait collection is a popular activity at Red Wharf Bay, attracting high numbers of diggers for recreational angling. Sport fishing for the highly prized migrating salmon, sea trout and grilse takes place along the banks of the Afon Conwy.

Recreational sailing and watersports create a busy marine environment, supported by the marina at Conwy. The Royal Anglesey Yacht Club was founded at Beaumaris in 1885, its sheltered intertidal mud used heavily in summer for yacht mooring. Red Wharf Bay and Benllech beaches become very busy during public holidays as do the historically important seaside resort beaches at Llandudno (West Shore), Conwy Sands and Llanfairfechan seafront. The exposed, steep limestone cliffs on Great Orme attract high numbers of climbers to this area, while the Great Orme Tramway, Britain's only cable-hauled public road tram, attracts large numbers of recreational visitors to the summit. Water-based activities include swimming, angling and diving, with a number of recreational dive sites found along the coast, and traditional family beach recreation.

The Wales Coast Path follows much of the coastline, taking in the slopes of Mynydd y Dref on the western edge of Conwy, and skirting around the coast of Anglesey through the AONB, providing spectacular sea views. In 2015 the National Trust purchased a large part of the Great Orme promontory through its Neptune campaign, with the aim of increasing public access opportunities and assuring its long-term conservation.

Aesthetic and perceptual qualities

The distinctive foothills and rising mountains of Snowdonia National Park form a spectacular landscape setting to this MCA, providing dramatic and distinctive elevations when viewed from the sea. This large-scale backdrop provides a very strong sense of place, as well as contributing, with Anglesey, to the feeling of containment in Conwy Bay. Similarly the panoramic views from Anglesey, across Conwy Bay to the mountains, are most impressive. On the mainland, visual highlights include the experience of travelling precariously around the steeply rising headlands at Great Orme, Penmaen-bach and Penmaen Mawr. Also, looking from high elevations from mountains over Conwy Bay at low tide reveals intricate patterns of channels and sand banks in the extensive inter-tidal areas.

In the east the rugged form of Great Orme's Head frames the embayment and open intertidal sand flats within Conwy Bay. From Red Wharf Bay and Dulas Bay views are channelled out to sea (including into MCA 04), the surrounding headlands and higher ground concealing Conwy Bay.

Puffin Island occupies a prominent position in maritime views, essentially dividing the eastern and western bays.



Sailing through Puffin Sound and into the greater Conwy Bay © John Briggs

This area is a generally busy seascape – with activities and movement within the waters and along the coast (particularly in the summer months). This includes day sailing, dinghy racing near Beaumaris and jet skiing in the Traeth Bychan area. Despite this, the natural drama and changing coastal orientation enables a strong sense of wildness and remoteness to be retained in places.

Leisure craft, traffic noise and the visual presence of the offshore wind farms in the neighbouring MCAs (02 and 04) adds movement and sound, reducing tranquillity.

Prominent radio masts on the surrounding hills on Anglesey, church spires and the settlements along with the distinctive landform all provide visual markers for sea users.

Artists have long found inspiration on the north coast of Wales, the combination of the areas rich heritage and dramatic scenery has been the subject of many paintings. J.M.W Turner on one of his visits to Wales painted Conwy Castle, as did L. Gandy in the early 19th century (image below). Great Orme's Head has been the subject of several other well-known landscape paintings from the same period, including by Henry Moore and William Turner.



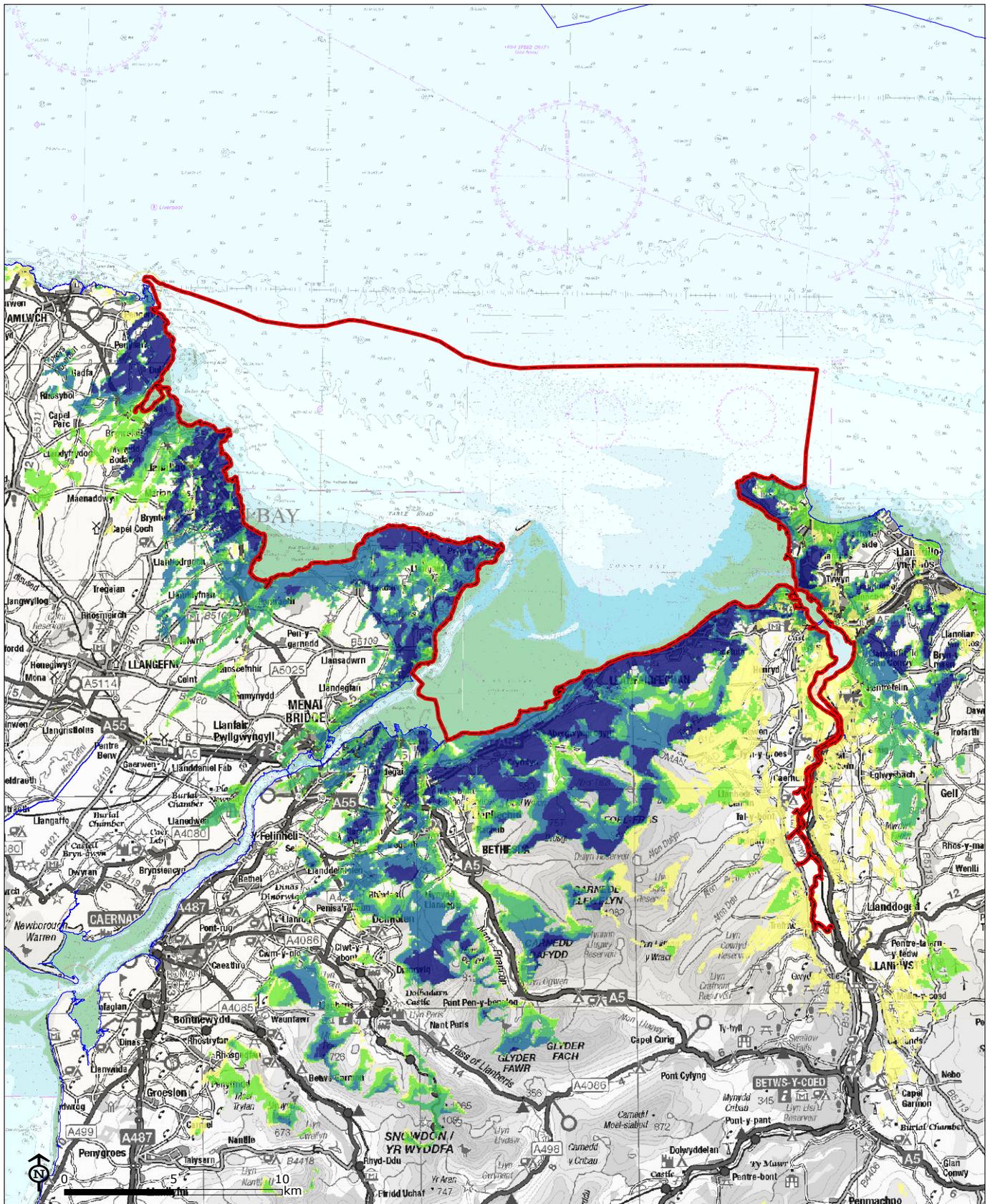
'Conwy Castle' by L. Gandy, 1820, (© Crown Estate, 2013).

Overall, there is a strong and complex aesthetic appeal with rich textures, distinct landforms and rugged mountainous backdrop combined with the daily interactions of the changing tides, weather conditions and intertidal environments.

The Visual Resource Maps (VRM) that follow provide a more detailed spatial representation of the visibility of this MCA from the surrounding land in Wales. Please refer to the technical report for an explanation of how these maps were generated and how they should be interpreted.

The first map shows land with views to this MCA, the darker shading indicating land where from which more of this MCA is visible.

The second map shows sea visible from land, the warmer colours being areas of sea that are visible from more places on land. This comes from a national assessment of Wales so the results do not relate specifically to this MCA, whose boundary is overlaid for location only. The four individual versions show how the results vary depending on how far inland hypothetical viewers are located.



- 03: Red Wharf and Conwy Bays
- Wales Inshore Marine Plan Area

Land with sea views (Percentile)



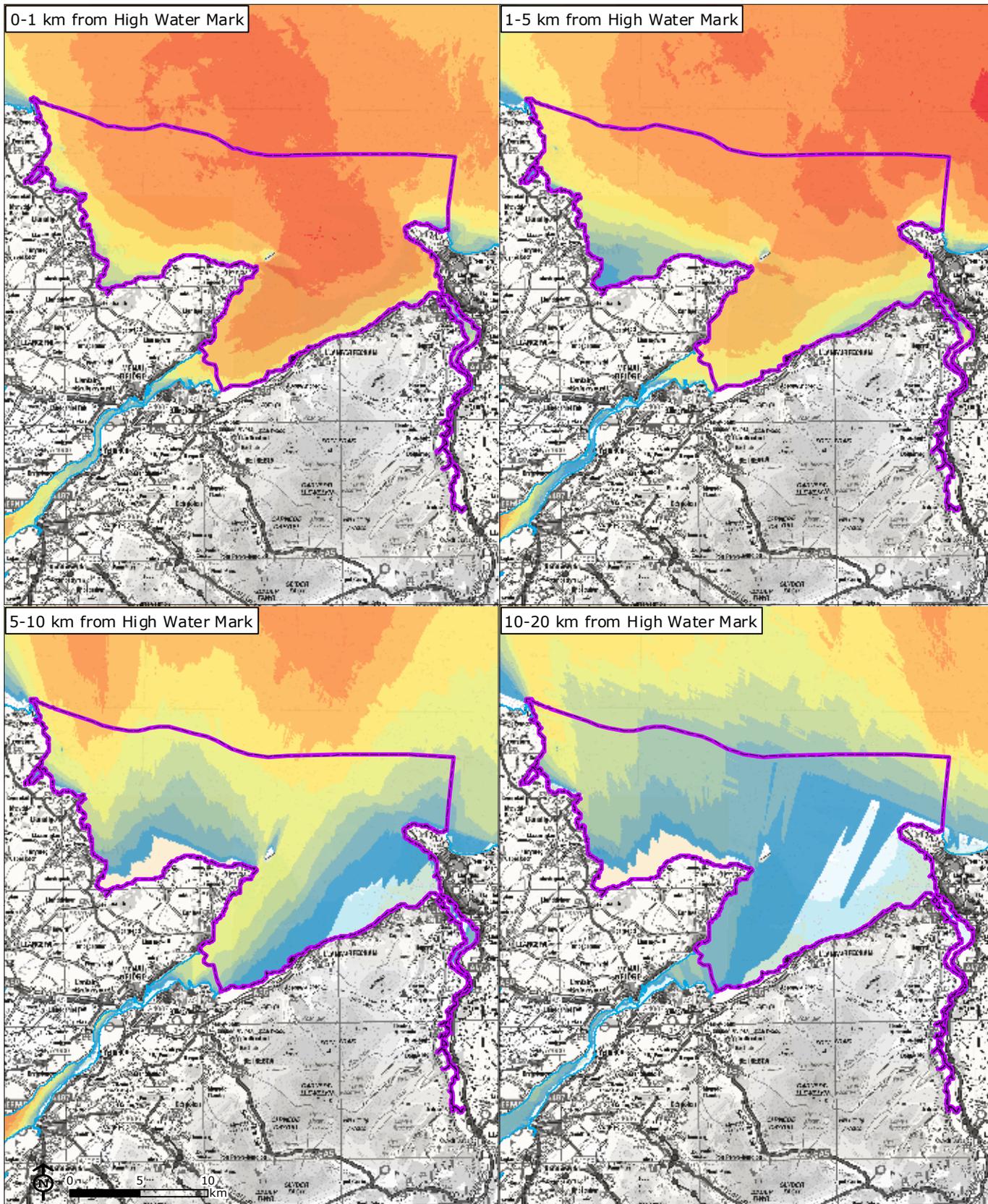
Wales National Seascape Assessment

**Land with Views of:
MCA 03: Red Wharf and
Conwy Bays**

Source: LUC, NRW, OceanWise



Map Scale @ A4: 1:250,000



-  03: Red Wharf and Conwy Bays
-  Wales Inshore Marine Plan Area

Visibility of sea from land (percentile)

 <10 (Lowest)	 51-60
 11-20	 61-70
 21-30	 71-80
 31-40	 81-90
 41-50	 91-100 (Highest)



Wales National Seascape Assessment

Relative Visibility of the Sea Surface from Viewers on Land
MCA 03: Red Wharf and Conwy Bays



Map Scale @ A4: 1:400,000

CB: EB:Goosen_V LUC/LON 6262-00_022_VRM_Maps_DDP_Sea_Visibility_ 27/05/2015