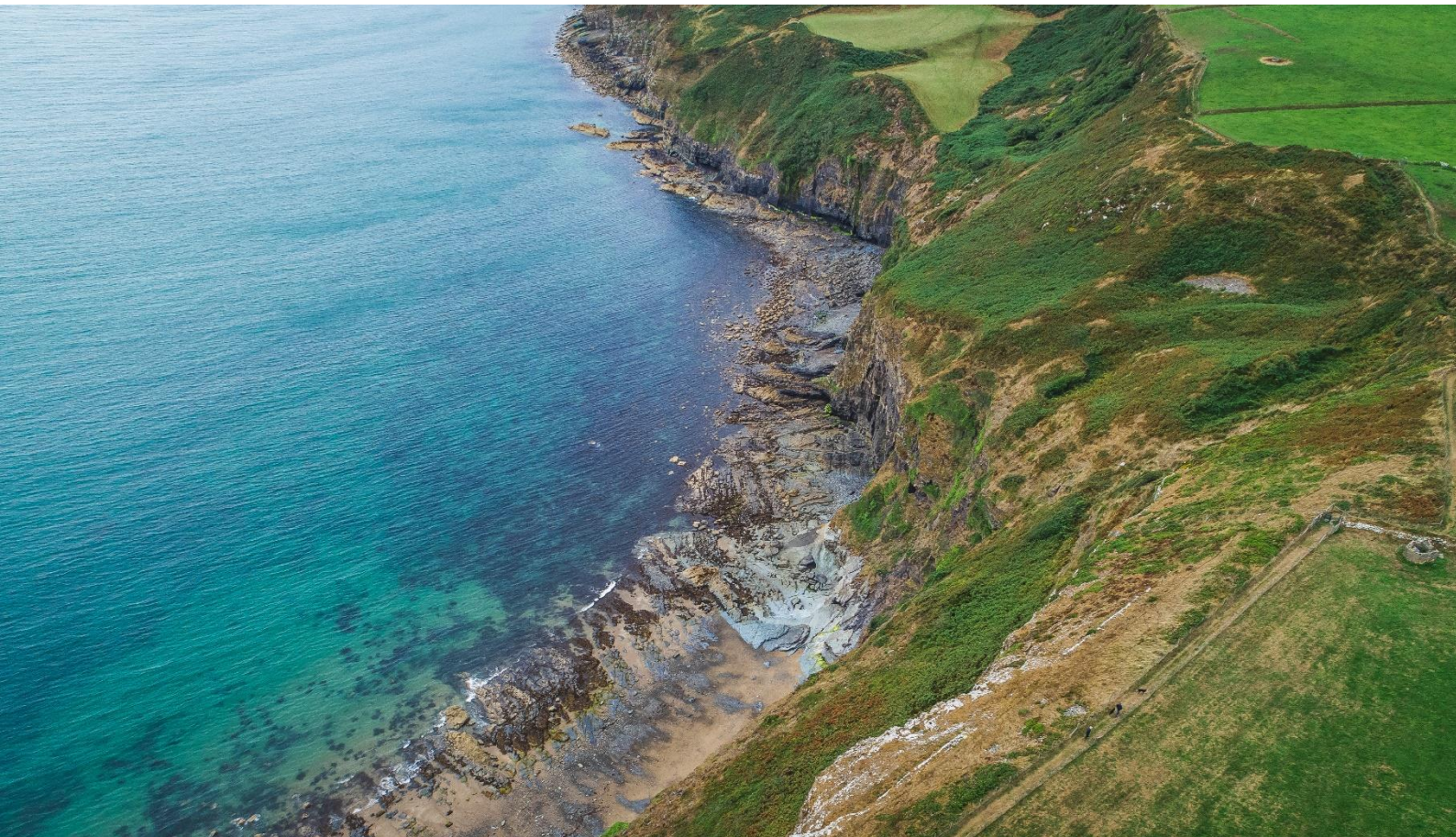




Llywodraeth Cymru
Welsh Government

Identifying Broad Areas of Search within Welsh waters for the Welsh MPA Network Completion Project



Background

Following the previous Marine Conservation Zone (MCZ) process, Welsh Government commissioned an assessment of the contribution of the existing Marine Protected Area (MPA) network in Welsh waters to ecological coherence of the wider UK network. This assessment was published in 2016¹. The assessment considered the MPA network features: broad-scale habitats, habitats of conservation importance (HOCI), and sessile and low mobility species (SLMS). The assessment was carried out on the two biogeographic regions² that overlap with Welsh waters – the Irish Sea region and the Western Channel and Celtic Sea region. It found that the existing MPA network made a significant contribution to ecological coherent network commitments, with only a small number of shortfalls identified for the following features:

- Subtidal coarse sediment
- Subtidal sand
- Subtidal mud
- Subtidal mixed sediment
- Fragile sponge and anthozoan communities on subtidal rocky habitat
- Mud habitats in deep water
- Sea-pen and burrowing megafauna communities
- Ross worm reefs
- Ocean quahog (*Arctica islandica*)
- Pink sea-fan (*Eunicella verrucosa*)

Welsh Government intend to use the MCZ powers within the Marine and Coastal Access Act (2009) to address these shortfalls. Further information on the process of the Welsh MPA Network completion project is available in the Process Document and FAQs, published on the project [website](#).

Broad Areas of Search are the first step in the process for identifying suitable areas for possible MCZs in Welsh waters (Figure 1). Broad Areas of Search are not possible MCZs, and they are much larger than a possible MCZ is expected to be. They inform the second step in the process of identifying more focussed Areas of Search from which possible MCZs can be identified. Possible MCZs will then be subject to a public consultation and, subject to responses, proposed for designation by the Welsh Ministers.

¹ Available at: <https://hub.jncc.gov.uk/assets/7094b9f1-2b09-4eb7-8866-05b3ee9900ab>

² More information on biogeographic regions is available at: <https://hub.jncc.gov.uk/assets/d708cfb2-5519-483d-8aff-af45fa281b8d>

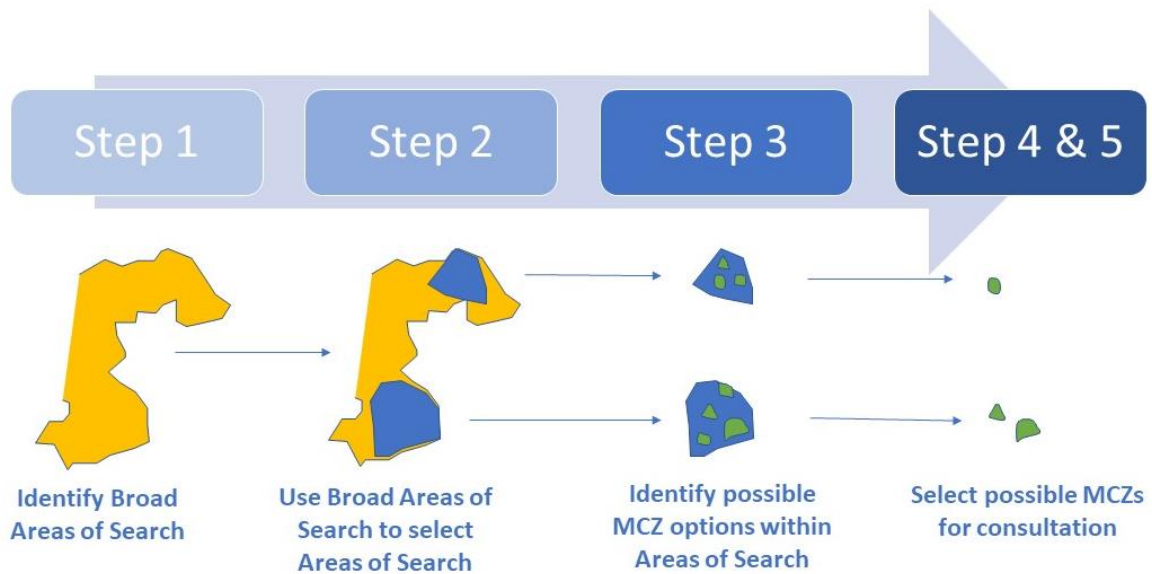


Figure 1: Selection of MCZs in Welsh waters

The Broad Areas of Search exclude areas where shortfalls are already protected and highlight areas of lower socio-economic activity to minimise impacts. They were produced to help the Welsh MPA Network completion project review extensive areas of habitats and determine where Areas of Search would be suitable. This included presenting the shortfalls outside of existing protected Annex I habitat (habitats listed within Annex I of the Habitats Directive), areas of currently licensed activities and existing infrastructure. Additionally, the Broad Areas of Search identify whether any other shortfall features are in proximity, allowing multi-feature sites to be considered.

Natural Resources Wales (NRW) and the Joint Nature Conservation Committee (JNCC) drafted a Broad Area of Search for each regional sea (Irish Sea and Western Channel and Celtic Sea), presenting the shortfalls identified in the MPA network assessment and their distribution throughout Welsh seas. These were then presented to Welsh Government and the Welsh MCZ Task and Finish Group (TFG).

Method

The Broad Areas of Search maps present the extent and distribution of the network shortfall features identified in the [2016 network assessment of MPAs in Welsh waters](#). Table 1 and Table 2 summarise the shortfall habitats and species within the Irish Sea region and Western Channel and Celtic Seas region, respectively.

Table 1: Shortfall habitats and species in the Irish Sea region

Network shortfall in Welsh waters of the Irish Sea	Reason for shortfall	Amount of habitat required to meet shortfall
Subtidal coarse sediment	Less than 10% of area currently protected in existing MPAs	542km ²
Subtidal mixed sediment	Less than 10% of area currently protected in existing MPAs	185.7km ²
Fragile sponge and anthozoan communities on subtidal rocky habitat	Less than 3 replicates are currently protected in existing MPAs	Two additional sites required in Irish Sea
Ross worm reef	Less than 3 replicates are currently protected in existing MPAs	No sites currently within Irish Sea. Additional sites determined by availability of data
Pink sea fan (<i>Eunicella verrucosa</i>)	Less than 3 replicates are currently protected in existing MPAs	No sites currently within Irish Sea. Additional sites determined by availability of data

Table 2: Shortfall habitats and species in the Western Channel and Celtic Sea region

Network shortfall in Welsh waters of the Western Channel and Celtic Sea	Reason for shortfall	Amount of habitat required to meet shortfall
Subtidal coarse sediment	Less than 10% of area currently protected in existing MPAs	81.1km ²
Subtidal sand	Less than 10% of area currently protected in existing MPAs	25.7km ²
Subtidal mud	Less than 10% of area currently protected in existing MPAs	215.2km ²
Mud habitats in deep water	Less than 3 replicates are currently protected in existing MPAs	One additional site required in Welsh waters
Sea-pen and burrowing megafauna communities	Less than 3 replicates are currently protected in existing MPAs	One additional site required in Western Channel and Celtic Sea region
Ocean quahog (<i>Arctica islandica</i>)	Less than 3 replicates are currently protected in existing MPAs	One additional site required in Western Channel and Celtic Sea region

Activities and Annex I habitat data

To create the Broad Areas of Search data was used to create a 'Blue Layer'. The Blue Layer is made up of existing infrastructure and currently licensed activities that would require the removal or adjustment of an already licensed activity and occurrences of shortfall habitat and species which are currently protected within Annex I habitats (presented as dark blue and light blue respectively in Figure 1 and Figure 2). Subsequently, the Broad Area of Search provided the extent and distribution of shortfall features within each region which are suitable for further consideration within the Welsh MPA Network completion project.

The existing infrastructure and currently licensed activities listed in Table 3 were used to create a combined dark 'Blue Layer'. Points and lines were given a buffer of 50m and, along with polygon data, were clipped to Welsh waters.

Table 3: Existing infrastructure and currently licensed activities, data layers and sources of evidence used to create the dark 'Blue Layer'

Sector	Data layer	Source
Aggregate Extraction	Aggregate extraction licensed areas	The Crown Estate
	Aggregate extraction licensed areas	Welsh Government
Aquaculture	Aquaculture areas	Welsh Government
Dredging and disposal	licensed disposal sites	Natural Resources Wales
Energy - Oil and Gas	Offshore oil platforms	Oil and Gas Authority
	Oil wells	Oil and Gas Authority
	Oil and Gas pipelines	Oil and Gas Authority and UK Hydrographic Office
Energy - Renewables - wave	Offshore wave energy licensed areas	The Crown Estate
Energy - Renewables - tidal stream	Offshore tidal energy licensed areas	The Crown Estate
Energy - Renewables - wind	Offshore windfarms and licensed areas	The Crown Estate
Ports and shipping	Anchorage Areas	UK Hydrographic Office
Marine licensing within 12nm	Marine Licences	Natural Resources Wales
Marine licensing outside 12nm	Marine Licences	Marine Management Organisation

Data processing

The following processes were carried out to create a dataset containing all existing infrastructure and licensed areas (this constitutes the dark 'Blue Layer'):

- Data sources were reviewed to ensure the most up to date evidence was included
- The layers were clipped to Welsh waters
- The following data were removed as they are not considered currently active or causing a detrimental effect on the shortfall features:
 - Decommissioned / abandoned / suspended well heads
 - Oil barriers (found within docks, not relevant to project)
 - Oil and Gas Licensed production areas (these areas will be considered within the process as an addition to the dark 'Blue Layer' but have been removed from the dataset as they cover large swathes of Welsh waters)
 - Ports & shipping Restricted Areas (relevant for navigation, so not appropriate to include)
 - Ports / Harbours (not relevant to this task as represents administration area for harbour).

- Free ports (covers entire welsh waters, not relevant)
- Removal licences (e.g. grab surveys) within MMO / NRW marine licence areas (points polygons & lines) and extant licences.

The following processes were carried out to create a dataset of the shortfall features available to be taken further in the process:

- JNCC combined map of shortfall features were clipped to Welsh waters
- Any shortfall feature that overlapped with the existing infrastructure and currently licensed activities were removed.
- The areas where the shortfall features overlapped with areas of protected features within existing MPAs was erased from the layer
- Any feature data points which overlapped with areas of protected features within existing MPAs were removed

Results

Broad Area of Search maps were produced for both the Irish Sea and the Western Channel and Celtic Sea regions (Figure 2 and Figure 3, respectively). The maps include the extent and distribution of the shortfall features and the 'Blue Layer', highlighting areas of where shortfall features are available to be considered further in the process.

Broad-scale habitat data confidence

Shortfalls for broad-scale habitats are derived from the JNCC combined map. This dataset is made up of a variety of acoustic data with ground truthing (survey derived) and data that has come from UKSeaMap and HABMAP which are modelled datasets based on numerous physical and biological parameters.

Figure 4 and Figure 5 show where there is this difference with dark grey areas showing survey derived data with higher confidence and stippled light grey area showing modelled data with lower confidence for both regions.

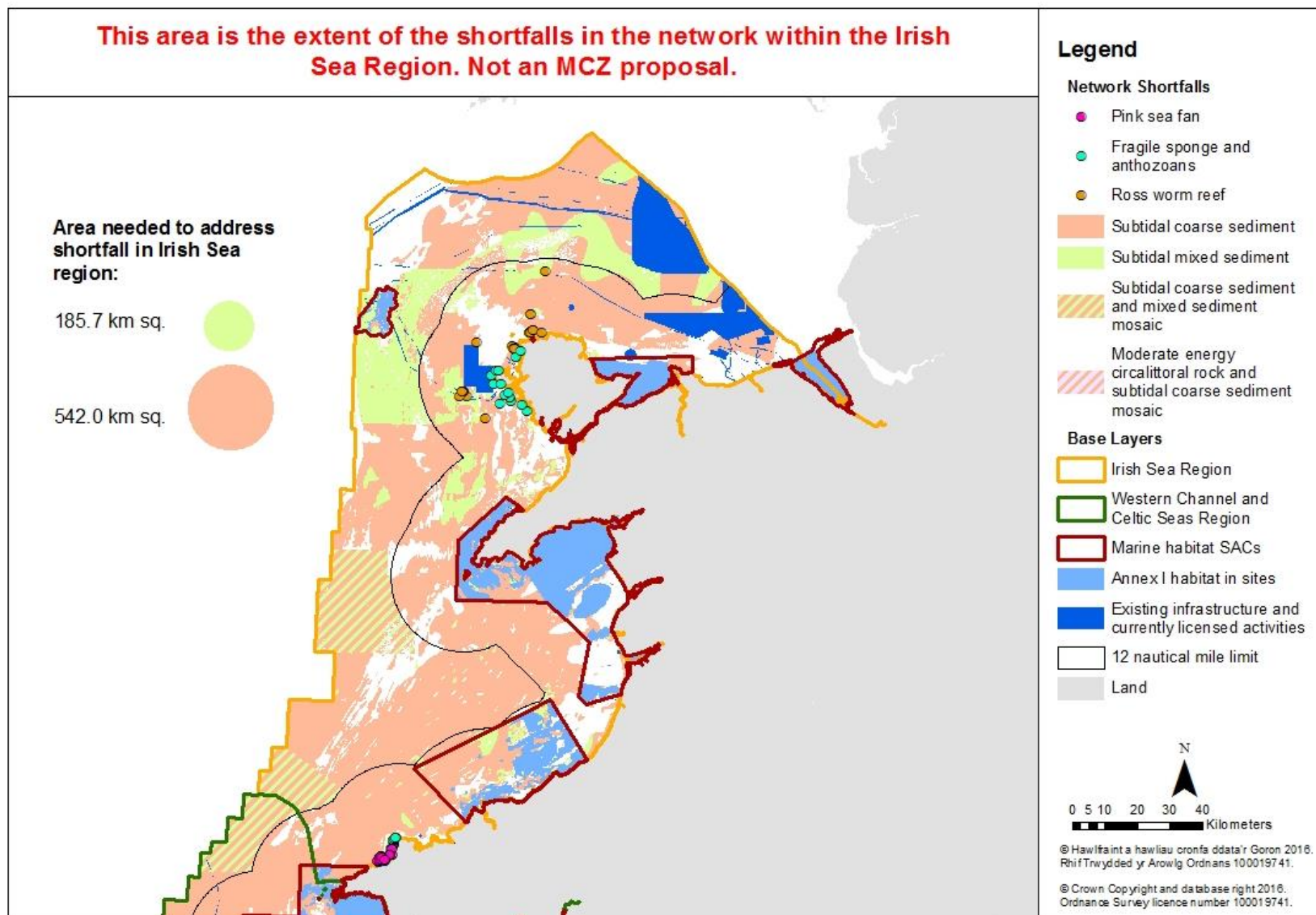


Figure 2: Irish Sea Region Broad Area of Search

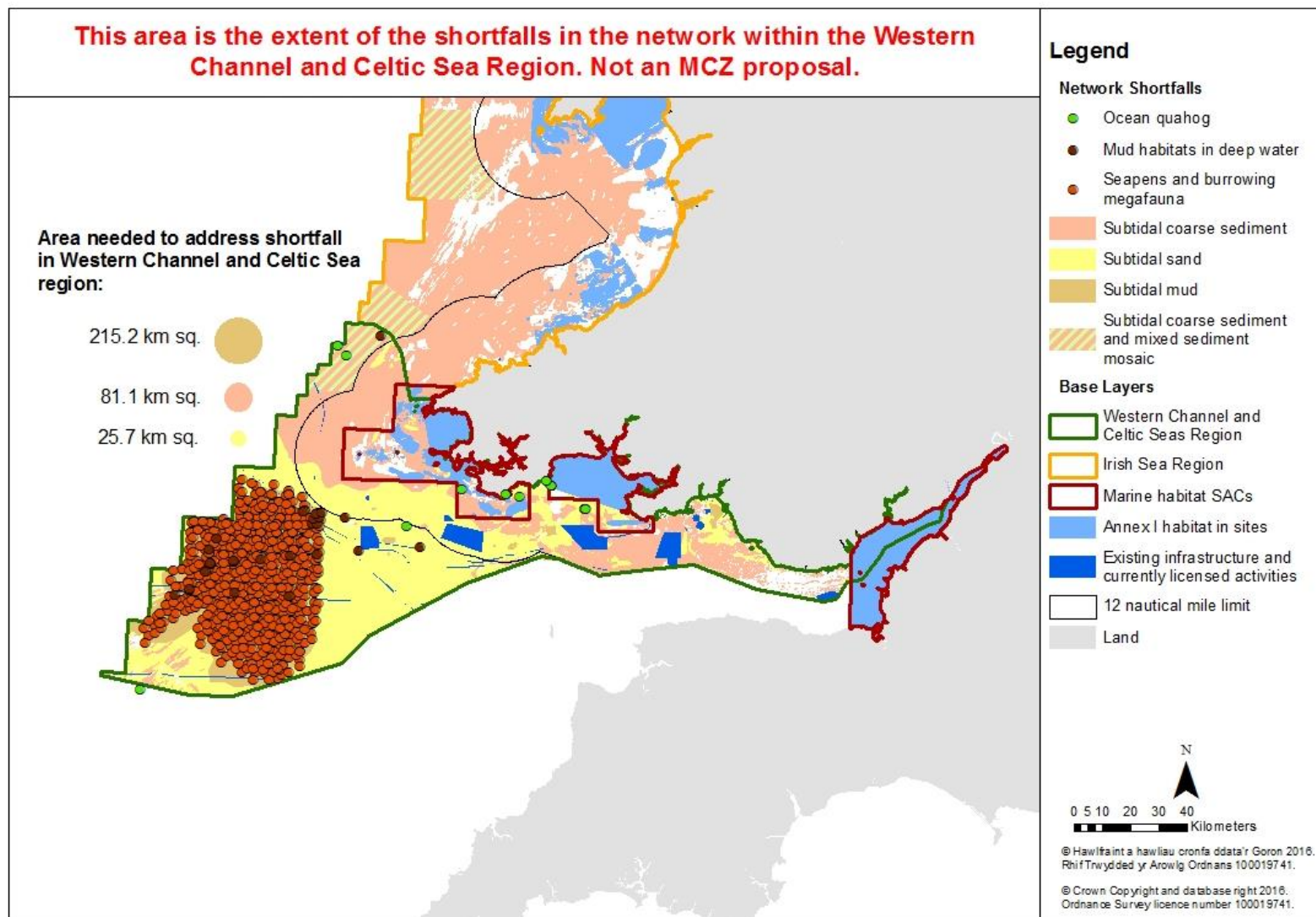


Figure 3: Western Channel and Celtic Sea region Broad Area of Search

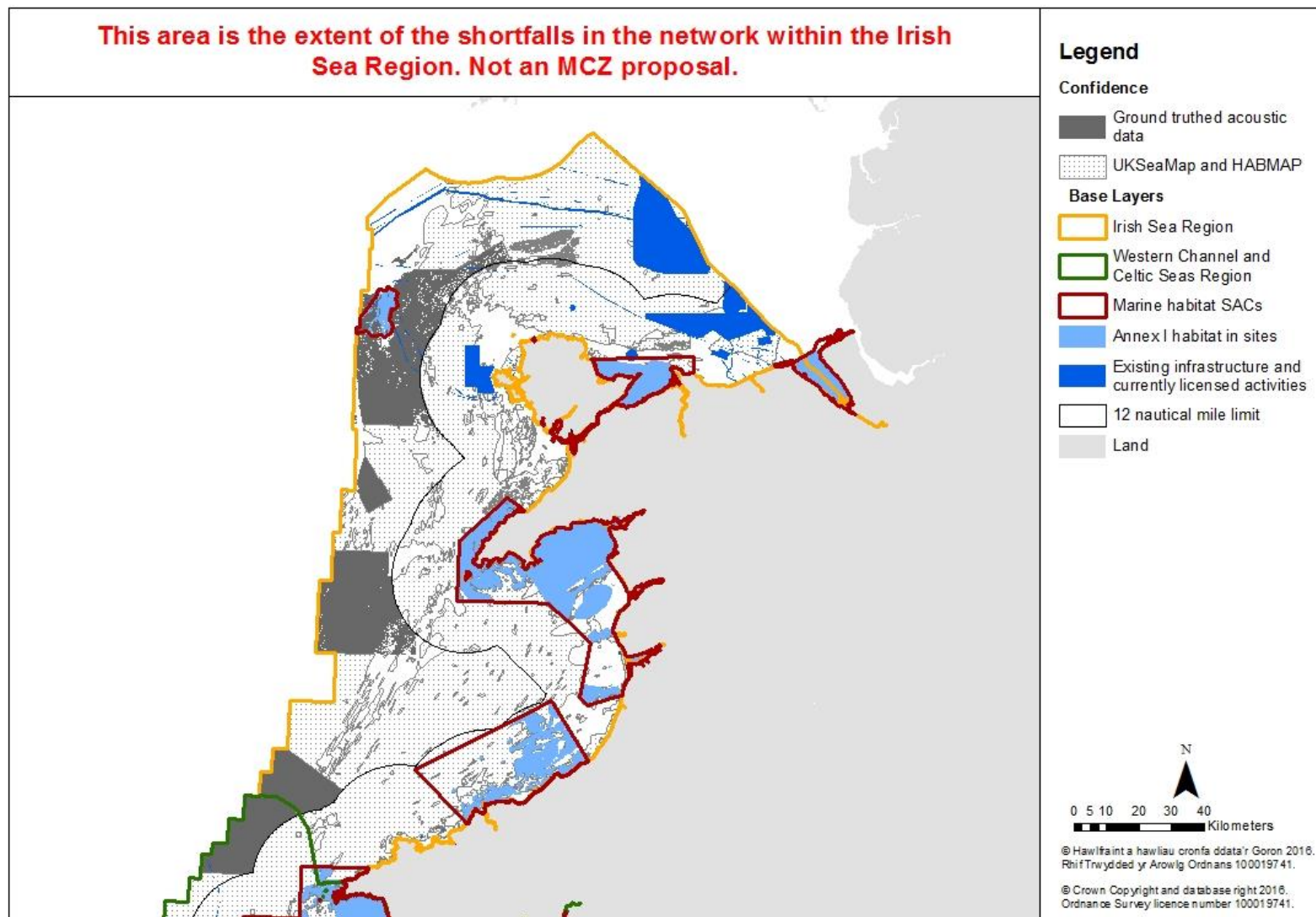


Figure 4: Irish Sea Region broad-scale habitat data confidence

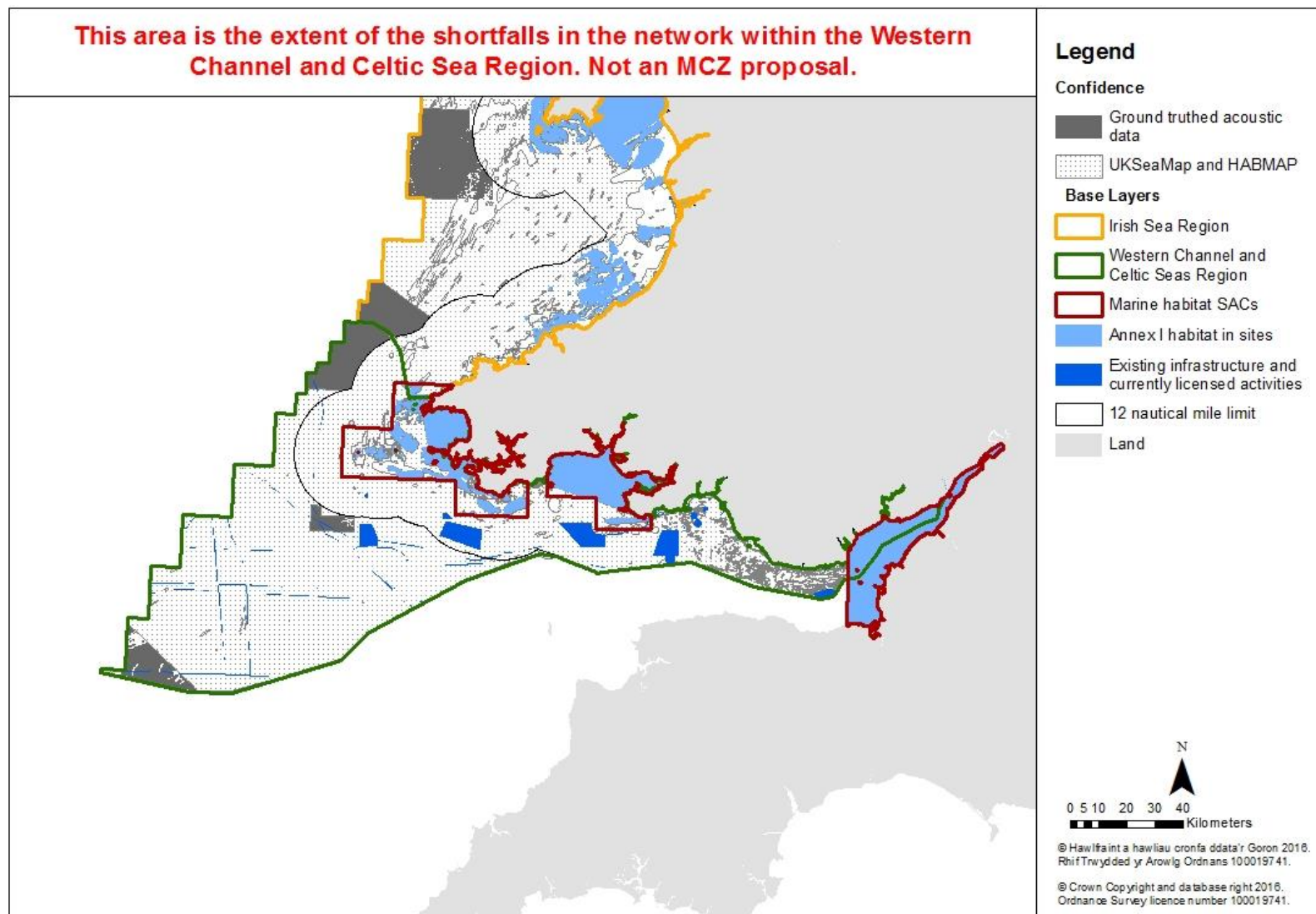


Figure 5: Western Channel and Celtic Sea region broad-scale habitat data confidence

Conclusions

The Broad Areas of Search presented maps of the shortfall habitat and species available to be taken further in the process, alongside additional information on activities such as shipping routes and >12m fishing activity levels. Broad Area of Search documents provided general information on the region, the shortfall features and details the above process and evidence sources used.

How were the Broad Areas of Search used

A 10km grid was overlaid onto the Broad Areas of Search. The TFG used the evidence available and other supporting materials in the Broad Areas of Search to put forward grid squares which could address the network shortfalls whilst minimising socio-economic impacts. This resulted in 'Areas of Search' (AoS), there were a number of 'rules of thumb' when suggesting AoS which included:

- Be a more focussed area of shortfall than presented in the Broad Area of Search, especially where the shortfall is extensive
- Include more than enough area to meet the shortfall. The shortfall does not have to be captured in one location; it may require multiple locations to meet the shortfall
- Be broad enough to include a number of options where possible MCZs could be located. Large/multiple Areas of Search will enable more site options to be explored further on in the process (Step 3 in Figure 1)
- Ensure that there is a geographical spread across Welsh waters to include deeper waters (where relevant) to address the lack of shortfall features protected in these areas
- Attempt to cover more than one shortfall. Some shortfalls are only to be considered in conjunction with others (e.g. Ocean quahog)
- Attempt to reduce socio-economic impacts. However, it is expected that activities are likely to occur in Areas of Search, these will be taken into account in the next stages

The Broad Area of Search process was well received by the Welsh MPA network completion project and facilitated the next step within this process in highlighting Areas of Search.