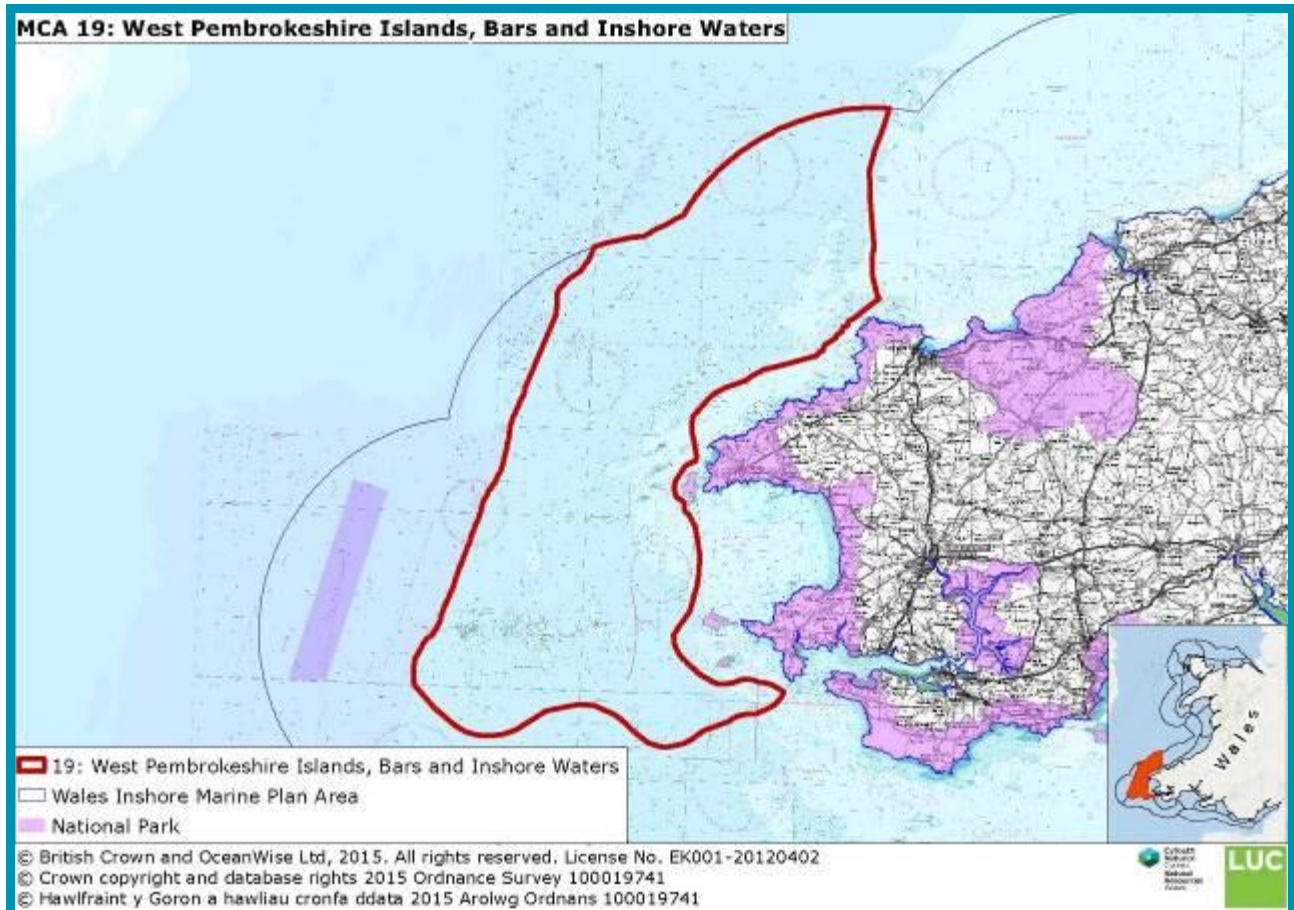




**WEST PEMBROKESHIRE ISLANDS,
BARS & INSHORE WATERS**



Location and boundaries

This Marine Character Area comprises the inshore waters off the west Pembrokeshire coast, encompassing the offshore islands of the Bishops and Clerks, Grassholm and The Smalls.

- The boundary between this MCA and MCA 17 (Outer Cardigan Bay) 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 17.
- The southern boundary is formed along a distinct break between marine sediments.
- The northern offshore boundary follows the limits of the Wales Inshore Marine Plan Area.
- The MCA encompasses all 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; and 27: Grassholm and The Smalls. It also includes the western part of SCA 8: North Open Sea

Key Characteristics

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 ridges form a series of islands (Smalls, Grassholm and Bishops and Clerks), 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 and island cliffs 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 concentrated around the Smalls, Grassholm and North Bishop rocks.
The inshore waters are a popular draw for recreational activity including wildlife trips, sailing and diving. Commercially the area is used for sea angling, fishing, ferries and commercial shipping.
The Smalls and Bishop lighthouses are prominent features on isolated islands marking the surrounding hazardous waters.
Islands form distinct features in views within the MCA. Distant views of the mainland to the east and large shipping vessels to the west.
Forms a maritime backdrop to the iconic Pembrokeshire Coast National Park view from Carn Llidi to Ramsey Island. Views back to the Preselis from this MCA also form a dramatic landward setting.
Open sea area with 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.

Natural Influences

The West Pembrokeshire Islands, Bars and Inshore Waters MCA covers the inshore waters broadly coincident with the coastline from Strumble Head in the north to St Ann's Head in the south.

The waters of the MCA are populated by several islands including Grassholm, The Smalls, and The Bishops and Clerks. These islands are formed by bands of harder geology (slate) which have resisted glacial and coastal erosion creating a diverse marine environment of rocky islets, reefs and submarine ridges.



The Bishops and Clerks © John Briggs

Sea floor geology is varied, with east to west running bands of slate, mudstone and sandstone in the southern half of the MCA changing in the north to a complicated mix of mudstones and sandstones combined with limestone, lignite and conglomerate. Holocene marine sediments cover the bedrock in relatively thin layers of mostly sandy-gravel interspersed with pockets of sands and gravels. Marine sediments have accumulated to the north of The Smalls and the Bishops and Clerks to create submerged sandbanks. Bais Bank just north of North Bishop rises sharply from approximately 60m depth to 8m creating rough sea condition with strong tidal surges and overfalls. Generally the waters deepen with the distance from the land, ranging from approximately 30 metres bathymetry to 100 metres at the outer boundary of the MCA.

Being fully exposed to harsh south-westerlies rolling in from the Irish Sea, sea conditions are unpredictable becoming rough and dangerous in places where the high tidal flows are forced over submerged banks, ridges and around the rocky islets and islands. Tidal currents can reach five knots off the islands on spring tides. Treacherous races are present between The Smalls and Grassholm, in an area known as the Barrels and Hats, responsible for the loss of numerous vessels. The submarine ridge is exposed to high wave stress, strong tidal currents and tidal rips as well as overfalls around the rocks. Races are also present at Bais Bank and to the north west of the MCA. Here they are associated with the deep holes which plunge to a depth of approximately 100 metres from 58 metres. Areas of high waves stress is experienced at the offshore gravel sand bars (Bais Bank) reducing to low wave stress in outer deep waters.

The Pembrokeshire Marine SAC covers the southern and inshore waters around The Smalls and The Bishops and Clerks. The area is designated for its subtidal rocky reefs, sandbank, sea caves and cliffs that provide rich habitat for a wide range of flora and fauna. The area is internationally important for its colony of gannets on Grassholm which supports between 32 - 39,000 breeding pairs (12% of the entire world's population). Grassholm is also designated as an SPA, NNR and SSSI. Grey seals breed on the undisturbed beaches and within sea caves found along the isolated island shores. Species including whales and dolphins are often spotted from and around the islands especially near the submerged rocks and reefs. To help protect the environment and rich wildlife the International Maritime Organisation has established a voluntary tanker exclusion zone around the Smalls and Grassholm.

Each sandbank found within the MCA also provides unique habitats for specialist communities of worms, crustaceans, molluscs and fish which attract larger marine mammals.

Cultural/social influences

Historically these waters were used as part of the Western trade routes connecting Britain to Ireland, Europe and the Americas. There is a long history of trade and maritime endeavour, with archaeological finds on Grassholm providing evidence of early inhabitation. A designated historic wreck area off the Smalls holds further clues to a rich seafaring past. Here a Hiberno-Norse decorated cast bronze sword hilt guard was found dating to late 11th century. This find suggests a Viking sea route between Dublin and Denmark. The wreck site is now a restricted area where anchoring and dredging is prohibited and diving is only permissible by license. The Norse place-names for the islands may also provide links with a Viking past.

The treacherous waters have claimed many lives with the loss of numerous vessels. Wrecks are concentrated around the Bishops and Clerks, especially North Bishop, the Smalls, Grassholm and the adjacent Hats and Barrels. Here tides races create vicious rips and eddies which force mariners onto the rocky outcrops and submerged rocks with devastating results. To help skippers navigate these hidden natural obstacles lighthouses have been erected on The Smalls and South Bishop. The Smalls lighthouse (Grade II listed) was the scene of the gruesome story of Howell and Griffith which brought about a change in lighthouse policy in 1801 meaning that three man rosters were made obligatory. South Bishop Lighthouse and associated buildings (also Grade II listed) mark the western edge of the Bishops and Clerks, emphasising their hazardous nature.

During the World Wars the inshore waters were used by both the Allied and the German forces for tactical and strategic maritime gain, as evidenced by numerous wrecks on the sea floor. The *Empire Gunner* was abandoned after being bombed by German aircraft and later sank, whilst the *Emily Millington*, a cargo vessel carrying china clay, was captured by submarine in WWI and sunk by gunfire. The island of Grassholm was used by the United States Air Force as a target for bombing practice during WWII, leaving bomb craters and fragments which are still evident today. Historically a large area in the south of the MCA and an area at Hats and Barrels have been used to dump disused explosives, marked as 'Explosives Dumping Ground' on the marine charts. Military use within the MCA continues today with part of the Aberporth firing range and military practice area located to the north-east and part of the Castlemartin firing range area located to the south.

The open sea is used by commercial vessels, ferries and a few cruising leisure boats as they approach and leave from Milford Haven (MCA 21). The ferry routes between Fishguard and Pembroke Dock to Rosslare also cross the area. Recreational cruising routes for sailing craft make their way through these waters linking South Wales with North Wales and to Ireland. Wildlife cruising routes and dive boats explore the islands within the MCA, departing out of Milford Haven and St Justinians. Diving around Grassholm Island,

The Smalls and the Hats and Barrels is very popular due to the rich marine wildlife and numerous wreck sites. Wildlife boat trips visit Grassholm to see the gannet colony and The Smalls for the chance to see whales and dolphins.

Recreational fishing in the area comprises of sea angling from charter boats. Commercial fishing over the offshore bars comprises of set nets, whelk, lobster and crab potting and light otter trawling, with drift lining taking place to the south. Further offshore heavy beam and rockhopper trawlers are used.

Aesthetic and perceptual qualities

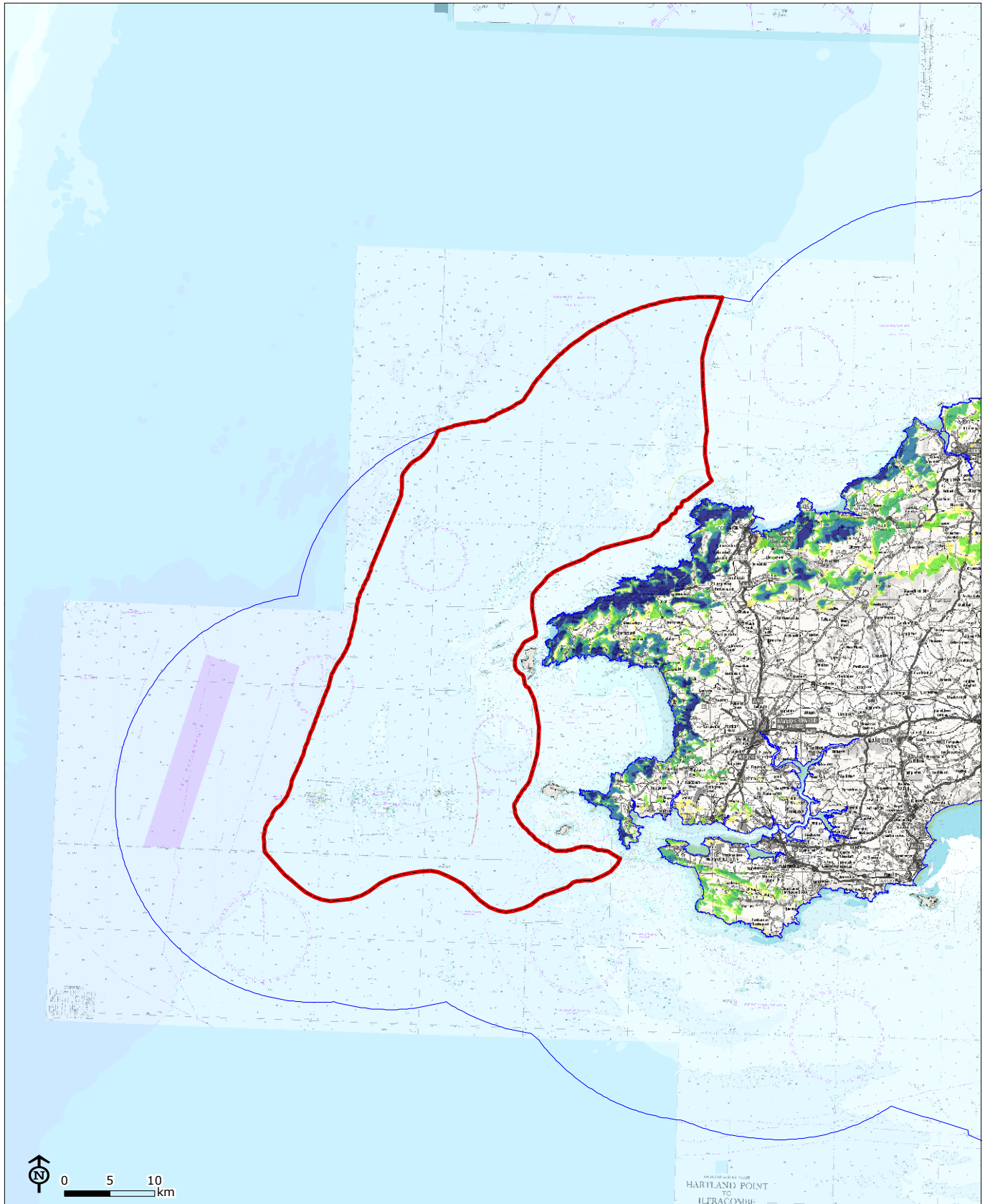
Open sea areas are simple, and consistent with a unified marine character. Strong feelings of isolation are experienced especially at North Bishop, Grassholm and the Smalls with a significant sense of openness, remoteness and exposure. Wildness and tranquillity are important in this MCA as is the feeling of drama and threat around rocky islets. The maritime historian Ted Goddard wrote about a number of ship wrecks located between the Smalls and Grassholm in his book the “*Pembrokeshire Shipwrecks*” published in 1988.

Views vary considerably across the MCA with offshore views consisting mainly of large tankers and cargo vessels as they line up along the Traffic Separation Scheme (TSS) in MCA 20. Nearer the shore views become more influenced by the coastline and islands with views of the rocky islets and a backdrop being particularly important. This is also true around the Smalls where the lighthouse provides an important reference point and warning for mariners. The distinct outline of Carn Llundain and Carn Llidi within Pembrokeshire Coast National Park are visible in views to the east and appear silhouetted on the horizon from some distance offshore.

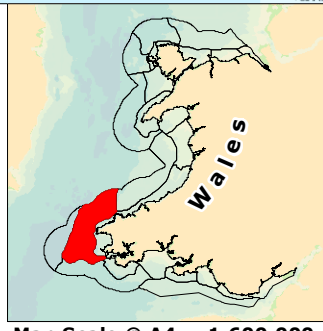
The Visual Resource Maps (VRM) that follow provide a more detailed spatial representation of the visibility of this MCA from the surrounding land in Wales. Please refer to the technical report for an explanation of how these maps were generated and how they should be interpreted.

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.



- 19: West Pembroke Islands, Bars and Inshore Waters
- Wales Inshore Marine Plan Area
- Land with sea views (Percentile)**
- < 20 (Lowest)
- 21 - 40
- 41 - 60
- 61 - 80
- 81 - 100 (Highest)



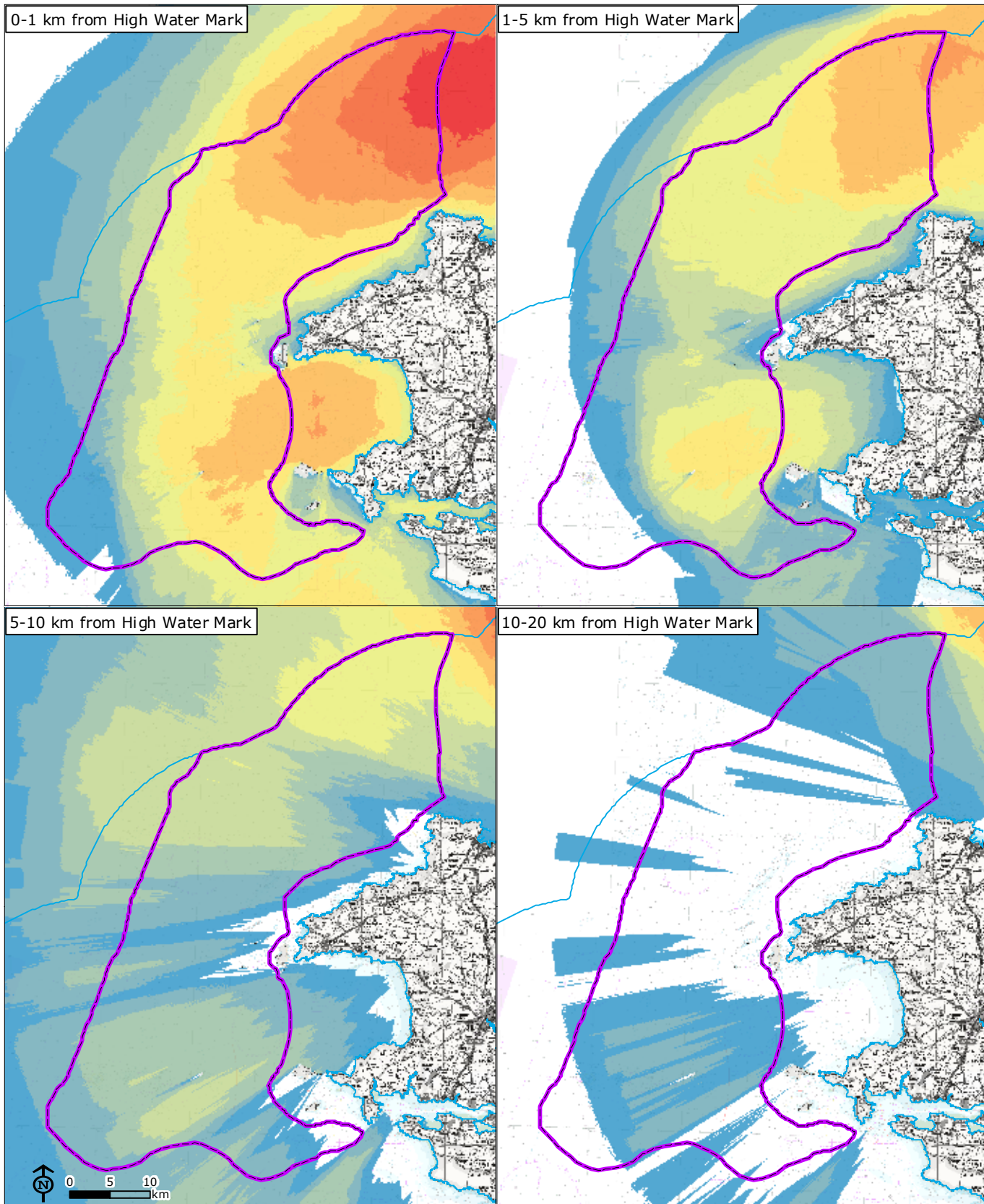
Wales National Seascape Assessment

**Land with Views of:
MCA 19: West
Pembroke Islands,
Bars and Inshore Waters**

Source: LUC, NRW, OceanWise



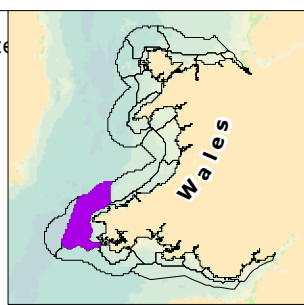
Map Scale @ A4: 1:600,000



19: West Pembrokeshire Islands, Bars and Inshore Waters
 Wales Inshore Marine Plan Area

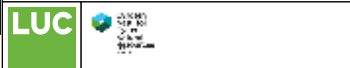
Visibility of sea from land (percentile)

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Wales National Seascape Assessment

Relative Visibility of the Sea Surface from Viewers on Land
MCA 19: West Pembrokeshire Islands, Bars and Inshore Waters



Map Scale @ A4: 1:680,000