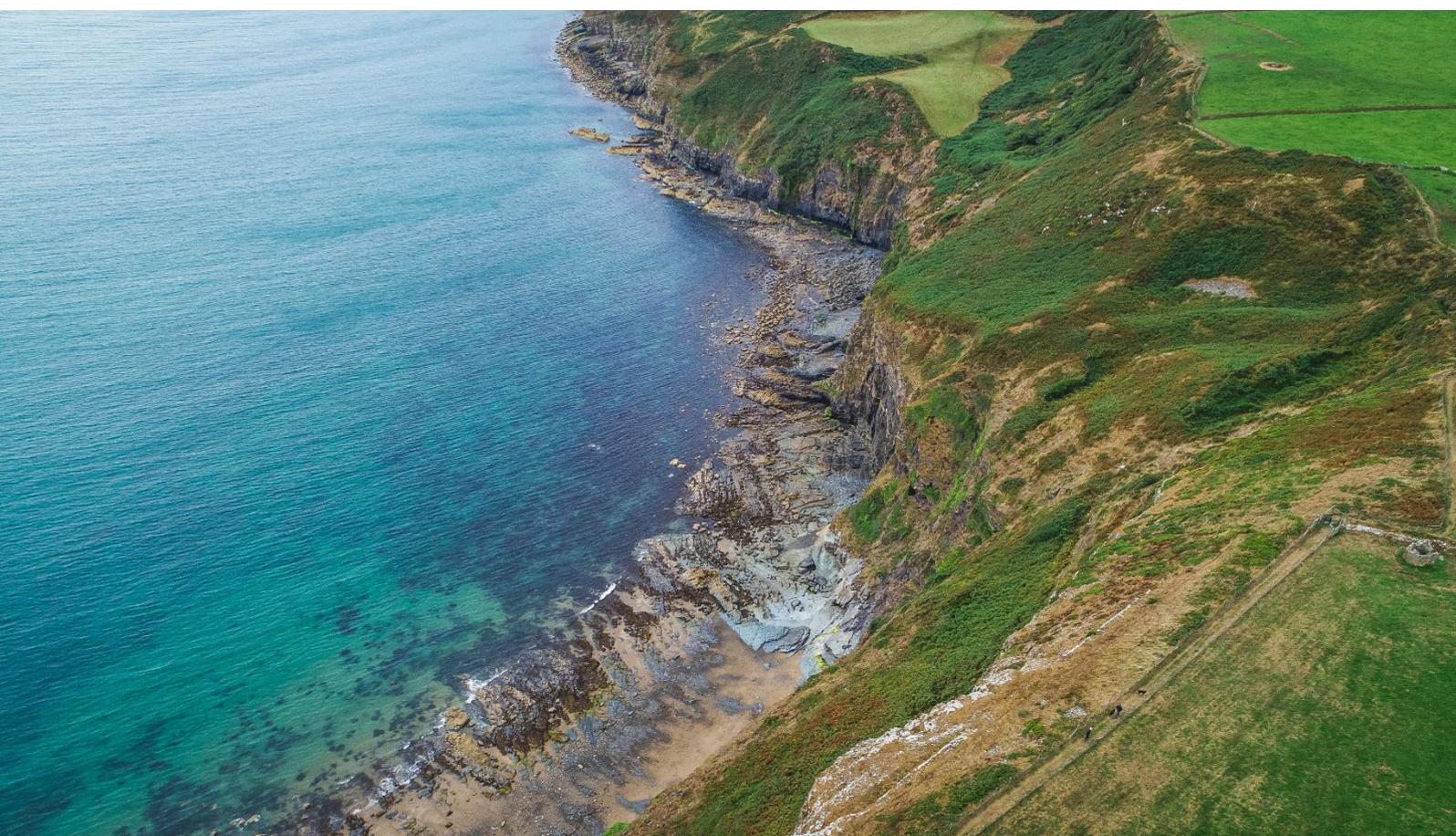
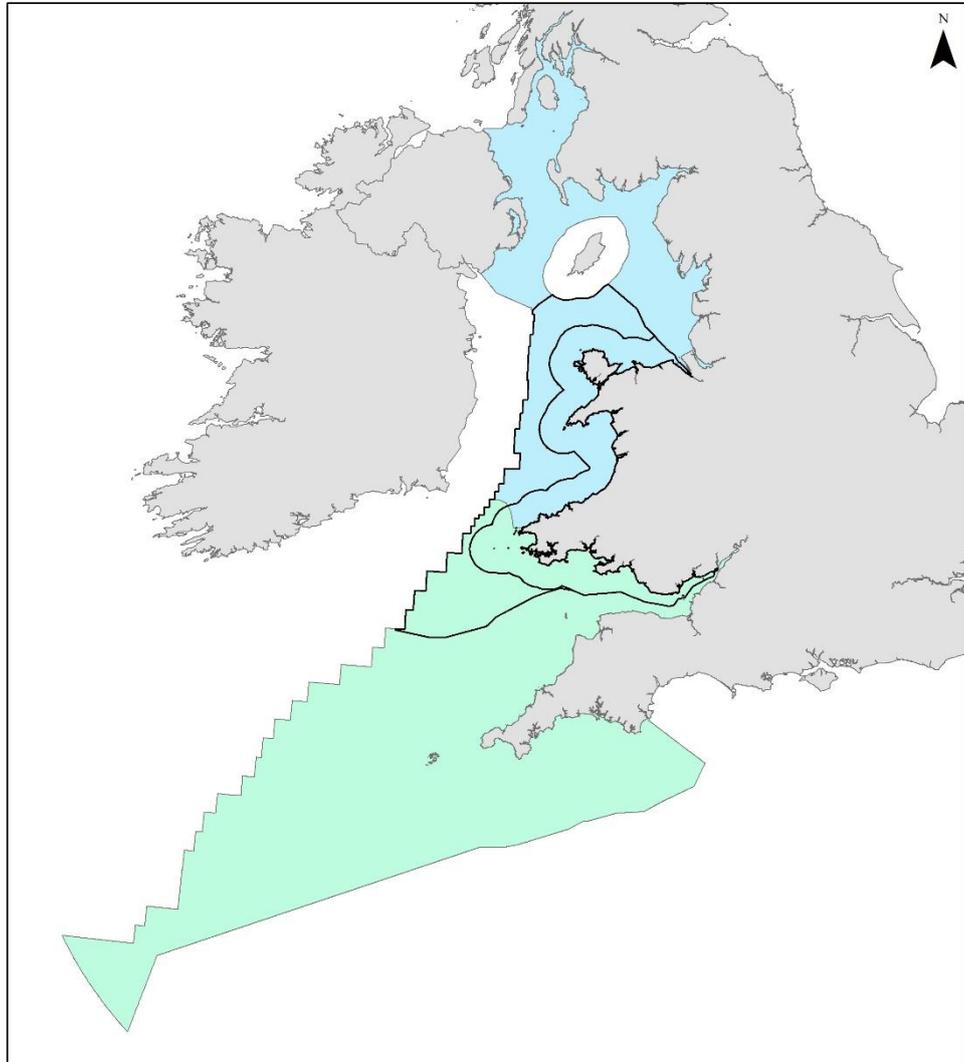


Overview of Areas of Search within Welsh waters





Legend

- 12mf a dyfroedd môr mawr
Cymru \ 12nm and Welsh
offshore waters
- Môr Iwerddon \ Irish
- Gorllewin y Sianel a'r Môr
Celtaidd \ Western Channel &
Celtic Sea

0 62.5 125 250 km

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1 Introduction

The aim of the Welsh Marine Protected Area (MPA) Network Completion Project is to ensure that the network of MPAs in Welsh waters sufficiently protects all the habitats and species that are present in Wales. In 2016 and 2018 the Joint Nature Conservancy Committee (JNCC) and Natural Resources Wales (NRW) analysed the Welsh contribution to the UK MPA network. The network analysis concluded that most habitats and species are already protected within existing sites, there were however, a small number of shortfalls in the network. These shortfalls are listed in more detail in [Appendix A](#). The Welsh Government (WG) will use its powers to designate Marine Conservation Zones (MCZs) to ensure that the shortfalls are met.

A Process Document is available on the project website which provides background to the project, the need to complete the network and the approach taken to identify MCZs within Welsh waters. Frequently Asked Questions are also available on the project website [Welsh Marine Conservation Zones | Business Wales - Marine and Fisheries \(gov.wales\)](#).

To support this process, a Task and Finish Group (TFG) has been established to work alongside WG, NRW and JNCC to identify MCZs that address the shortfalls identified in Welsh waters. The TFG is made up of members from the Wales Marine Advisory and Action Group (WMAAG) who represent the interests of their sector. The Group is independently chaired, with the Welsh Government as secretariat. NRW and JNCC support the TFG, where needed, including the provision of technical and scientific advice within their statutory roles.

Best available evidence has been used throughout this process¹; to this end Welsh Government has released a data call for stakeholders to submit evidence (whether that is biological or socio-economic) for consideration within this process. Details of this data call can be found on the project website [Welsh Marine Conservation Zones | Business Wales - Marine and Fisheries \(gov.wales\)](#).

¹ Not all activities are included in this and we have only included activities where data exists. Other activities are known to occur, but the project will be using the TFG, data calls and wider stakeholder engagement to fill this evidence gap.

2 How MCZs are going to be determined

Figure 1 provides an overview of the key steps involved in selecting MCZs within Welsh waters. More information on the steps involved can be found in the Process Document available on the project website [Welsh Marine Conservation Zones | Business Wales - Marine and Fisheries \(gov.wales\)](http://Welsh Marine Conservation Zones | Business Wales - Marine and Fisheries (gov.wales)).

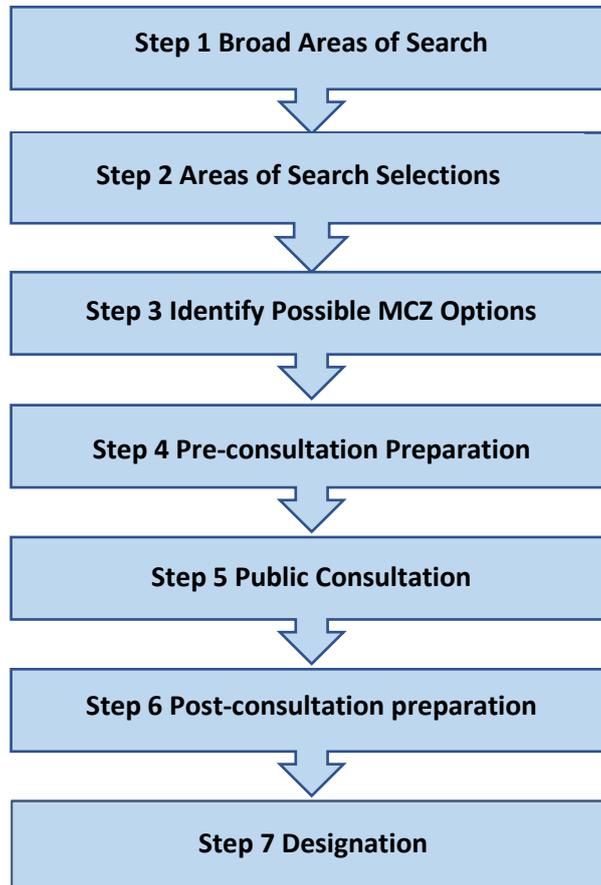


Figure 1: Step process for selecting Welsh MCZs, more detail is available in the Process Document

The process can be summarised as starting with a large potential area that gets progressively smaller and more refined as the process develops; a visualisation of this is provided in Figure 2.

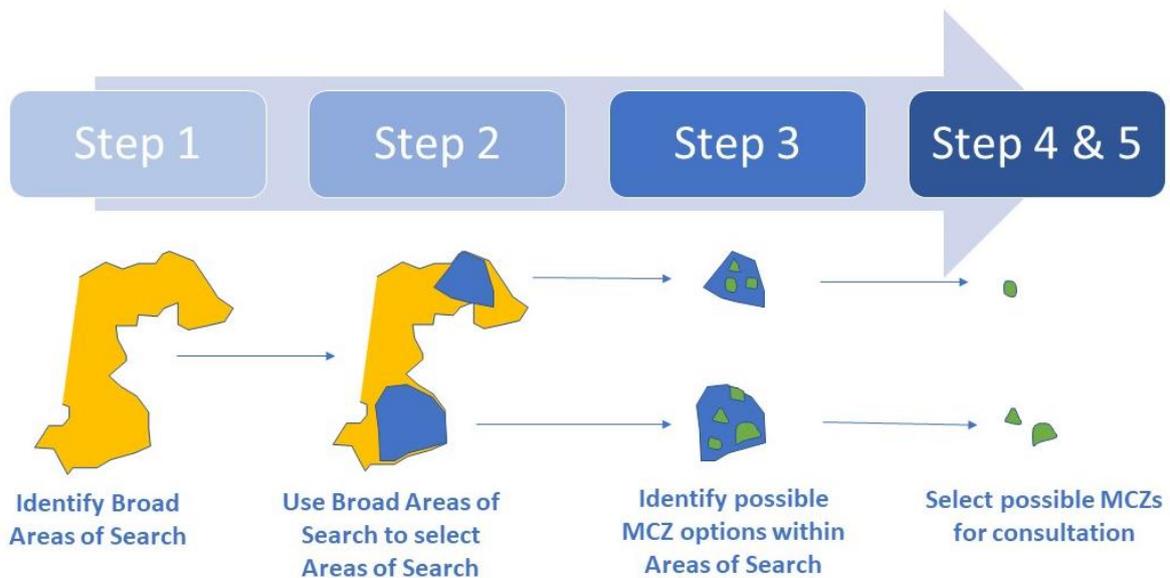


Figure 2: Overview of selection process for identifying possible Marine Conservation Zones (MCZs) in Welsh waters

To begin this process, we developed maps to show where the shortfalls in the network are located. The extent of the shortfalls was then refined by removing shortfall habitat or species that is either already protected within SACs, overlaps with existing infrastructure (e.g. windfarms) or currently licensed activities (e.g. dredge disposal grounds). Existing infrastructure, currently licensed activities and habitat protected in SACs are collectively called the 'Blue Layer'. The remaining areas of shortfall habitat and species were presented as Broad Areas of Search, developed by NRW, JNCC and WG using best available evidence. The Broad Areas of Search present the distribution of the habitats and species shortfalls within Welsh waters, including general information about the shortfalls. More detail about the development of the Broad Areas of Search can be found in the summary paper on the project website [Welsh Marine Conservation Zones | Business Wales - Marine and Fisheries \(gov.wales\)](https://www.gov.wales/welsh-marine-conservation-zones-business-wales-marine-and-fisheries).

A 10km grid was overlaid onto the Broad Areas of Search. The MPA Network Completion Project Task and Finish Group (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)² which are presented in this document for information. There were a number of 'rules of thumbs' when suggesting AoS. These included being large enough to have a

² Please note, during the selection process the term 'Areas of Search' replaced 'Preferred Areas'

number of options for possible MCZs; seeking to address more than one shortfall (to reduce the number of sites needed); and ensuring a geographical spread, particularly to include deeper waters where there is less coverage of MPAs. The Areas of Search are being presented through wider stakeholder engagement, via the website, social media, emails, stakeholder engagement days and one to one meetings to raise awareness of the process and gather feedback on the areas where the Welsh MPA Network Completion Project will focus their attention on for the next step of the process; defining boundaries for possible MCZs. There will also be an opportunity for stakeholders to submit evidence through a data call so that any socio-economic concerns are established and can be included in the discussions about where the possible MCZs should be located. Details of the data call and submission forms are available on the project website [Welsh Marine Conservation Zones | Business Wales - Marine and Fisheries \(gov.wales\)](https://www.gov.wales/welsh-marine-conservation-zones).

In the next step of the process (Step 3) possible MCZs will be selected from within the Areas of Search. Feedback and data supplied from the data call will be reviewed by the project team and used to draft possible MCZs. This process will be evidence led and initial boundaries for possible MCZs will be selected by NRW, JNCC and WG using best available evidence. These possible MCZs will then be reviewed with the TFG. Once possible MCZs have been selected, Step 4 will see JNCC and NRW develop statutory advice on the proposals for Welsh Government, who will then undertake a public consultation period of 12 weeks in Step 5 of the process. During the public consultation a further data call will be released for any additional evidence pertaining to the selected possible MCZs. For more detail on the MCZ selection process please see The Process Document available on the project website [Welsh Marine Conservation Zones | Business Wales - Marine and Fisheries \(gov.wales\)](https://www.gov.wales/welsh-marine-conservation-zones).

3 Development of Areas of Search (AoS)

NRW, JNCC and Welsh Government have worked with the MPA Network Completion Project Task and Finish Group (TFG) to identify AoS within Welsh waters. This document provides an overview of how all the AoS within Welsh waters were identified, outlining the general considerations and limitations of available data and evidence.

Each of the AoS are presented in detail covering

- Description of area and habitat maps
- Justification for selection
- Overview of some activities known to occur within the area and associated pressures that the features are known to be sensitive to

The AoS have also been summarised into factsheets.

Please note:

The maps within this document are Areas of Search (AoS), they are NOT MCZ proposals.

3.1 Considerations for the development of Areas of Search (AoS)

Welsh Government are committed to protecting the shortfall features as effectively and efficiently as possible. To this end the process is feature led, concentrating on ensuring the minimum shortfall for each feature is adequately represented in the network. The minimum adequacy accepted by Welsh Government is 10% for broadscale habitats. This does not prevent larger areas being taken forward for consideration in later stages of the project.

The approach outlined in selecting the Areas of Search has focused on shortfall habitat and species distributions as well as some areas of socio-economic activities. Other secondary considerations, such as reviewing additional biodiversity, will be addressed in the next phase of selecting possible MCZ boundaries. Although socio-economic factors will be considered throughout the process, management considerations will be focussed upon during the consultation period of possible MCZs (in steps 4 and 5 of the process).

To effectively protect the shortfall features, activities that cause pressures which the features are medium-highly sensitive to may be considered for management. The lists of operations included in the following Area of Search sections are activities which are currently known to occur within the area and which are associated to pressures that the features are known to be sensitive to. These have been sourced from the JNCC MPA conservation advice on operations spreadsheets.

It is recognised that there are many commercial and recreational activities that occur within the Areas of Search (for example; fisheries of vessels under 12m and charter vessels), however it has not been possible to accurately reflect all levels/ types of activity due to unavailable data and/or information at this time.

Vessel Monitoring System (VMS) data recorded between 2016 and 2018, sourced from the Marine Management Organisation, has been used and interpreted by JNCC to show indicative fishing activity within the Areas of Search. Only those activities which are included in the VMS dataset and those which the shortfall features are known to be sensitive to have been included. Please note this is not a definitive list of fishing activity within the area.

One of the aspirations of this process is to minimise socio-economic impacts, therefore additional information is being requested from TFG members and wider stakeholders to provide further detail and contextual information on the areas. If you are aware of additional data which is available regarding socio-economic activities within this area, please get in touch with Welsh Government.

For more information please see the Process Document and Frequently Asked Questions available on the project website [Welsh Marine Conservation Zones | Business Wales - Marine and Fisheries \(gov.wales\)](https://www.gov.wales/welsh-marine-conservation-zones-business-wales-marine-and-fisheries).

4 Overview of the regional seas found in Welsh waters

The UK seas are divided up into 'regional seas' which are based on biological and geographical characteristics³. Welsh waters overlap with two regions - the Irish Sea and the Western Channel and Celtic Sea (an overview map of the regions can be seen on the cover page of this document). It is at this regional sea scale that Wales' contribution to the UK network of MPAs was assessed. Wales has an extensive MPA network for marine habitats. Figure 3 presents the Special Areas of Conservation (SACs) which protect habitats and species within Welsh waters. However, the network assessment carried out in 2016 revealed that there are a small number of shortfalls in the MPA network for some subtidal sediments and a few habitats and species of conservation importance.

Shortfalls are determined as having

- less than 10% of total area within a regional sea protected in MPAs for broad-scale habitats
- at least 3 examples for OSPAR threatened and/or declining habitats and species and habitats and species on the interim Section 7 list Environment (Wales) Act⁴ protected in the regional sea.

Details of each of the shortfall features can be found in [Appendix A](#).

³ The Charting Progress 2: State of the Seas Report in 2010 divided UK seas into eight regions based on their biological and geographical characteristics. Welsh territorial waters occur within the Irish Sea and Western Channel and Celtic Sea regions.

⁴ See Table 1 and 2 in the Process Document for more information on Network Assessment Criteria

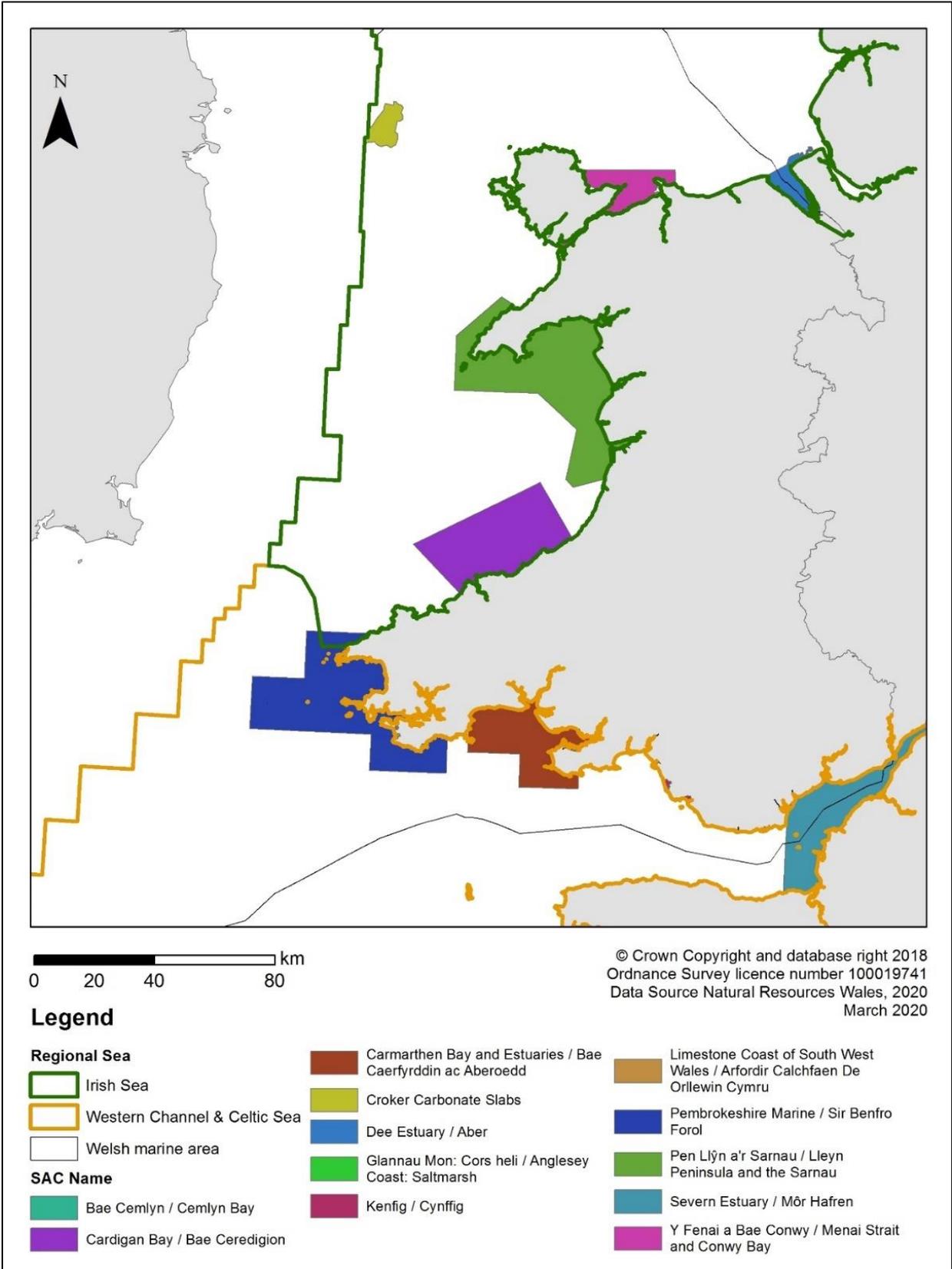
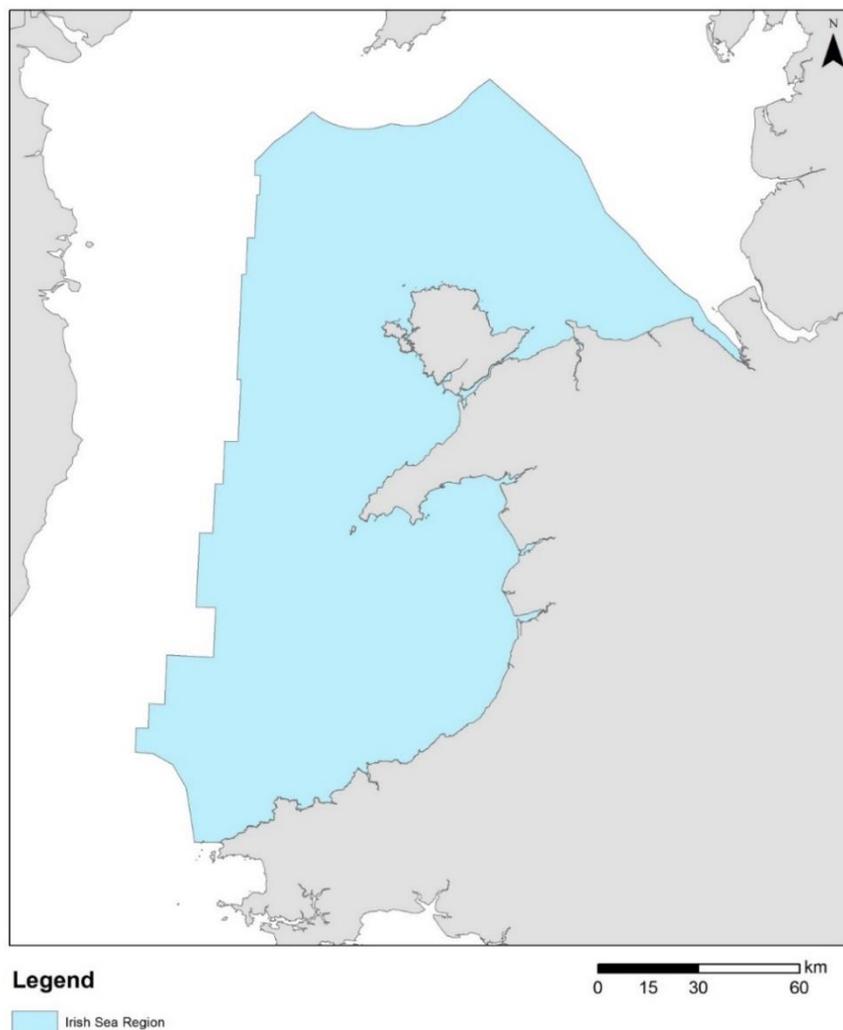


Figure 3: Marine habitat SACs by regional sea

4.1 Irish Sea region

The Welsh part of the regional sea extends from Welsh/English border in the Dee Estuary in the north, to St David's Head, Pembrokeshire in the south (see Figure 4). The region is predominantly shallow of depths up to 20m in Cardigan Bay, Caernarfon Bay and Liverpool Bay. It becomes increasingly deeper further offshore. The deepest part of the region with depths of 100m or more can be found in the north of St George's Channel. The seabed habitats are predominantly sediments with coarse sands and gravels making up the majority, often interspersed with mud. Rocky reefs are concentrated around Anglesey, Pen Llŷn and north Pembrokeshire. Table 1 provides a summary of the habitats and species within the Irish Sea where there is a shortfall of protection in Welsh waters.



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Figure 4: The Irish Sea region within Welsh waters

Table 1: Summary of features with network shortfall in Irish Sea region

Network shortfall in Welsh waters of the Irish Sea	Reason for shortfall	Amount of habitat or replicate⁵ required to address 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	Less than 3 replicates are currently protected in existing MPAs	No sites currently within Irish Sea. Additional sites determined by availability of data

Figure 5 presents a habitat map of the Irish Sea region depicting best available evidence for presence and extent of the shortfall features listed in Table 1. All occurrences of existing infrastructure, currently licensed activities and protected SAC habitat overlapping with network shortfall features are displayed as the 'Blue Layer' with dark blue representing existing infrastructure and currently licensed activities and light blue representing protected SAC habitats. The remaining areas constitute the broad area of search. [Appendix B](#) summarises the confidence associated with the mapped areas of habitats.

⁵ A replicate refers to an MPA within which the feature is protected. A replicate should contain multiple records of the feature.

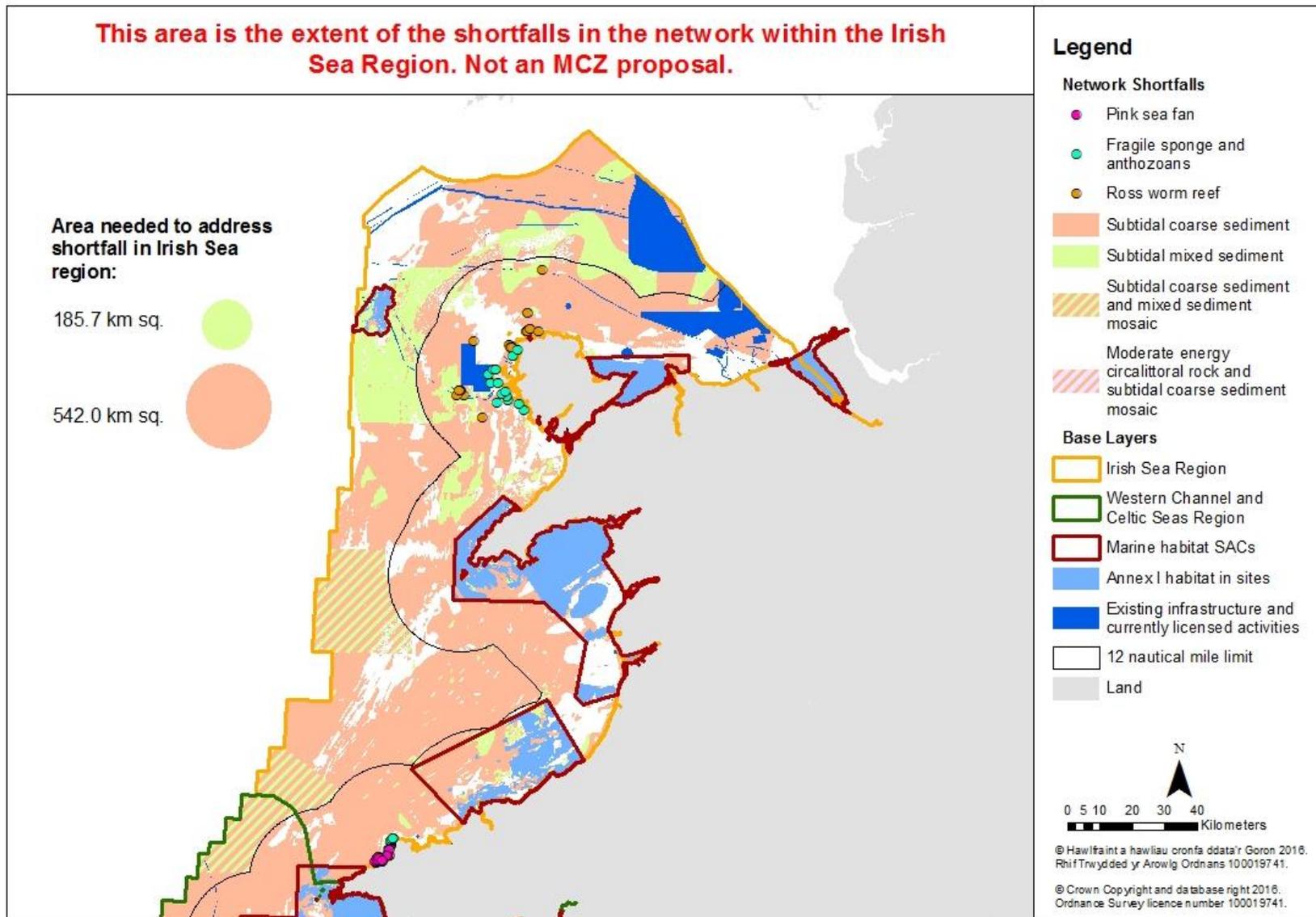
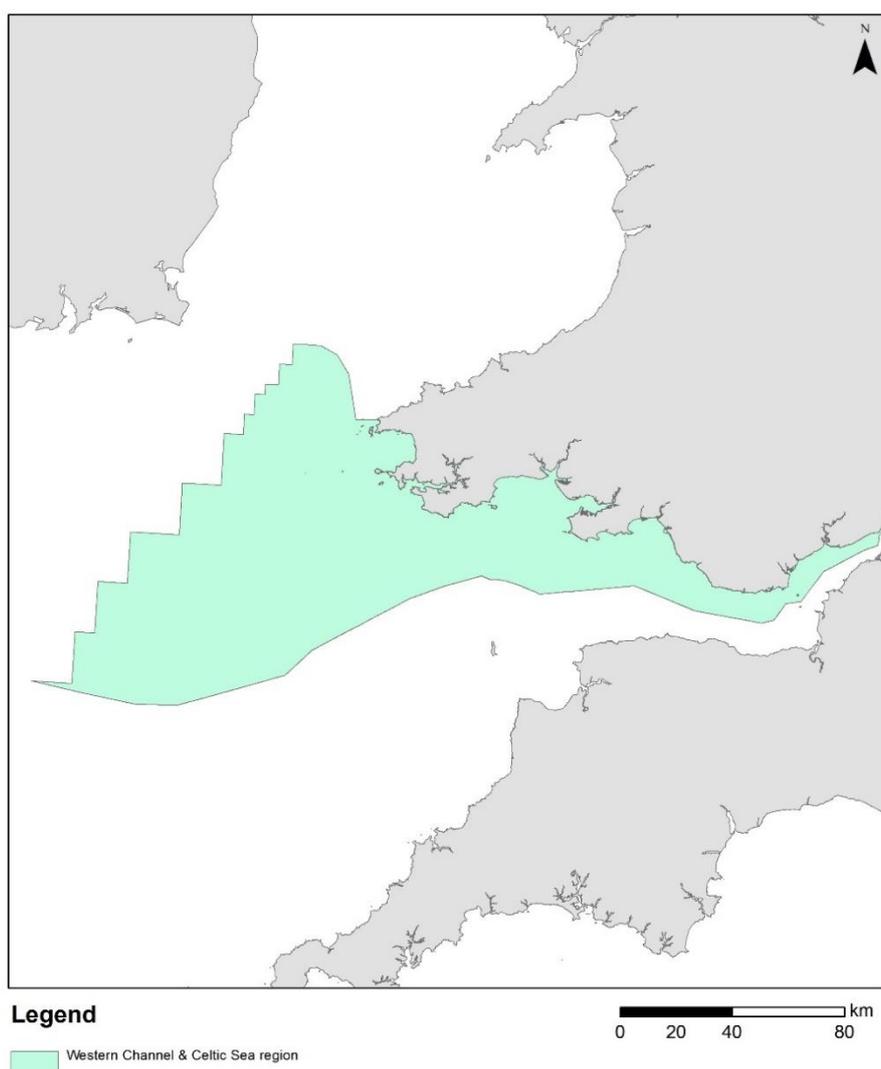


Figure 5: Network shortfalls in the Irish Sea region.

4.2 Western Channel and Celtic Sea region

The Welsh part of the Western Channel and Celtic Sea (WCCS) regional sea extends from St David's Head in Pembrokeshire to the Welsh/English border at the mouth of the River Wye in the Severn Estuary (Figure 6). The region has shallower inshore areas that give way to much deeper waters to the south west, with the deepest parts of up to 200m to be found around Celtic Deep. The seabed is predominantly coarse sands and gravels to the north of the region, with large expanses of sand moving south, and an extensive area of mud to the far south west around the Celtic Deep. Table 2 provides a summary of the features within the WCCS where there is a shortfall of protection in Welsh waters.



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Figure 6: The Western Channel and Celtic Sea region within Welsh waters.

Table 2: Summary of features with network shortfall in the WCCS region

Network shortfall in Welsh waters of the WCCS	Reason for shortfall	Amount of habitat or replicate ⁶ required to address 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 WCCS
Ocean quahog (<i>Arctica islandica</i>)	Less than 3 replicates are currently protected in existing MPAs	One additional site required in WCCS

Figure 7 presents a habitat map of the WCCS depicting best available evidence for presence and extent of the shortfall features listed in Table 2. All occurrences of existing infrastructure, currently licensed activities and protected SAC habitat overlapping with network shortfall features are displayed as the 'Blue Layer' with dark blue representing existing infrastructure and currently licensed activities and light blue representing protected SAC habitats. Appendix B summarises the confidence associated with the mapped areas of habitats.

⁶ A replicate refers to an MPA within which the feature is protected. A replicate should contain multiple records of the feature.

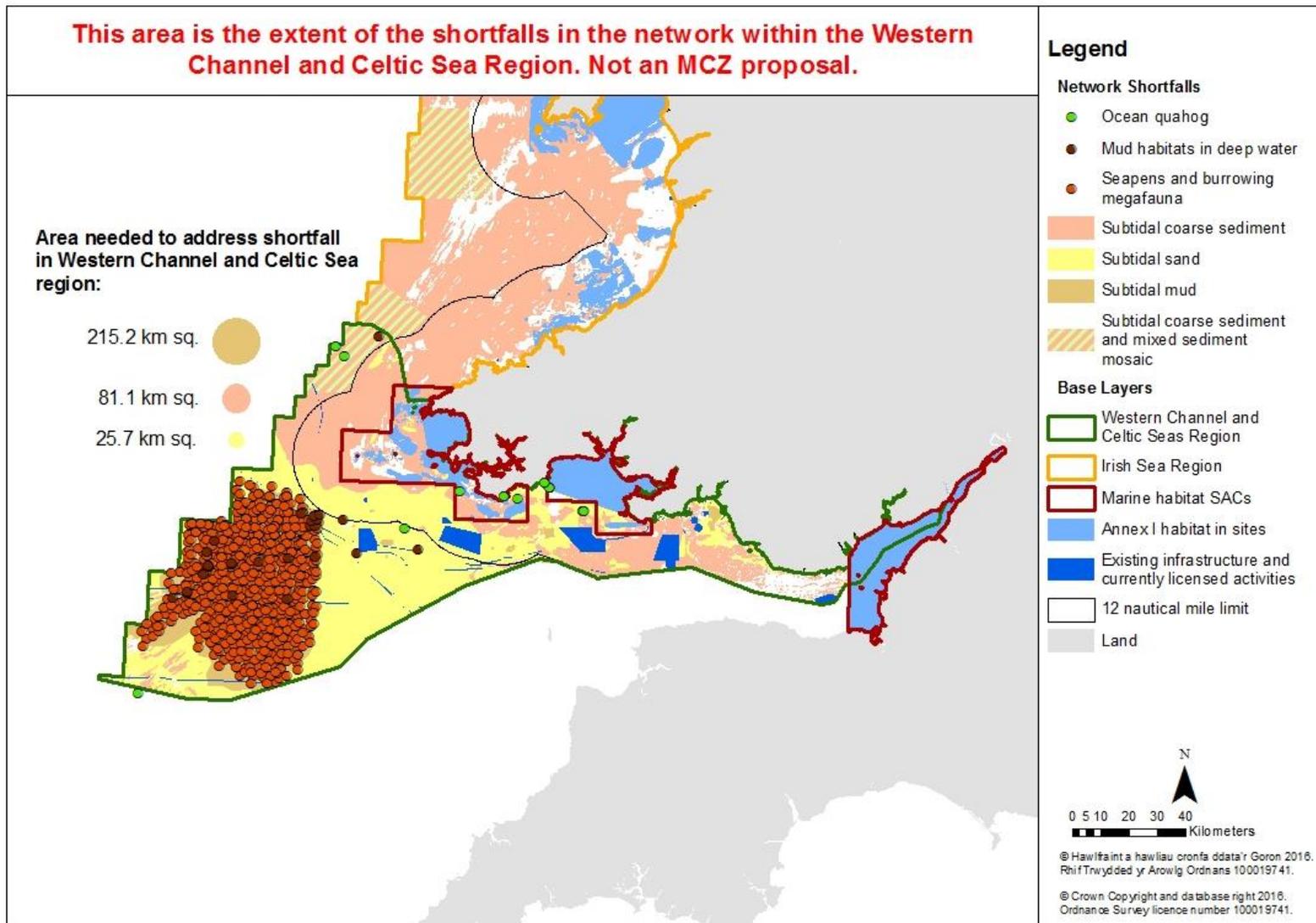


Figure 7. Network shortfalls in the Western Channel and Celtic Sea region

5 Areas of Search in Welsh waters

A total of eleven Areas of Search were initially identified by the MPA Network Completion Project Task and Finish Group (TFG); five located within the Irish Sea (A - F in Figure 8), five in the Western Channel and Celtic Sea (G - J in Figure 8) and one overlapping both regional seas (E in Figure 8). Upon review of each area by the TFG, Welsh Government, NRW and JNCC it was decided to take forward six Areas of Search within Welsh waters. These have been highlighted in Figure 8 with red circles. Justifications on why some of the AoS were not taken forward are provided in Table 3.

Table 3: Areas of Search not taken forward

Area of Search	Reasons not taken forward
AoS-C	Other areas in the Irish Sea region provide more than enough opportunities to address the corresponding shortfalls. Does not provide opportunity to address the requirement to provide representation of shortfall features in deeper waters. Overlaps with an existing Special Area of Conservation that protects the corresponding shortfall features.
AoS-I	Other areas in the Western Channel and Celtic Sea region provide more than enough opportunities address the corresponding shortfalls. Does not provide opportunity to address the requirement to provide representation of shortfall features in deeper waters. Overlaps with an existing Special Area of Conservation that protects the corresponding shortfall features.
AoS-J	Other areas in the Western Channel and Celtic Sea region provide more than enough opportunities to address the corresponding shortfalls. Does not provide opportunity to address the requirement to provide representation of shortfall features in deeper waters. Adjacent to an existing Special Area of Conservation that protects the corresponding shortfall features.

Table 4 and Table 5 summarise, from a shortfall perspective, what combination of Areas of Search could be selected to address the shortfall of each feature within the Irish Sea and Western Channel and Celtic Sea regions respectively. The cells within the table have been coloured to help summarise which AoS or what combination of areas would provide sufficient opportunities to address the shortfall. *Please note there are further considerations which should be taken into account which is provided in the individual Area of Search sections within this document.*

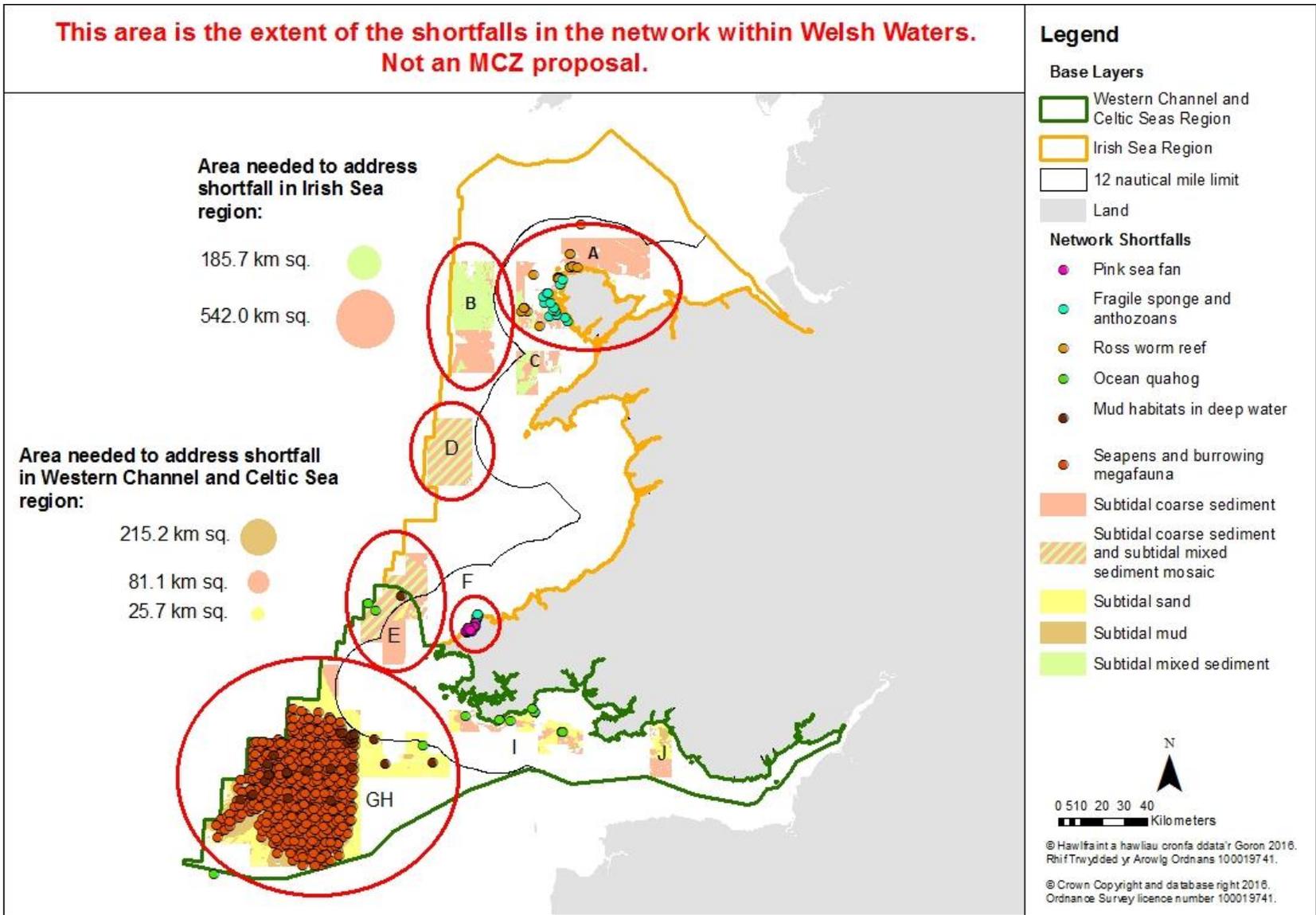


Figure 8: Overview of Areas of Search within Welsh waters. Areas of Search to be taken forward are highlighted by red circles

Table 4: Shortfall summary of the Areas of Search in the Irish Sea

Shortfall	AoS-A	AoS-B	AoS-D	AoS-E ⁷	AoS-F
Subtidal coarse sediment	Yes (inshore only)	Partial	Partial	Partial	No
Subtidal mixed sediments	Partial	Yes	Yes	Partial	No
Fragile sponge and anthozoan communities on subtidal rocky habitat	Partial	No	No	No	Partial
Ross worm reef	Yes	No	No	No	No
Pink sea fan	No	No	No	No	Yes

Table 5: Shortfall summary of the Areas of Search in the WCCS

Shortfall	AoS-E	AoS-GH
Subtidal coarse sediment	Yes	Yes
Subtidal sand	Yes	Yes
Subtidal mud	No	Yes
Mud habitats in deep water	Yes	Yes
Sea-pen and burrowing megafauna communities	No	Yes
Ocean quahog	Yes	Yes

Key:

Yes	Only opportunity to address the shortfall in the regional sea. Selecting this AoS is essential to address the shortfall in this region.
Partial	Only partially addresses the shortfall in the regional sea. One of two occurrences in the regional sea. Selecting both is essential to address the shortfall in this region.
Yes	Opportunity to fully address the shortfall for the regional sea
Yes (inshore only)	Opportunity to address the shortfall for the regional sea but does not include habitat in the offshore region
Partial	Opportunity to partially address the shortfall in the regional sea. Requires more than one AoS to address the shortfall.
No	Shortfall feature is not present in the AoS

⁷ AoS-E is located across the border of the two regional seas and is therefore included in both regional overviews of Areas of Search

6 Irish Sea - Area of Search A

6.1 Justification

Table 6 summaries why Area of Search A (AoS-A) was selected, a summary of how each of the Areas of Search within the Irish Sea address the shortfalls within the region is provided in Table 4.

Table 6: Justification of Shortfall Features within Area of Search-A

Shortfall Feature	Justification
Ross worm reef	Only opportunity to address the shortfall in the Irish Sea region. Only location in the Irish Sea where there are consistent records of the feature over a number of years.
Fragile sponge and anthozoan communities on subtidal rocky habitats	One of two required opportunities to address the shortfall in the Irish Sea region. One of two locations in the Irish Sea where there are consistent records outside of existing MPA reef feature.
Subtidal coarse sediment	Opportunity to fully address the shortfall in Irish Sea region
Subtidal mixed sediment	Opportunities to partially address the shortfall in Irish Sea region
Justification: Depth zones	
AoS-A is predominantly inshore, to ensure the connectivity network principle is fully met an additional area for Subtidal coarse sediment and Subtidal mixed sediments would be required in deeper waters.	

6.2 Overview

An overview of the distribution of shortfall features within Area of Search A is presented in Figure 9, with a description of the area provided in Table 7. Table 8 and Table 9 provide a summary of the shortfall feature areas (in km²) or number of records within Area of Search A (AoS-A); the total area or number of replicates required to address the shortfall in the region; and whether there is the opportunity for AoS-A to address the shortfalls. Table 10 details how Area of Search-A would contribute to the network of MPAs in Welsh waters.

Information about each of the shortfall features is presented in [Appendix A](#).

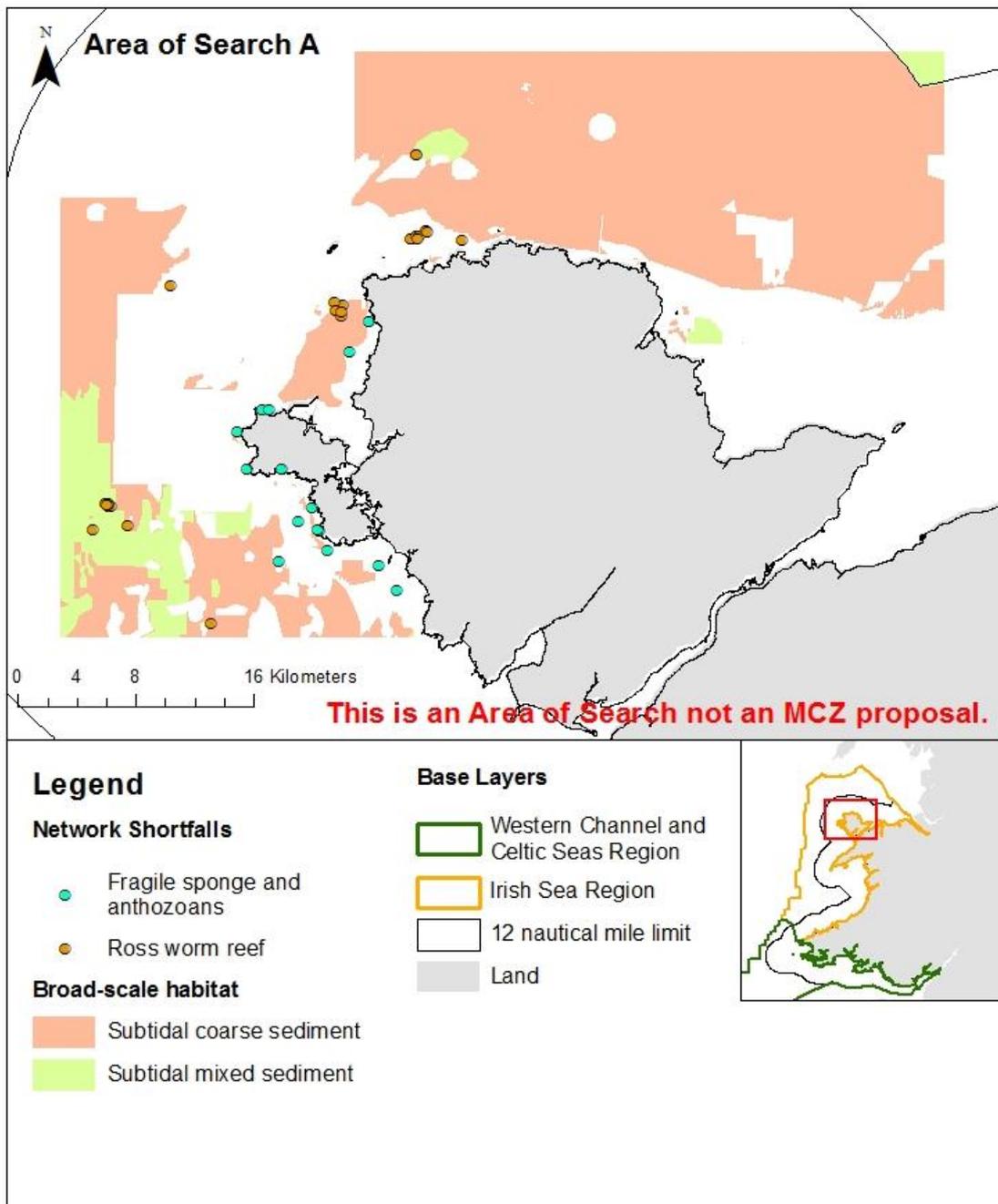


Figure 9: Overview of shortfall features within Area of Search-A

Table 7: Description of Area of Search A

Area of Search	AoS-A
Regional Sea	Irish Sea
General location	North and west of Anglesey
Size	1,290 km ²
Inshore/offshore	Inshore and offshore (predominantly inshore) ⁸
Shortfall features	<ul style="list-style-type: none"> • Subtidal coarse sediment • Subtidal mixed sediment • Fragile sponge and anthozoan communities • Ross worm reef
Brief description	The area is largely dominated by subtidal coarse sediment in the south-west and north-east corners of the AoS. It also contains patchy areas of subtidal mixed sediment throughout this area. Records of fragile sponge and anthozoan communities and Ross worm reef are located within the western half of AoS-A. An overview map of the AoS and the distribution of shortfall features is presented in Figure 9
Proximity to other AoSs	AoS-A lies 10 km east of AoS-B (See Figure 8 for details)

Table 8: Summary of broad-scale habitats in AoS-A

Shortfall	Area in AoS-A (km²)	Area (km²) required to meet the shortfall in Irish Sea
Subtidal coarse sediment	721 km ²	542 km ²
Subtidal mixed sediment	91 km ²	186 km ²

Table 9: Summary of OSPAR threatened and/or declining habitats and species and Environment (Wales) Act interim Section 7 list in AoS-A

Shortfall	Number of records in AoS-A	Replicate⁹ required to meet the shortfall in Irish Sea
Fragile sponge and anthozoan communities on subtidal rocky habitat	15	2 replicates required
Ross worm reef	25	Additional sites determined by availability of data

⁸ Inshore waters are those between the mean high water spring tide and the 12 nautical mile limit of territorial seas. Offshore waters are those between the 12 nautical mile limit of territorial seas and the median line.

⁹ A replicate refers to an MPA within which the feature is protected. A replicate should contain multiple records of the feature.

Table 10: Contribution of AoS-A to the Welsh MPA network¹⁰

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
Subtidal coarse sediment	Area of feature present within AoS-A provides opportunities to address the requirement of a minimum of 10% of shortfall feature within the region	This requirement has already been met as the feature is protected by existing SACs within the region	Area of feature present within AoS-A does not provide opportunities to address the requirement to provide connectivity across varying depth zones. All existing sites where this habitat is currently protected are also inshore. However, this area is well connected to existing sites where this feature is protected (approximately 10 km away)
Subtidal mixed sediments	Area of feature present within AoS-A only provides opportunities to partially address the requirement, 91 km ² more habitat is required to meet the shortfall	This requirement has already been met as the feature is protected by existing SACs within the region	Area of feature present within AoS-A does not provide opportunities to address the requirement to provide connectivity across varying depth zones. All sites where this habitat is currently protected are also inshore. However, this area is well connected to existing sites where this feature is protected (approximately 10 km away)
Fragile sponge and anthozoan communities on subtidal rocky habitat	Number of records within AoS-A provides opportunities to address the requirement for representation of feature in Irish Sea	Number of records within AoS-A only provides opportunities to partially address the requirement for replication of feature in the Irish Sea. One further example is required to meet minimum of 3 replicates	Number of records within AoS-A provides opportunities to address the requirement for connectivity of this feature due to similar habitat protected within 80 km of AoS-A

¹⁰ Principles for the Welsh MPA Network are explained in the Process Document

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
Ross worm reef	Number of records within AoS-A provide opportunities to address the requirement for representation of feature in Irish Sea	Number of records within AoS-A only provide opportunities to partially address the requirement for replication of feature in the Irish Sea. However, this is the only possible area available for consideration due to data availability	There are no SACs within the Irish Sea where this species is currently protected. However, this is the only possible area available for consideration due to data availability

6.3 Activities and areas of sectoral interest

The following list of operations include activities which are currently known to occur within the area and which are associated to pressures that the features are known to be sensitive to. For more detail please see the [Considerations section](#).

- Marine Licensing – Inshore: two Marine licensing applications within the Area of Search (AoS).
- Oil and Gas Activity: pipelines cross the AoS.
- Ports and Shipping Activity: one anchorage area point and three anchorage area polygons lie within the AoS.
- Renewable Wind Energy Activity: one area of Offshore Wind Hard Constraint lies within the AoS.
- Renewable Tidal Stream Energy Activity: Two areas of consented, and one area of pre-planning application for Offshore Tidal Stream lies within the AoS.
- Dredging and Disposal: six NRW Marine Licensed Disposal Sites lie within the AoS.
- Demersal fishing activity (vessels 12m and over): Low levels of beam trawl, demersal trawl and dredging trawls have been noted in the area.

Other fishing activities are known to occur within this area (e.g. potting, charter vessels etc.). However, we do not have comprehensive up to date data to include at this point. We recognise that further discussions are needed to establish key areas for other fishing activities.

Figure 10 provides an indication of fishing activity (vessels 12m and over) within the area. Please see the [Considerations section](#) for detail on the limitations of this dataset.

Areas of sectoral interest were registered in AoS-A by the TFG¹¹ which include disposal sites, cable agreements, coastal agreements, wind, and wave and tidal. Activities and areas of sectoral interest are presented in Figure 11.

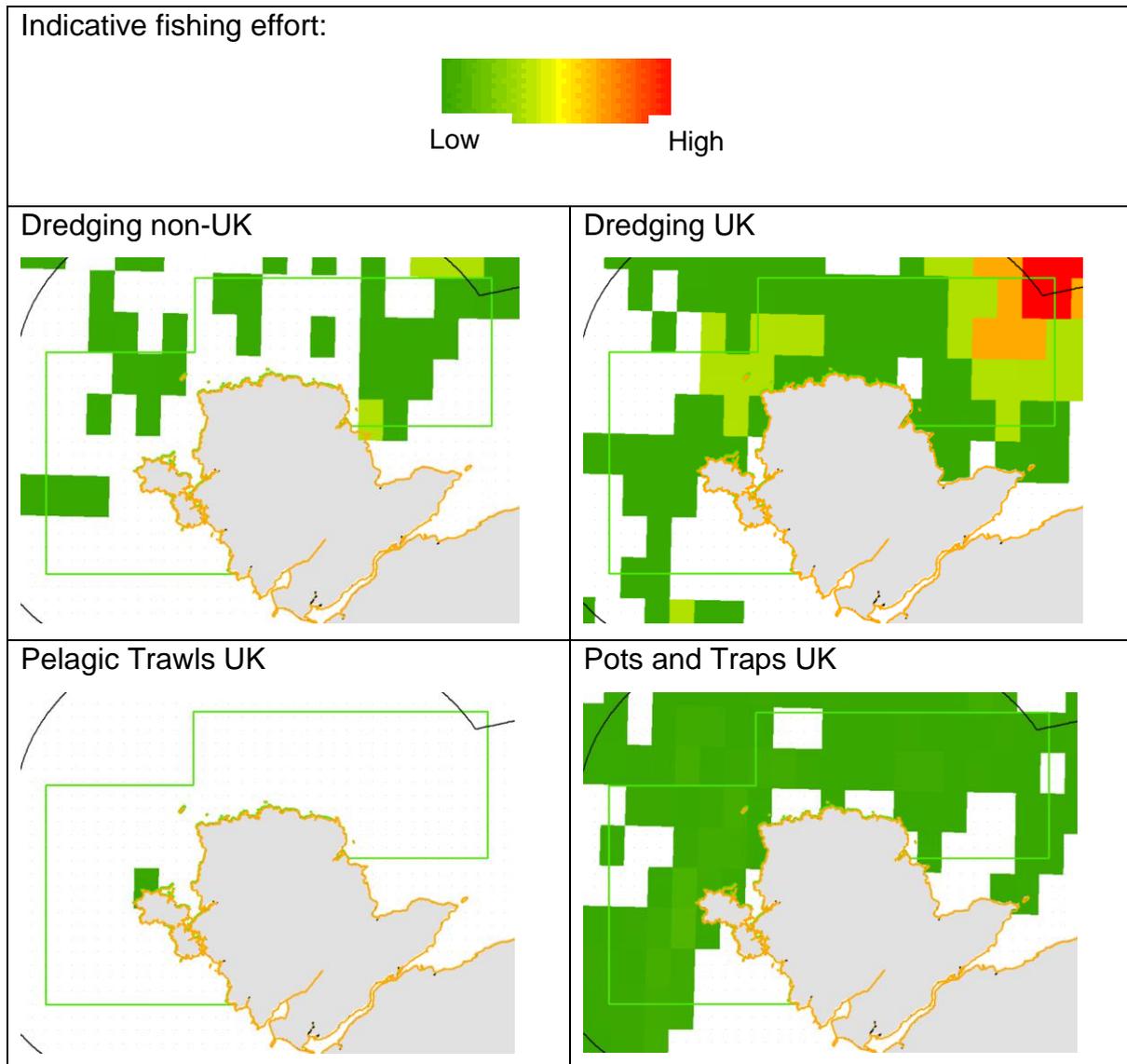


Figure 10: Fishing Activity (vessels 12m and over) in AoS-A interpreted from the Vessel Monitoring System (VMS) 2016-2018 summed data. Please note the ranges are not comparable between fishing gears and should be viewed as an indication of fishing activity only. A generic scale bar has been provided to show indicative levels from low (green) to high (red). The AoS is shown as the green box.

¹¹ Please note areas of sectoral interest were provided by members of the TFG and should not be viewed as a definitive list.

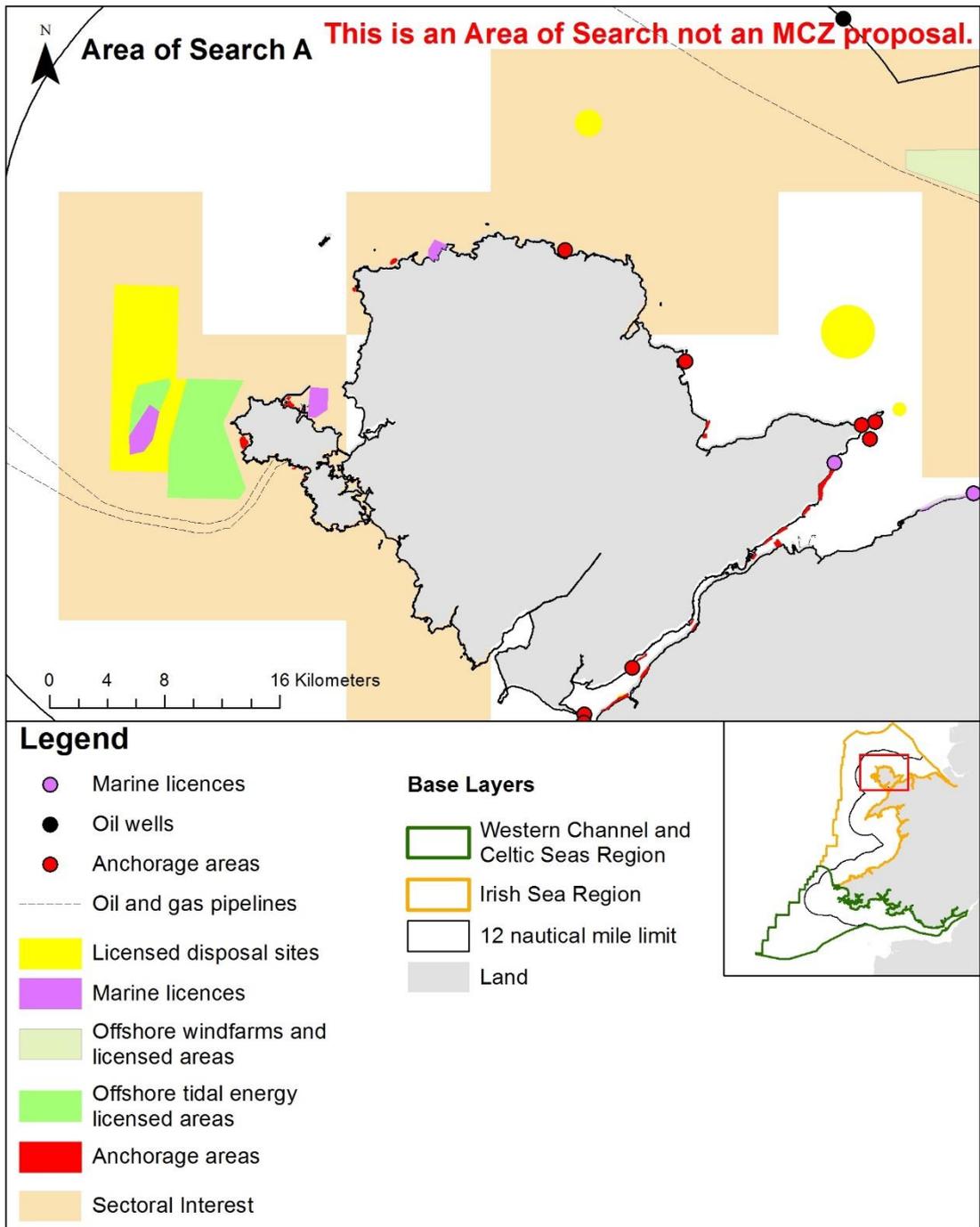


Figure 11: Activities and areas of sectoral interest in AoS-A

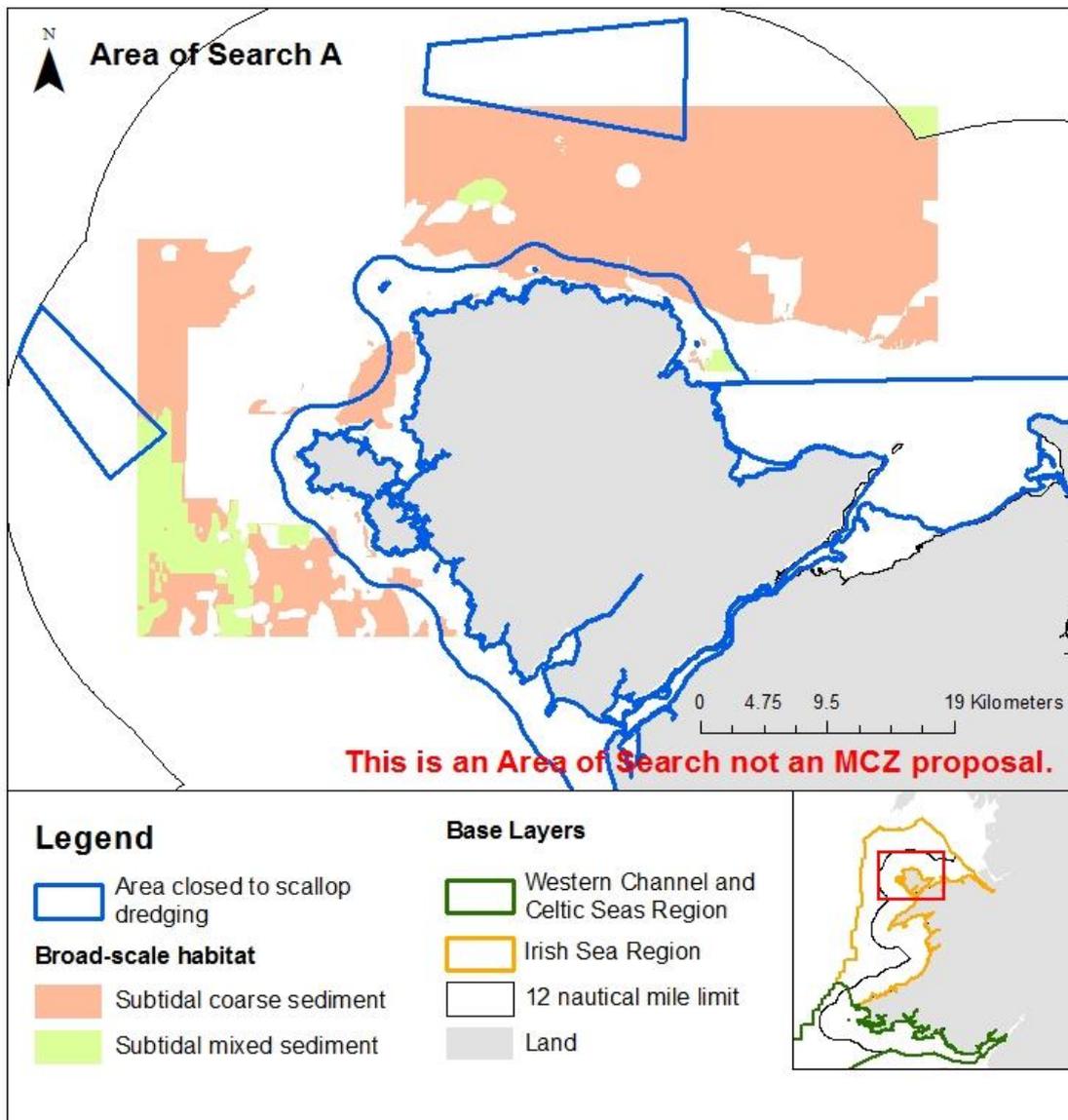


Figure 12: Existing management measures in AoS-A

Figure 12 highlights the existing management measures that overlap with AoS A. The polygons outlined in blue form part of The Scallop Fishing (Wales) (No.2) Order 2010, which restricts fishing for king scallop (*Pecten maximus*) within the mean high water to 1 nautical mile offshore area around the entire coast of Wales and within marine habitat SACs. Additional areas that can be seen to the north and west of Anglesey are closed due to horse mussel records. All vessels that fish for scallops are fitted with iVMS and the data is submitted to WG fisheries enforcement.

6.4 Existing Marine Protected Areas in the vicinity

There are two marine habitat SACs which overlap with AoS-A: Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh; Bae Cemlyn/ Cemlyn Bay presented in Figure 13. None of the shortfall features are protected within these SACs.

The area is also very close to Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC.

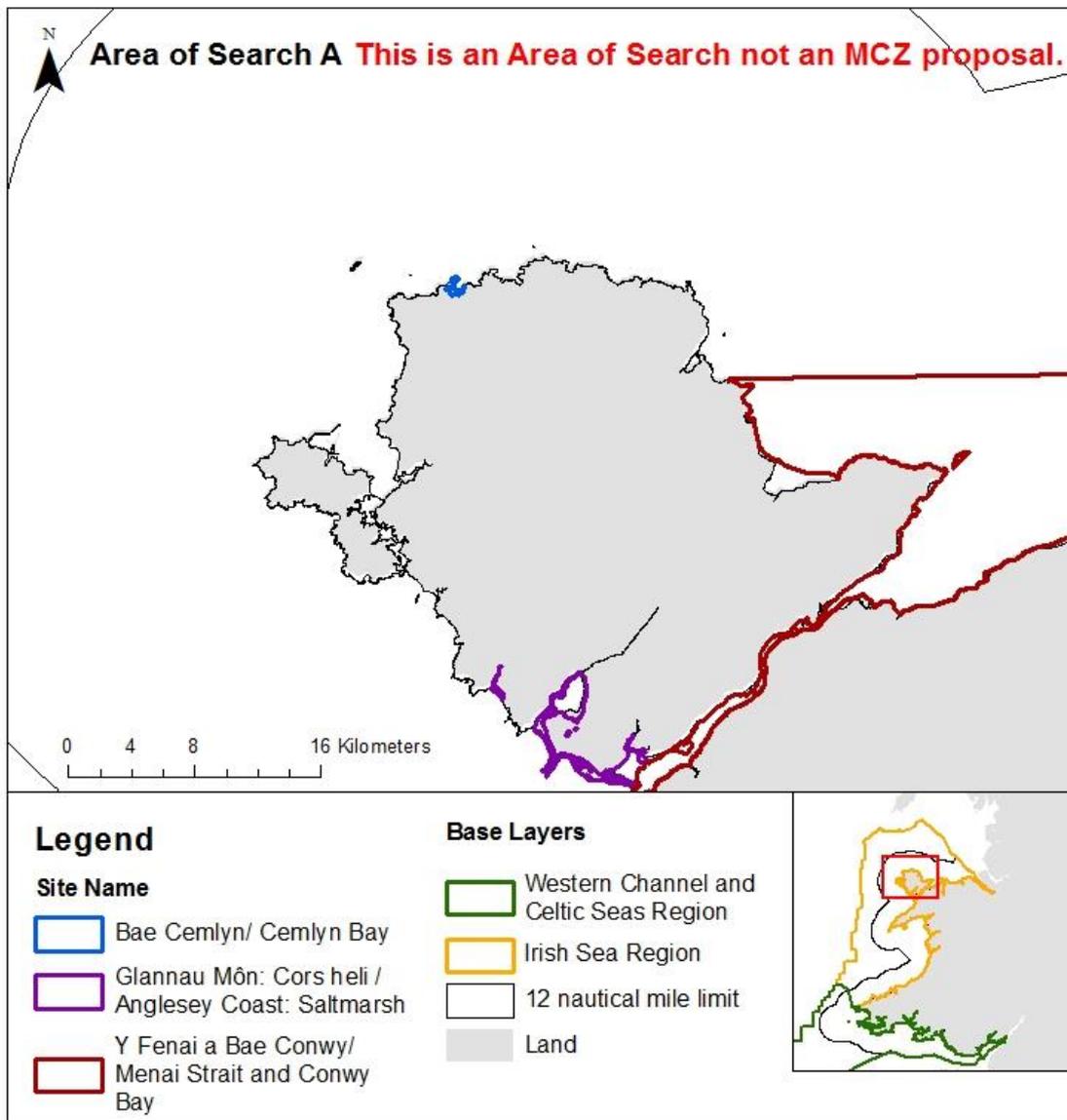


Figure 13: Existing MPAs in the vicinity of AoS-A

7 Irish Sea - Area of Search B

7.1 Justification

Table 11 summaries why Area of Search B (AoS-B) was selected, a summary of how each of the Areas of Search within the Irish Sea address the shortfalls within the region is provided in Table 4.

Table 11: Justification of Shortfall Features within Area of Search B

Shortfall Feature	Justification
Subtidal coarse sediment	Partially addresses the shortfall in the Irish Sea region, another AoS will be necessary to fully meet the requirement in the Irish Sea region.
Subtidal mixed sediment	Opportunity to fully address the shortfall for the Irish Sea region. No further Areas of Search required.
Justification: Depth zones	
AoS-B is predominantly offshore, assisting in addressing the connectivity network principle as sites where subtidal coarse sediments and subtidal mixed sediments are already protected lie inshore.	

7.2 Overview

An overview of the distribution of shortfall features within AoS-B is presented in Figure 14, with a description of the area provided in Table 12. Table 13 provides a summary of the shortfall feature areas (in km²) within AoS-B; the total area to meet the shortfall in the region; and whether there is the opportunity for AoS-B to address the shortfalls. Table 14 details how AoS-B would contribute to the network of MPAs in Welsh waters.

Information about each of the shortfall features is presented in [Appendix A](#).

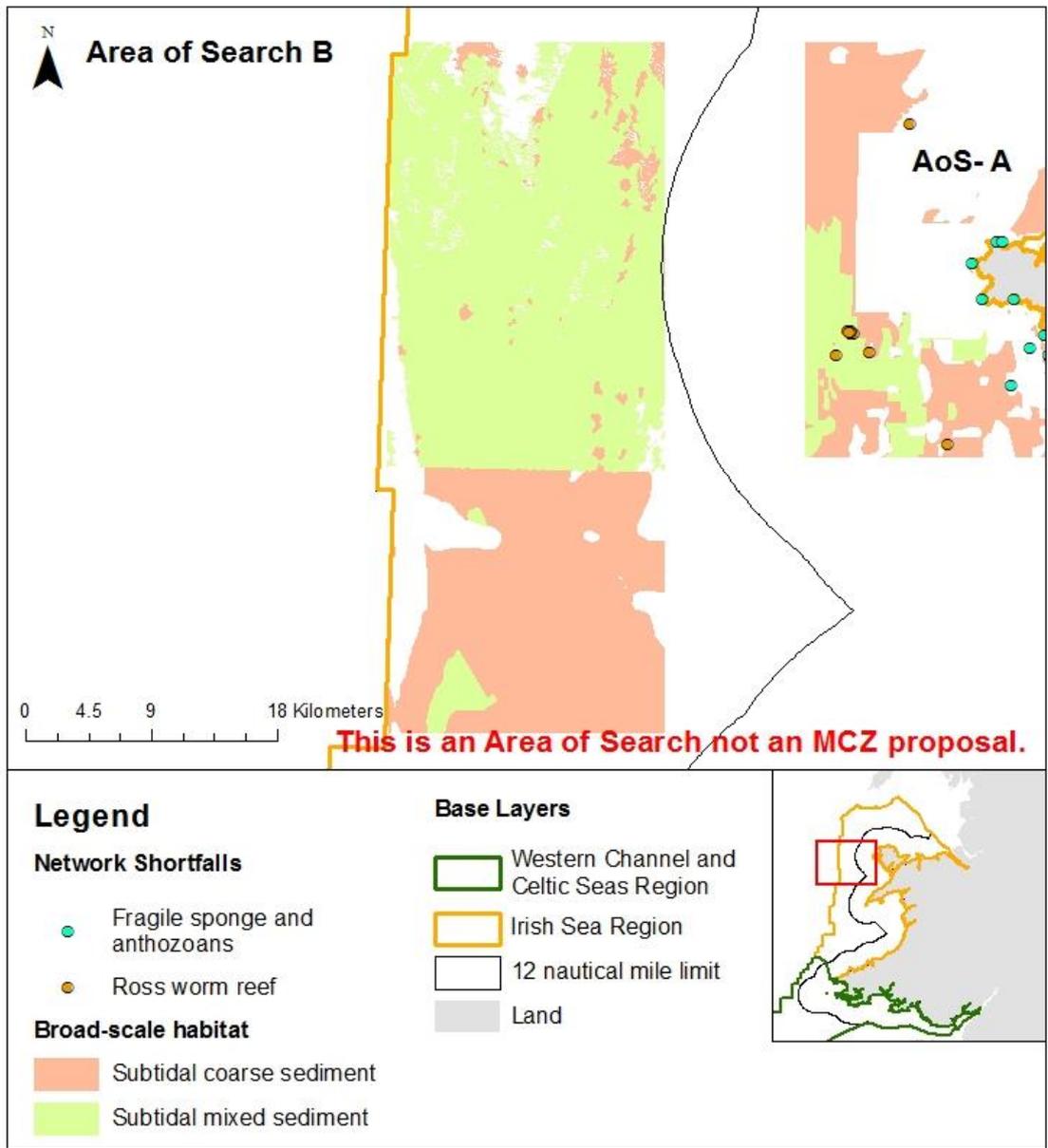


Figure 14: Overview of shortfall features within Area of Search B

Table 12: Description of Area of Search B

Area of Search	AoS-B
Regional Sea	Irish Sea
General location	West of Anglesey
Size	994 km ²
Inshore/offshore	Offshore only ¹²
Shortfall features	<ul style="list-style-type: none"> • Subtidal coarse sediment • Subtidal mixed sediment
Brief description	The area is dominated by subtidal mixed sediment in the north and subtidal coarse sediment in the south. An overview of the AoS and shortfall feature distribution is presented in Figure 14.
Proximity to other AoSs	AoS-B lies 10 km west of AoS-A (See Figure 8 for details).

Table 13: Summary of broad-scale habitats in AoS-B

Shortfall	Area in AoS-B (km²)	Area (km²) required to meet shortfall in Irish Sea
Subtidal coarse sediment	329 km ²	542 km ²
Subtidal mixed sediment	541 km ²	186 km ²

Table 14: Contribution of AoS-B to the Welsh MPA network¹³

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
Subtidal coarse sediment	Area of feature present within AoS-B only provides opportunities to partially address the requirement, 213 km ² more habitat is required to meet the shortfall.	This requirement has already been met as the feature is protected by existing SACs within the region.	Area of feature present within AoS-B provides opportunities to address the requirement due to similar habitat within 10 km of AoS-A. Additionally, the site is offshore and in deeper waters compared to other sites where this feature is protected.
Subtidal mixed sediments	Area of feature present within AoS-B provides opportunities to	This requirement has already been met as the feature is protected by existing	Area of feature present within AoS-B provides opportunities to address the requirement due to

¹² Inshore waters are those between the mean high water spring tide and the 12 nautical mile limit of territorial seas. Offshore waters are those between the 12 nautical mile limit of territorial seas and the median line.

¹³ Principles for the Welsh MPA Network are explained in the Process Document

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
	address the requirement of a minimum of 10% of shortfall feature within the region.	SACs within the region.	similar habitat within 10 km of AoS-A. Additionally, the site is offshore and in deeper waters compared to other sites where this feature is protected.

7.3 Activities and areas of sectoral interest

The following list of operations include activities which are currently known to occur within the area and which are associated to pressures that the features are known to be sensitive to. For more detail please see the [Considerations section](#).

- Oil and Gas Activity: Two pipelines cross the AoS and an oil well is situated in the area.
- Demersal fishing activity (vessels 12m and over): Beam trawling and low levels of demersal trawling, pelagic trawling, gillnets, hook and line and pot and trap fisheries have been noted in the area.

Other fishing activities potentially occur within this area. We recognise that further discussions are needed to establish key areas for other fishing activities.

Figure 15 provides an indication of fishing activity (vessels 12m and over) within the area. Please see the [Considerations section](#) for detail on the limitations of this dataset.

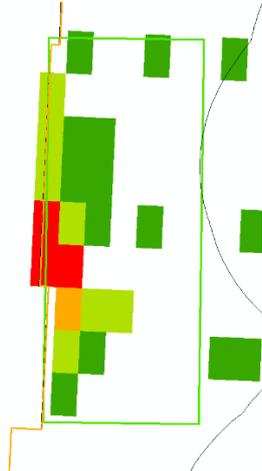
Areas of sectoral interest were registered in AoS-B by the TFG¹⁴ which include disposal sites and cable agreements. Activities and areas of sectoral interest are presented in Figure 16.

¹⁴ Please note areas of sectoral interest were provided by members of the TFG and should not be viewed as a definitive list.

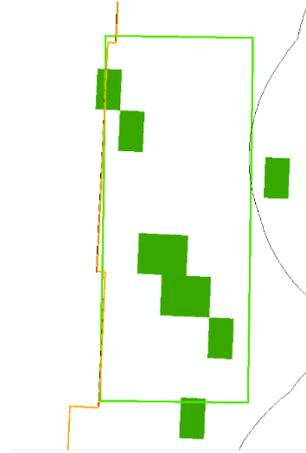
Indicative fishing effort:



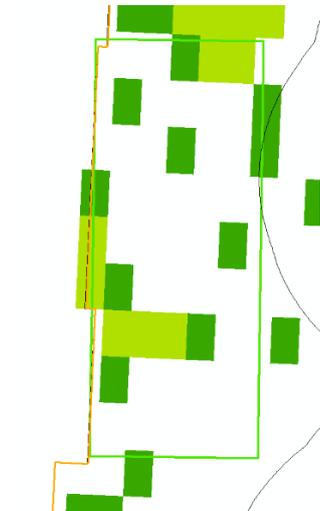
Beam Trawl non-UK



Demersal Trawls UK



Dredging non-UK



Dredging UK

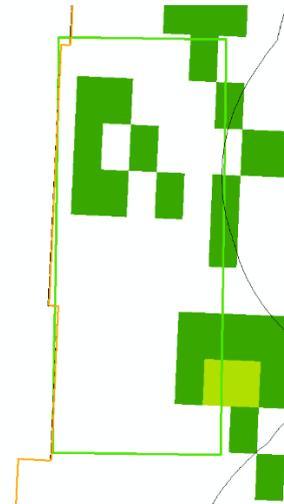


Figure 15: Fishing Activity (vessels 12m and over) in AoS-B interpreted from the Vessel Monitoring System (VMS) 2016-2018 summed data. Please note the ranges are not comparable between fishing gears and should be viewed as an indication of fishing activity only. A generic scale bar has been provided to show indicative levels from low (green) to high (red). The AoS is shown as the green box.

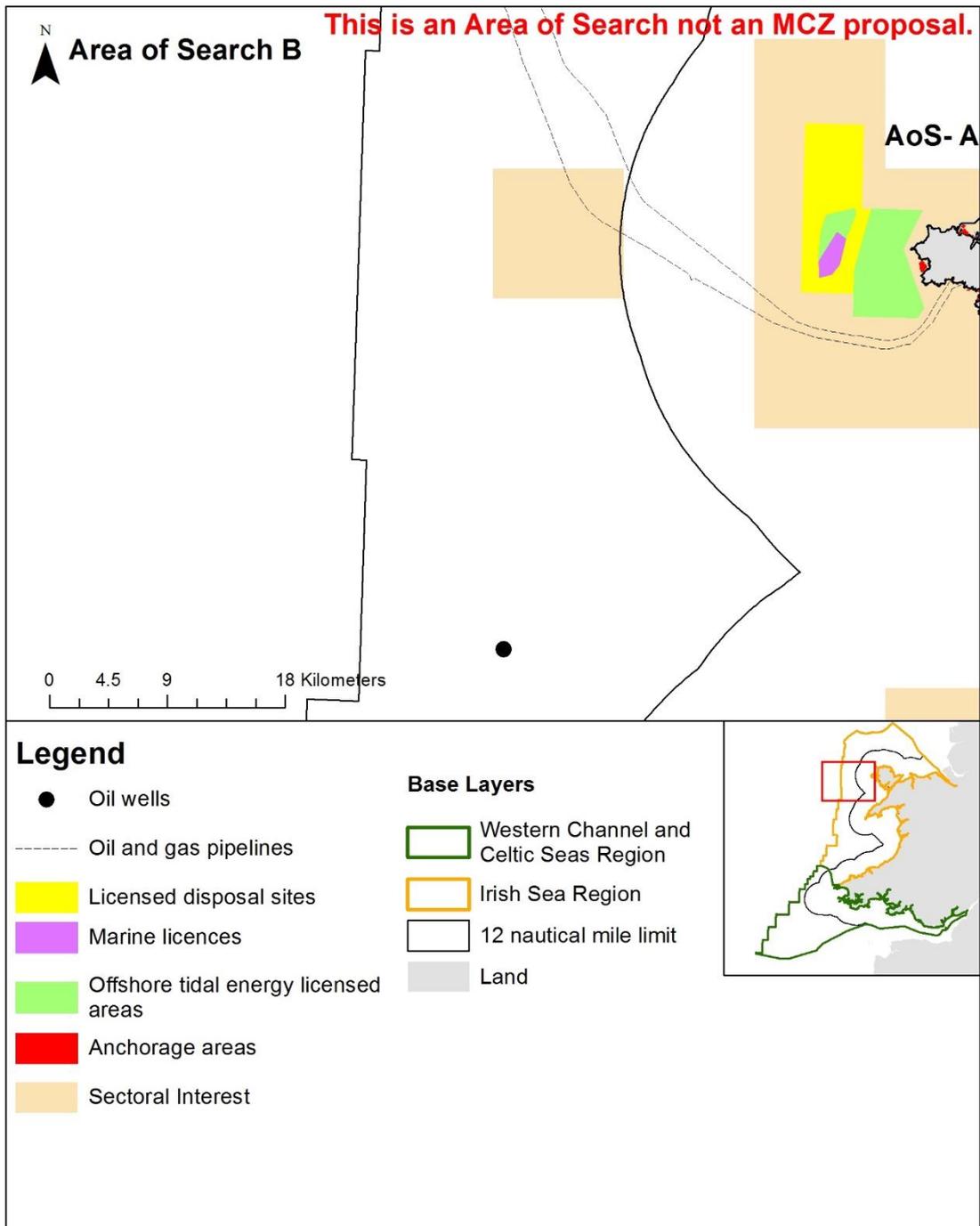


Figure 16: Activities and areas of sectoral interest in AoS-B

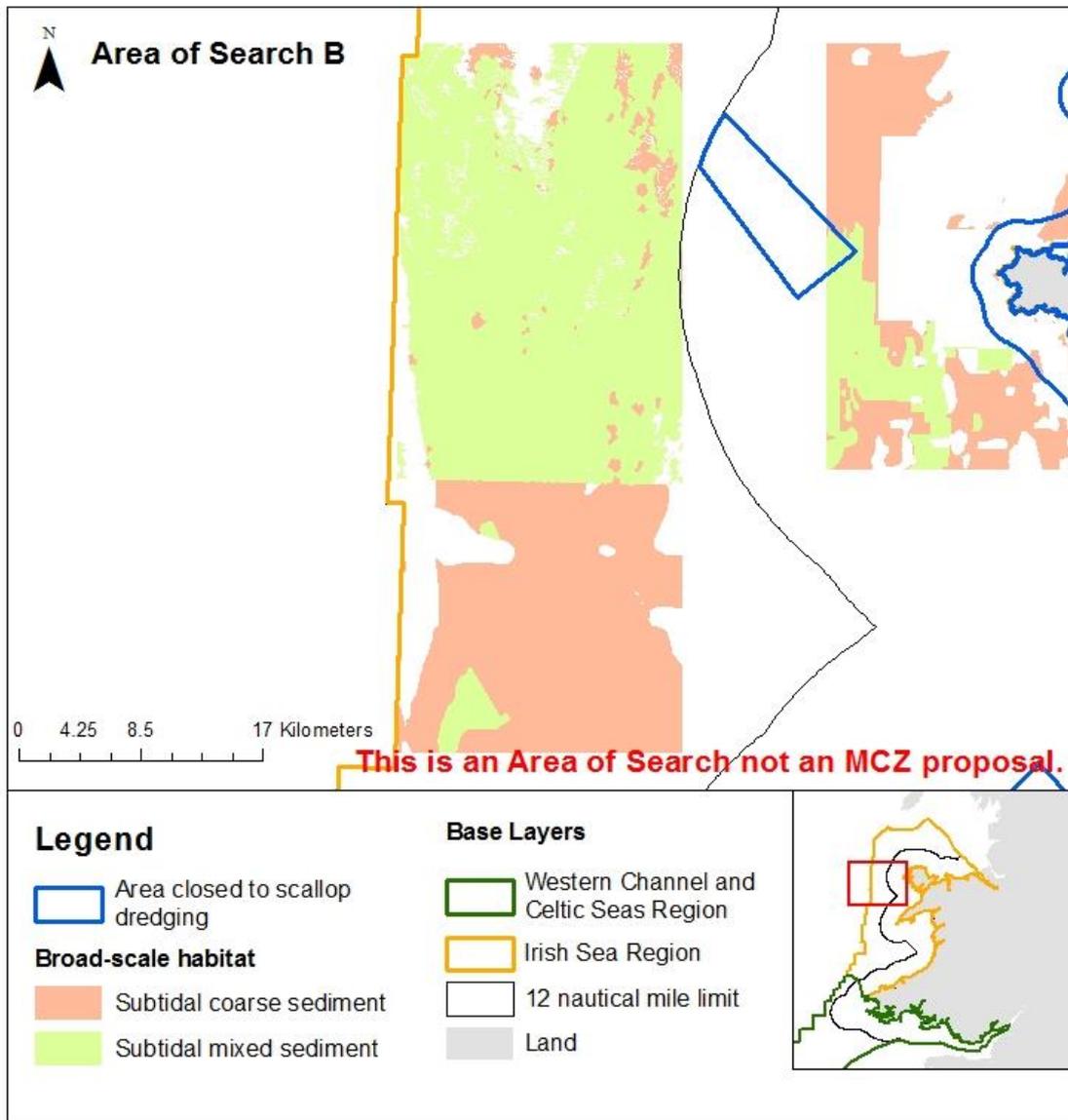


Figure 17: Existing management measures in AoS-B

Figure 17 highlights the existing management measures that overlap with AoS B. The polygons outlined in blue form part of The Scallop Fishing (Wales) (No.2) Order 2010, which restricts fishing for king scallop (*Pecten maximus*) within the mean high water to 1 nautical mile offshore area around the entire coast of Wales and within marine habitat SACs. Additional areas that can be seen to the north and west of Anglesey are closed due to horse mussel records. All vessels that fish for scallops are fitted with iVMS and the data is submitted to WG fisheries enforcement.

7.4 Existing Marine Protected Areas in the vicinity

One marine habitat SAC overlaps with AoS-B: Croker Carbonate Slabs presented in Figure 18. Croker Carbonate Slabs SAC provides incidental protection to subtidal coarse and subtidal mixed sediments as both habitats occur within areas of protected feature within the SAC.

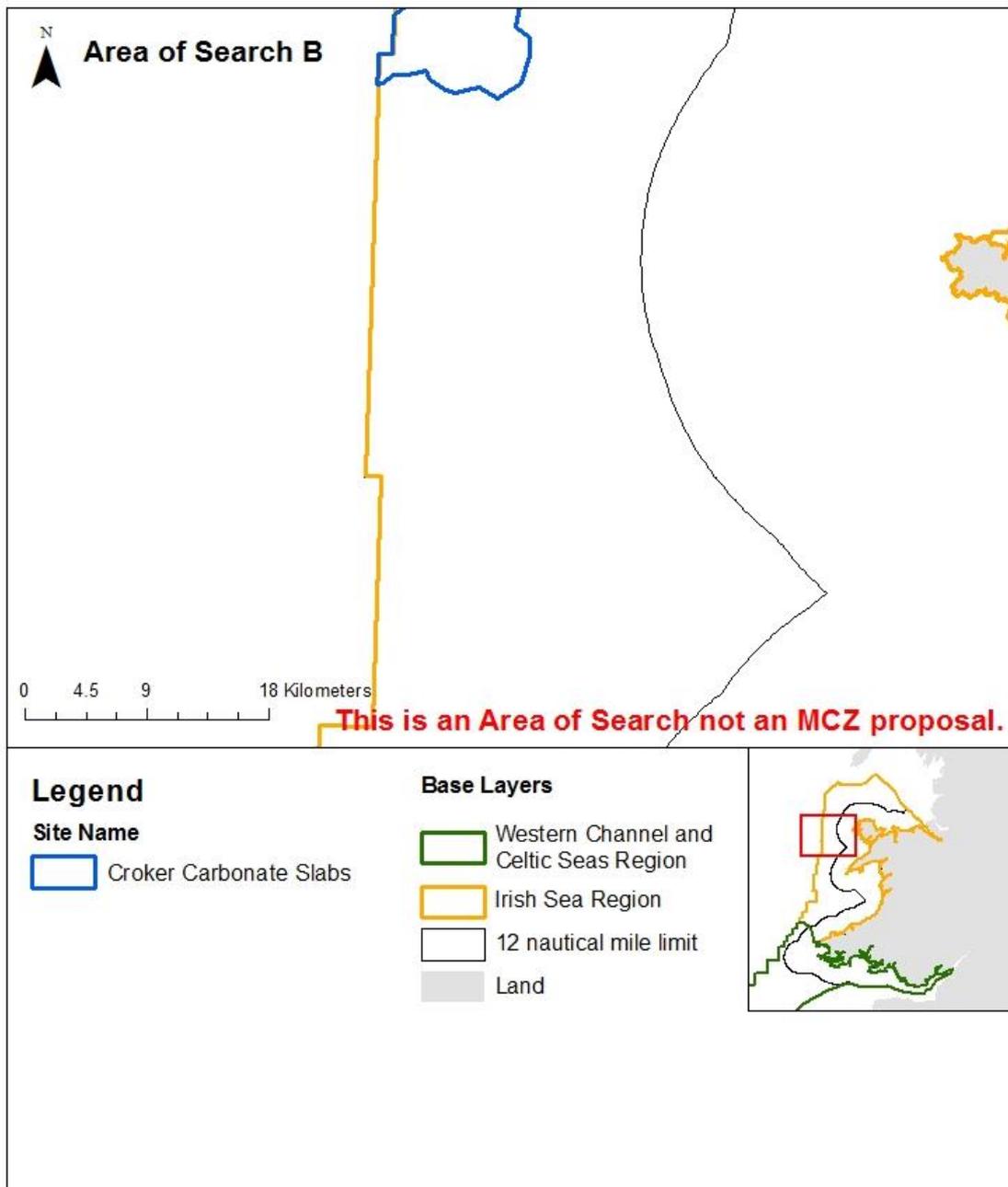


Figure 18: Existing MPAs in the vicinity of AoS-B.

8 Irish Sea - Area of Search D

8.1 Justification

Table 15 summaries why Area of Search D (AoS-D) was selected, a summary of how each of the Areas of Search within the Irish Sea address the shortfalls within the region is provided in Table 4.

Table 15: Justification of Shortfall Features within Area of Search-D

Shortfall Feature	Justification
Subtidal coarse sediment	Partially addresses the shortfall in the Irish Sea region, another AoS will be necessary to fully meet the requirement in the Irish Sea region.
Subtidal mixed sediment	Fully addresses the shortfall for the Irish Sea region. No further Areas of Search required.
Justification: Depth zones	
AoS-D lies offshore, assisting in addressing the connectivity network principle as sites where subtidal coarse sediment and subtidal mixed sediments are already protected lie inshore.	

8.2 Overview

An overview of the distribution of shortfall features within AoS-D is presented in Figure 19, with a description of the area provided in Table 16. Table 17 provides a summary of the shortfall feature areas (in km²) within AoS-D; the total area required to meet the shortfall in the region; and whether there is the opportunity for AoS-D to address the shortfalls. Table 18 details how AoS-D would contribute to the network of MPAs in Welsh waters.

Information about each of the shortfall features is presented in [Appendix A](#).

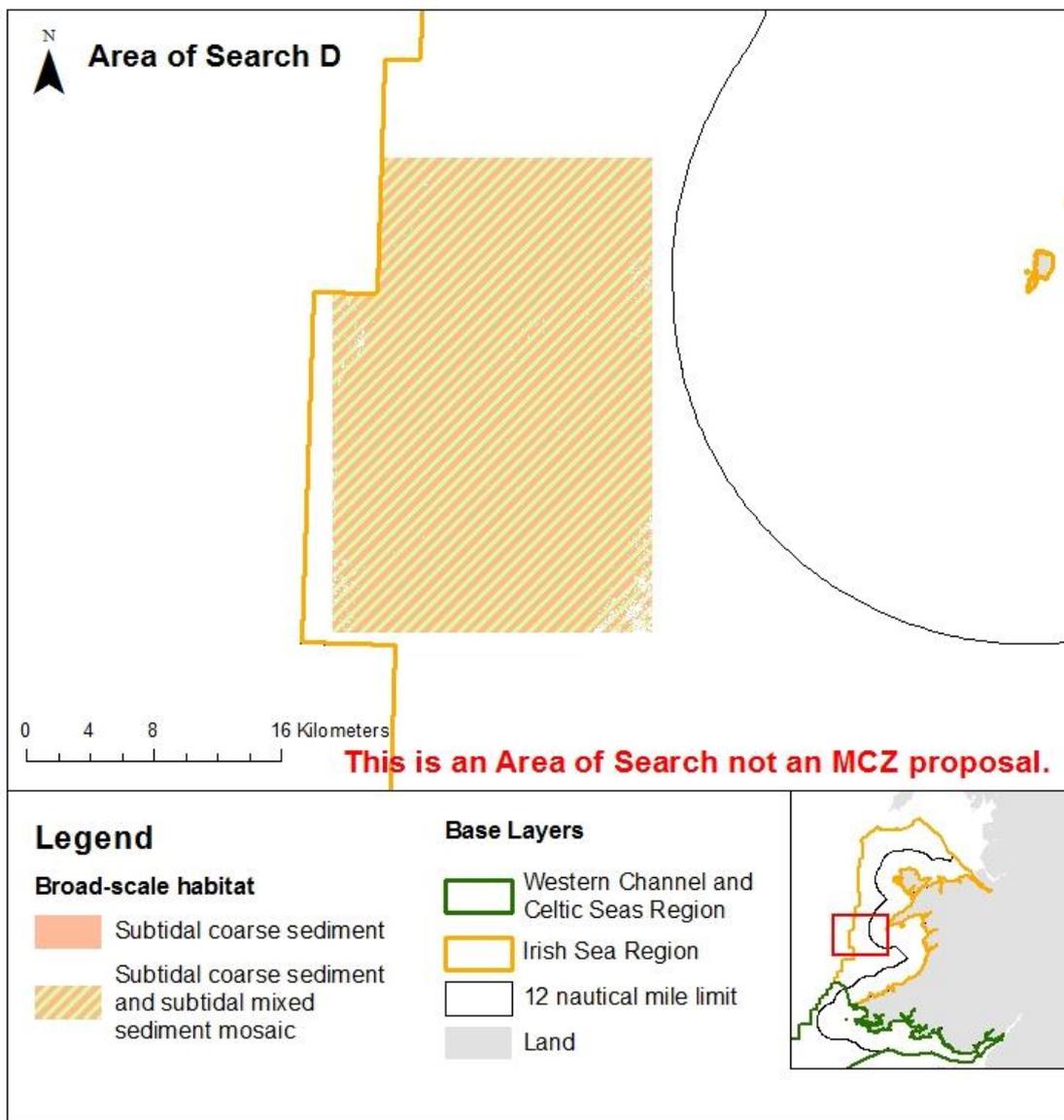


Figure 19: Overview of shortfall features within Area of Search D

Table 16: Description of Area of Search D

Area of Search	AoS-D
Regional Sea	Irish Sea
General location	West of Pen Llŷn
Size	575 km ²
Inshore/offshore	Offshore only ¹⁵
Shortfall features	<ul style="list-style-type: none"> • Subtidal coarse sediment • Subtidal mixed sediment
Brief description	The area consists of subtidal coarse sediment and mixed sediment mosaic, which is assumed to be an equal 50:50 split of each habitat, although exact amounts are not known. An overview map of the AoS and shortfall feature distribution is presented in Figure 19.
Proximity to other AoSs	AoS-D is 20 km south of AoS-B and approximately 30 km north of AoS-E (See Figure 8 for details).

Table 17: Summary of broad-scale habitats in AoS-D

Shortfall	Area in AoS-D (km²)	Area (km²) required to meet shortfall in Irish Sea
Subtidal coarse sediment	284 km ²	542 km ²
Subtidal mixed sediment	284 km ²	186 km ²

Table 18: Contribution of AoS-D to the Welsh MPA network¹⁶

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
Subtidal coarse sediment	Area of feature present within AoS-D only provides opportunities to partially address the requirement, 258 km ² more habitat is required to meet the shortfall.	This requirement has already been met as the feature is protected by existing SACs within the region.	Area of feature present within AoS-D provides opportunities to address the requirement to provide representation in offshore and deeper waters compared to existing sites where this feature is protected.
Subtidal mixed sediments	Area of feature present within AoS-D provides opportunities to address the	This requirement has already been met as the feature is protected by	Area of feature present within AoS-D provides opportunities to address the requirement to provide representation in offshore

¹⁵ Inshore waters are those between the mean high water spring tide and the 12 nautical mile limit of territorial seas. Offshore waters are those between the 12 nautical mile limit of territorial seas and the median line.

¹⁶ Principles for the Welsh MPA Network are explained in the Process Document

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
	requirement of a minimum of 10% of shortfall feature within the region.	existing SACs within the region.	and deeper waters compared to existing sites where this feature is protected.

8.3 Activities and areas of sectoral interest

The following list of operations include activities which are currently known to occur within the area and which are associated to pressures that the features are known to be sensitive to. For more detail please see the [Considerations section](#).

- Demersal fishing activity (vessels 12m and over): Beam trawling and dredging activities operate at low levels and sparsely within the area. Other types of fishing activity occur in the area such as hooks and lines, pelagic trawling and pots and traps however the features are not sensitive to the pressures caused by these activities so are not considered further.

Other fishing activities potentially occur within this area. We recognise that further discussions are needed to establish key areas for other fishing activities.

Figure 20 provides an indication of fishing activity (vessels 12m and over) within the area. Please see the [Considerations section](#) for detail on the limitations of this dataset.

No areas of sectoral interest were registered in AoS-D by the TFG¹⁷.

¹⁷ Please note areas of sectoral interest were provided by members of the TFG and should not be viewed as a definitive list.

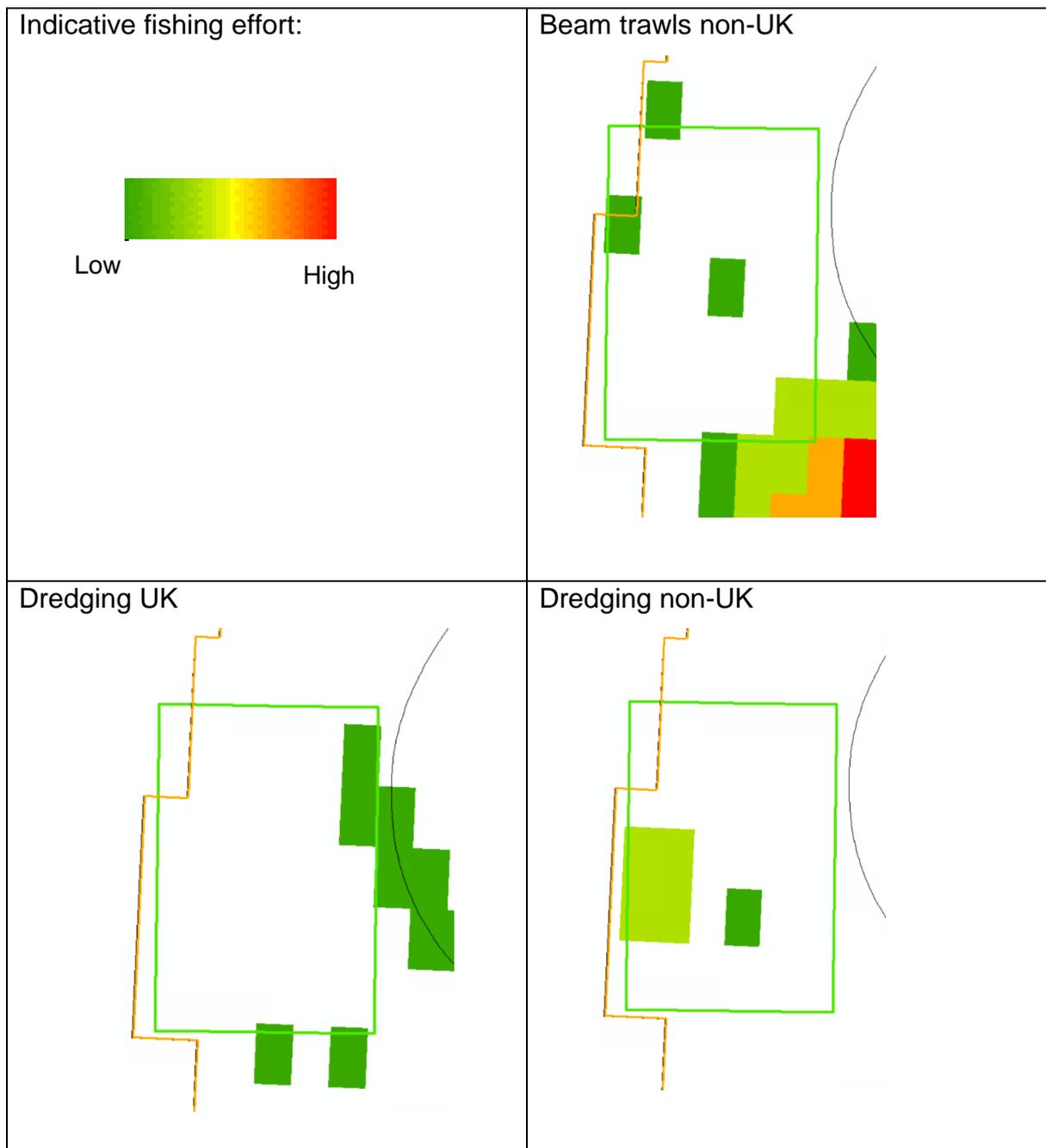


Figure 20: Fishing Activity (vessels 12m and over) in AoS-D interpreted from the Vessel Monitoring System (VMS) 2016-2018 summed data. Please note the ranges are not comparable between fishing gears and should be viewed as an indication of fishing activity only. A generic scale bar has been provided to show indicative levels from low (green) to high (red). The AoS is shown as the green box.

8.4 Existing Marine Protected Areas in the vicinity

There are no marine habitat SACs that overlap with AoS-D. The closest marine SAC is Pen Llŷn a'r Sarnau/Lleyn Peninsula and the Sarnau SAC.

9 Irish Sea and Western Channel and Celtic Sea - Area of Search E

9.1 Justification

Table 19 summarises why Area of Search E was selected. This Area of Search overlaps both regional seas in Welsh waters. A summary of how each of the Areas of Search address the shortfalls within the region is provided in Table 4 for the Irish Sea and Table 5 for the Western Channel and Celtic Sea.

Table 19: Justification of Shortfall Features within Area of Search E

Shortfall Feature	Justification
Subtidal coarse sediment	Partially addresses the shortfall in Irish Sea region Opportunity to fully address the shortfall in Western Channel and Celtic Sea region
Subtidal mixed sediment	Partially addresses the shortfall in Irish Sea region
Subtidal Sand	Opportunity to fully address the shortfall in Western Channel and Celtic Sea region
Mud habitats in deep water	Opportunity to fully address the shortfall in Western Channel and Celtic Sea region
Ocean Quahog	Opportunity to fully address the shortfall in Western Channel and Celtic Sea region
Justification: Depth zones	
AoS-E is inshore and offshore which helps ensure the connectivity principle is met. Within the Irish Sea representation in deeper water is met for Subtidal coarse sediment and Subtidal mixed sediment. Within the Western Channel and Celtic Sea representation for deeper water is met for Subtidal coarse sediment, Subtidal sand, Ocean quahog and Mud habitats in deep water.	

9.2 Overview

An overview of the distribution of shortfall features within Area of Search E (AoS-E) is presented in Figure 21, with a description of the area provided in Table 20. A summary of the shortfall feature areas (in km²) or number of records within AoS-E; the total area or number of replicates required to meet the shortfall in the region; and whether there is the opportunity for AoS-E to address the shortfalls is presented in Table 21 for the Irish Sea portion of AoS-E and Table 22 and Table 23 for the Western Channel and Celtic Sea portion. Table 24 and Table 25 detail how AoS-E would contribute to the network of MPAs in Welsh waters in the Irish Sea and Western Channel and Celtic Sea, respectively. Information about each of the shortfall features is presented in [Appendix A](#).

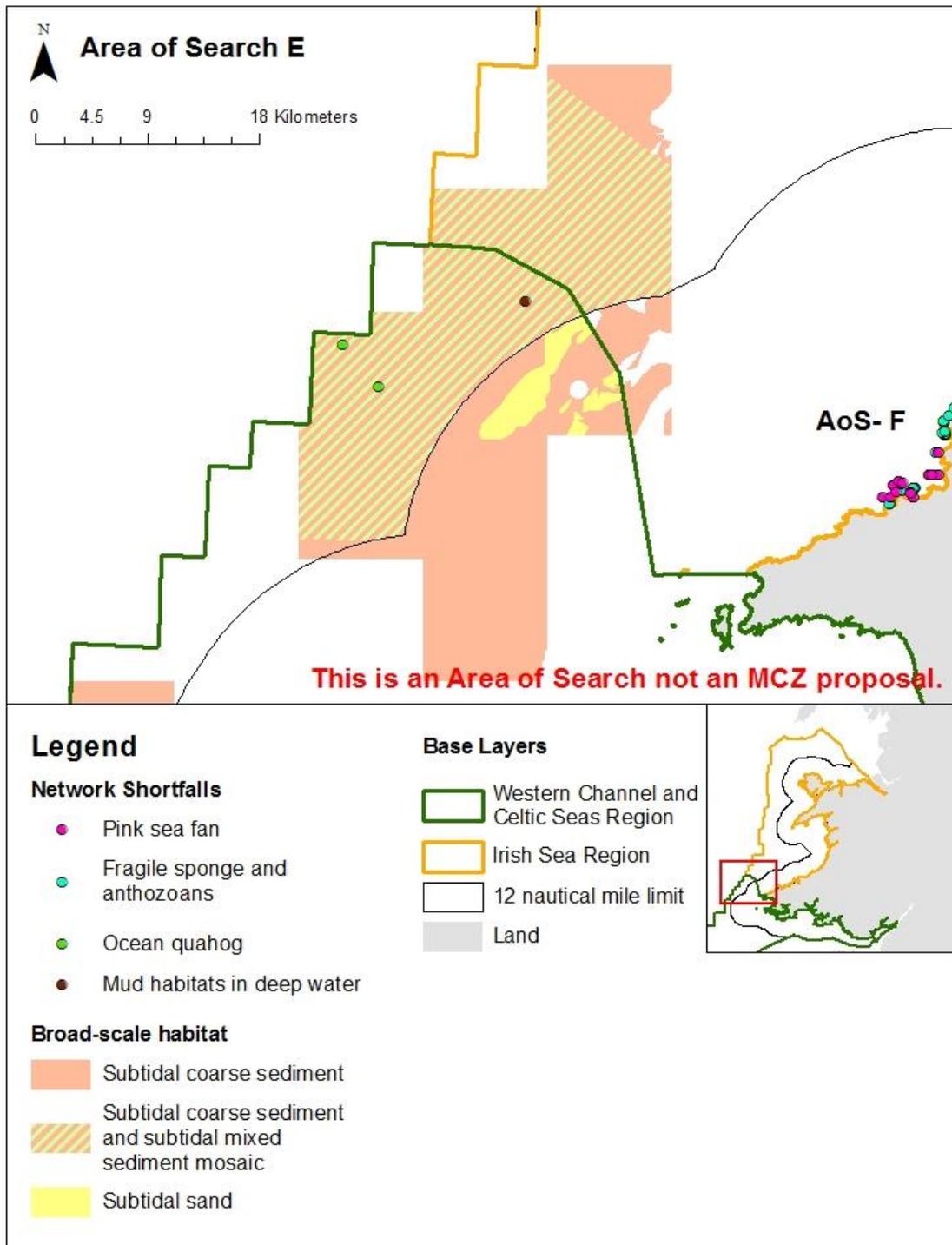


Figure 21: Overview of shortfall features within Area of Search E

Table 20: Description of Area of Search E

Area of Search	AoS-E
Regional Sea	Irish Sea and Western Channel and Celtic Sea
General location	North and west of Pembrokeshire, straddling the 12 nm boundary
Size	880 km ²
Inshore/offshore	Inshore and offshore ¹⁸
Shortfall features	<ul style="list-style-type: none"> • Subtidal coarse sediment • Subtidal mixed sediment • Subtidal sand • Ocean quahog • Mud habitats in deep water
Brief description	The area consists largely of subtidal coarse sediment and subtidal coarse and mixed sediment mosaic with a small area of subtidal sand towards the centre. Two records of ocean quahog and a record for mud habitats in deep water are located in the subtidal coarse and mixed sediment matrix within the Western Channel and Celtic Sea region of the area. An overview map of the area of search and shortfall feature distribution is presented in Figure 21
Proximity to other AoSs	AoS-E lies 10 km west of AoS-F and 15 km north-east of AoS-GH (See Figure 8 for details)

Table 21: Summary of broad-scale habitats in AoS-E in the Irish Sea Region

Shortfall	Area in AoS-E (km²)	Area (km²) required to meet shortfall in Irish Sea
Subtidal coarse sediment	173 km ²	542 km ²
Subtidal mixed sediment	97 km ²	186 km ²

Table 22: Summary of broad-scale habitats in AoS-E in the Western Channel and Celtic Sea region

Shortfall	Area in AoS-E (km²)	Area (km²) required to meet shortfall in WCCS
Subtidal coarse sediment	414 km ²	81 km ²
Subtidal sand	33 km ²	25 km ²

¹⁸ Inshore waters are those between the mean high water spring tide and the 12 nautical mile limit of territorial seas. Offshore waters are those between the 12 nautical mile limit of territorial seas and the median line.

Table 23: Summary of OSPAR threatened and/or declining habitats and species and Environment (Wales) Act interim Section 7 list in AoS-E (WCCS area)

Shortfall	Number of records in AoS-E	Replicate ¹⁹ required to meet shortfall in WCCS
Ocean quahog	2	1 replicate required
Mud habitats in deep water	1	1 replicate required

Table 24: Contribution of AoS-E in the Irish Sea to the Welsh MPA network²⁰

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
Subtidal coarse sediment	Area of feature present within AoS-E only provides opportunities to partially address the requirement, 356 km ² more habitat is required to meet the shortfall	This requirement has already been met as the feature is protected by existing SACs within the region	Area of feature present within AoS-E provides opportunities to address the requirement to provide representation in offshore and deeper waters compared to existing sites where this feature is protected, The AoS is approximately 30 km from a SAC where this feature is protected
Subtidal mixed sediment	Area of feature present within AoS-E only provides opportunities to partially address the requirement, 89 km ² more habitat is required to meet the shortfall	This requirement has already been met as the feature is protected by existing SACs within the region	Area of feature present within AoS-E provides opportunities to address the requirement to provide representation in offshore and deeper waters compared to existing sites where this feature is protected, The AoS is approximately 30 km from a SAC where this feature is protected

¹⁹ A replicate refers to an MPA within which the feature is protected. A replicate should contain multiple records of the feature.

²⁰ Principles for the Welsh MPA Network are explained in the Process Document

Table 25: Contribution of AoS-E in the Western Channel and Celtic Sea to the Welsh MPA network

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
Subtidal coarse sediment	Area of feature present within AoS-E provides opportunities to address the requirement of a minimum of 10% of shortfall feature within the region	This requirement has already been met as the feature is protected by existing SACs within the region	Area of feature present within AoS-E provides opportunities to address the requirement to provide representation in offshore and deeper waters compared to existing sites where this feature is protected. However, this area is well connected to existing site where this feature is protected (<10 km away)
Subtidal sand	Area of feature present within AoS-E provides opportunities to address the requirement of a minimum of 10% of shortfall feature within the region	This requirement has already been met as the feature is protected by existing SACs within the region	Area of feature present within AoS-E provides opportunities to address the requirement to provide representation in offshore and deeper waters compared to existing sites where this feature is protected. However, this area is well connected to existing site where this feature is protected (<10 km away)
Ocean quahog	Number of records within AoS-E potentially provides opportunities to address the requirement for representation of feature in WCCS.	Number of records present within AoS-E potentially provides opportunities to address the requirement for one additional site required in WCCS. However, there are only two data points, one which is >10yrs	Number of records present within AoS-E provides opportunities to address the requirement to provide representation in offshore and deeper waters compared to existing sites where this feature is protected. However, this area is well

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
		old. Further investigation would be required	connected to existing site where this feature is protected (<10km away)
Mud habitats in deep water	Area of feature present within AoS-E potentially provides opportunities to address the requirement for representation of feature in WCCS	Number of records present within AoS-E potentially provides opportunities to address the requirement for one additional site required in WCCS However, there is only one data point and it is >10yrs old. Further investigation would be required	Number of records present within AoS-E provides opportunities to address the requirement to provide representation in offshore and deeper waters compared to existing sites where this feature is protected. However, this area is well connected to existing site where this feature is protected (<10km away)

9.3 Activities and areas of sectoral interest

The following list of operations include activities which are currently known to occur within the area and which are associated to pressures that the features are known to be sensitive to. For more detail please see the [Considerations section](#).

- Oil and Gas Activity: pipelines cross the AoS.
- Demersal fishing activity (vessels 12m and over): Low levels of beam trawl, demersal trawl and dredging trawls have been noted in the area.

Other fishing activities potentially occur within this area. We recognise that further discussions are needed to establish key areas for other fishing activities.

Figure 22 provides an indication of fishing activity (12m and over) within the area. Please see the [Considerations section](#) for detail on the limitations of this dataset.

Areas of sectoral interest were registered in AoS-E by the TFG²¹ which include a coastal agreement. Activities and areas of sectoral interest are presented in Figure 23.

²¹ Please note areas of sectoral interest were provided by members of the TFG and should not be viewed as a definitive list.

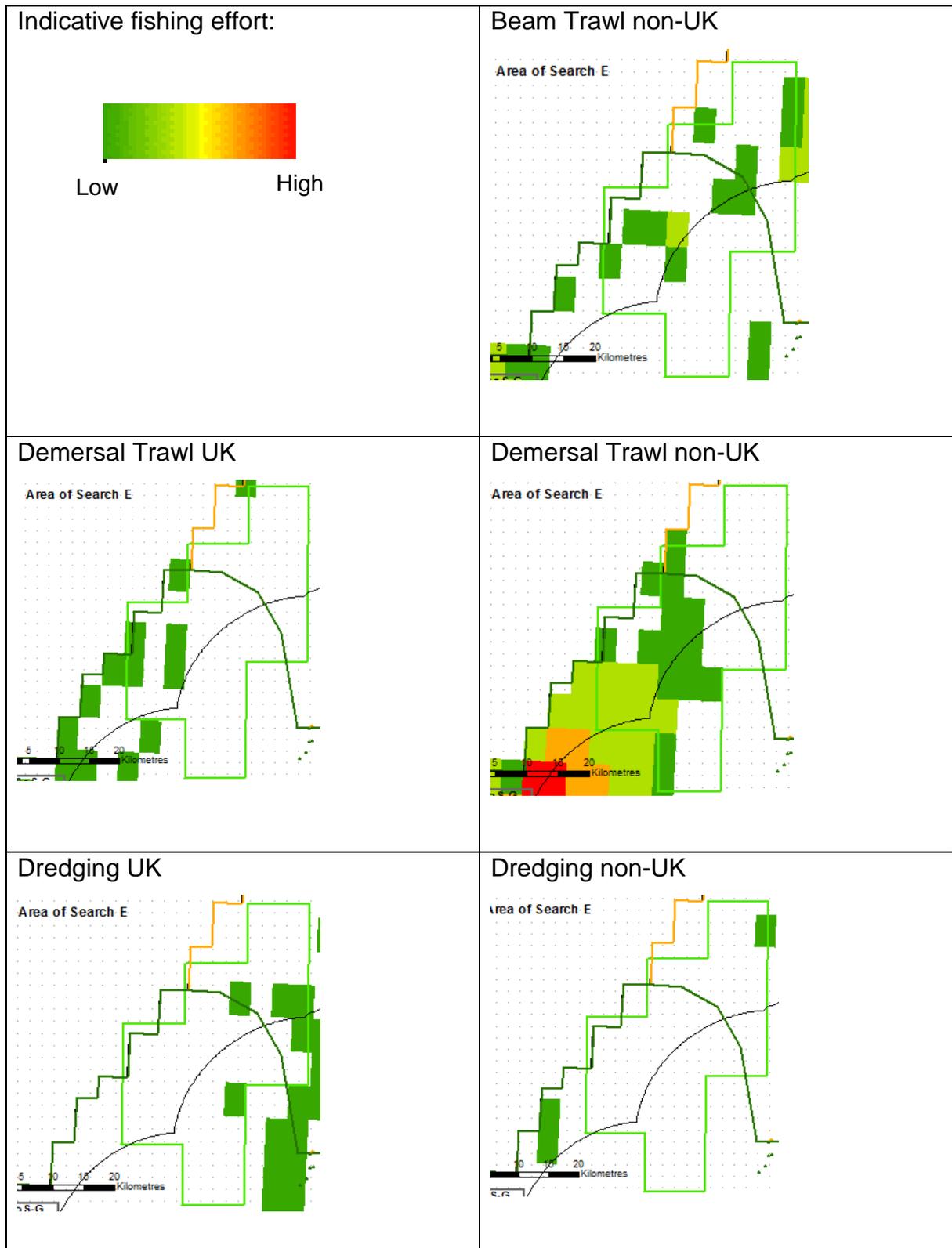


Figure 22: Fishing Activity (vessels 12m and over) in AoS-E interpreted from the Vessel Monitoring System (VMS) 2016-2018 summed data. Please note the ranges are not comparable between fishing gears and should be viewed as an indication of fishing activity only. A generic scale bar has been provided to show indicative levels from low (green) to high (red). The AoS is shown as the green box.

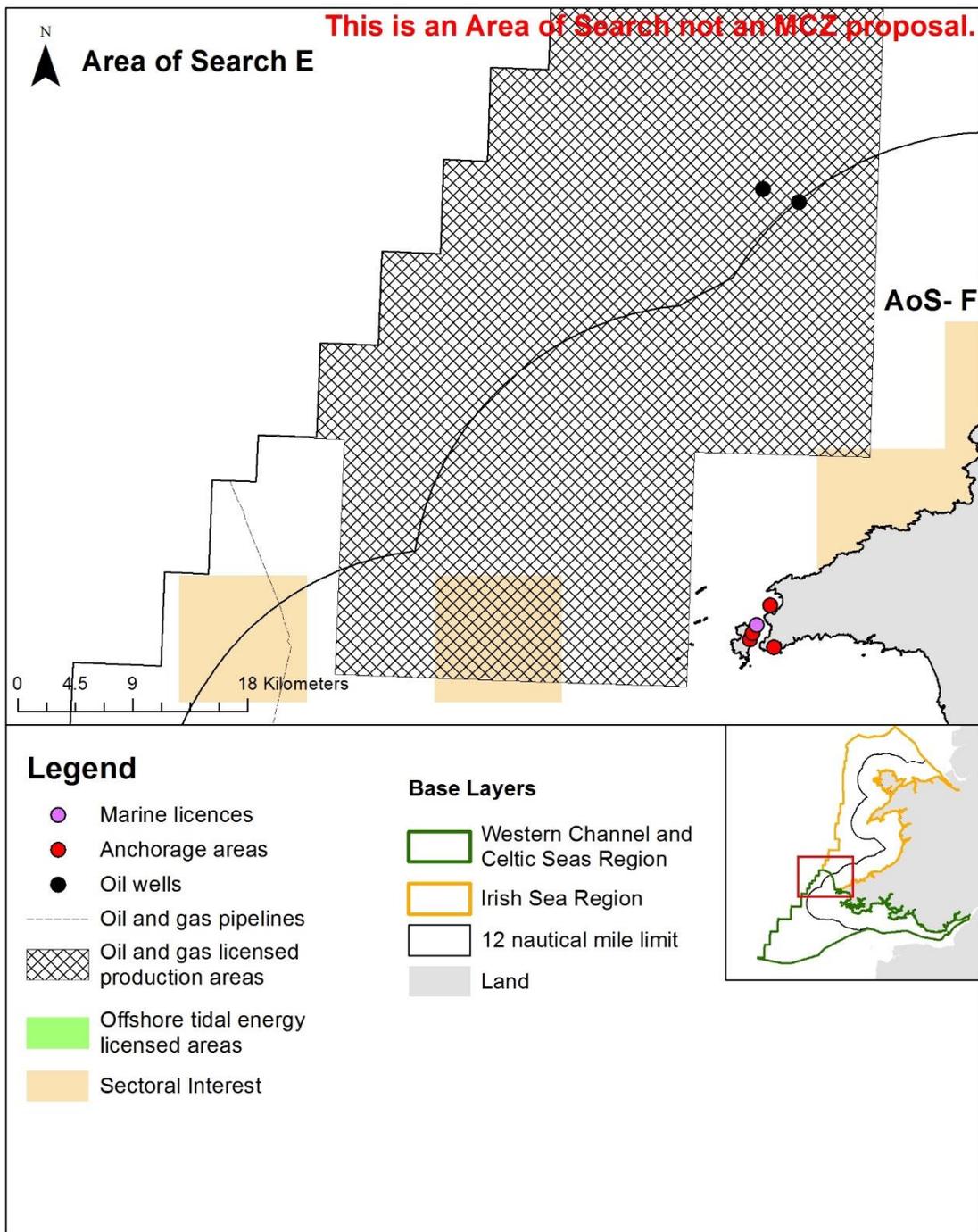


Figure 23: Activities and areas of sectoral interest in AoS-E

9.4 Existing Marine Protected Areas in the vicinity

There are no marine habitat SACs that overlap within AoS-E. The closest marine SAC to IPA-E is Pembrokeshire Marine/ Sir Benfro Môrol which is less than 10 km away.

10 Irish Sea - Area of Search F

10.1 Justification

Table 26: Justification of Shortfall Features within Area of Search F summarises why Area of Search F was selected, a summary of how each of the Areas of Search within the Irish Sea address the shortfalls within the region is provided in Table 4.

Table 26: Justification of Shortfall Features within Area of Search F

Shortfall Feature	Justification
Pink sea fans	Opportunity to fully address the shortfall in Irish Sea region
Fragile sponge and anthozoan communities	Partially addresses shortfall in Irish Sea region
Justification: Depth zones	
AoS-F is inshore and is being considered due to the presence of Pink Sea fans and Fragile sponge and anthozoan communities. Within the area Subtidal coarse sediment and Subtidal mixed sediment are also present. However, to ensure the connectivity network principle is fully met additional areas for these features would be required in deeper waters and so they are not considered further at this stage of the process.	

10.2 Overview

An overview of the distribution of shortfall features within Area of Search F (AoS-F) is presented in Figure 24, with a description of the area provided in Table 27. Table 28 provides the number of records of shortfall features being considered within AoS-F; the total number of replicates required to meet the shortfall in the region; and whether there is the opportunity for AoS-F to address the shortfalls. Table 29 details how AoS-F would contribute to the network of MPAs in Welsh waters.

Information about each of the shortfall features is presented in [Appendix A](#).

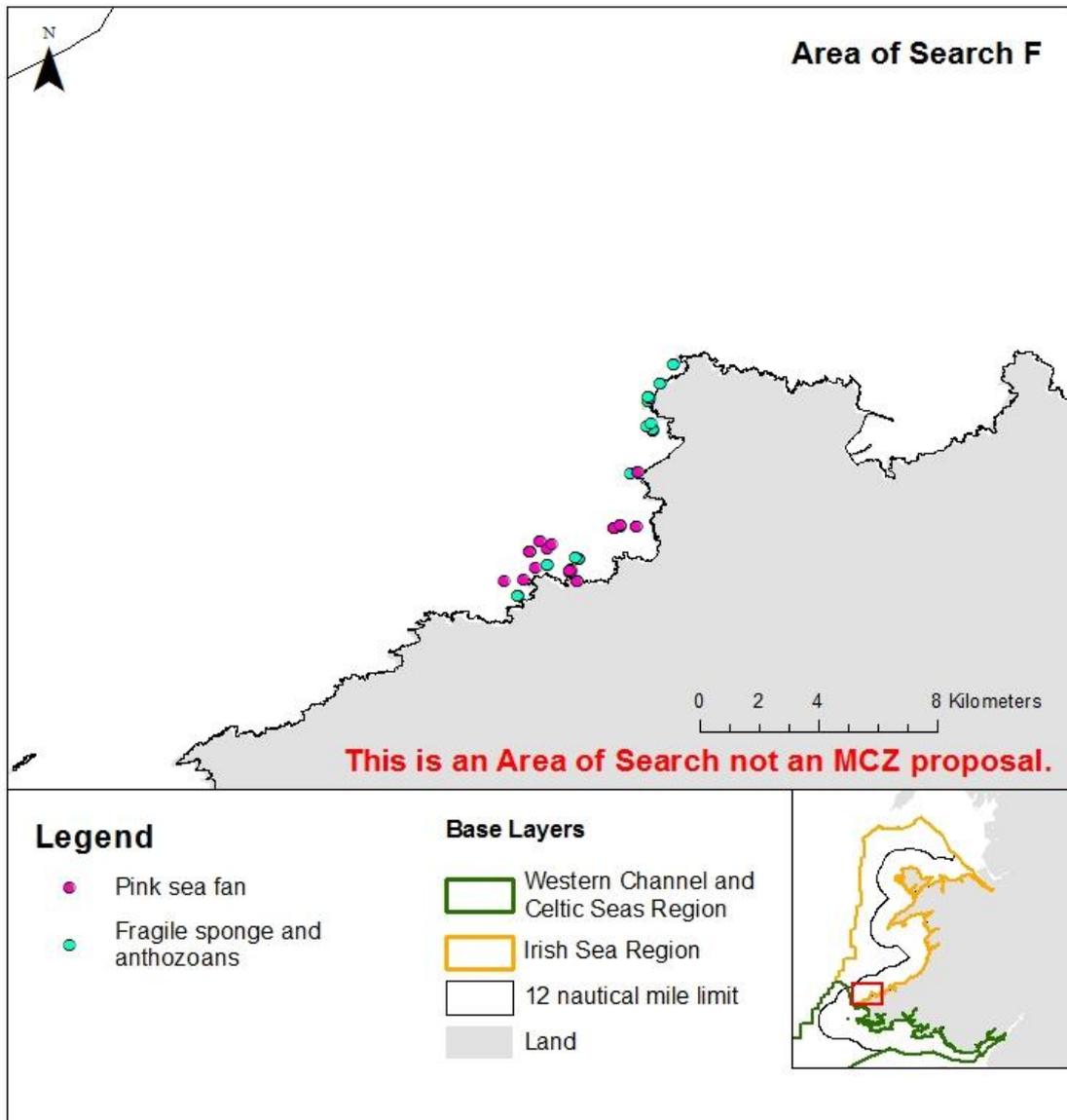


Figure 24: Overview of shortfall features within Area of Search F. Broad-scale habitat features have been removed from this map as Area of Search F will just be focussing on pink sea fan and fragile sponge and anthozoans.

Table 27: Description of Area of Search F

Area of Search	AoS-F
Regional Sea	Irish Sea
General location	Seas around Strumble Head
Size	267 km ²
Inshore/offshore	Inshore only ²²
Shortfall features	<ul style="list-style-type: none"> • Pink sea fans • Fragile sponge and anthozoan communities on subtidal rocky habitat
Brief description	Records of pink sea fan and fragile sponge and anthozoan communities are located along the coast within the area. An overview map of the area of search and shortfall feature distribution is presented in Figure 24
Proximity to other AoSs	AoS-E is 10 km to the west of AoS-F (See Figure 8 for details)

Table 28: Summary of OSPAR threatened and/or declining habitats and species and Environment (Wales) Act interim Section 7 list in AoS-F

Shortfall	Number of records in AoS-F	Replicate²³ required to meet shortfall in Irish Sea
Pink sea fan	16	Additional sites determined by availability of data
Fragile sponge and anthozoan on subtidal rocky habitat	54	2 replicates required

²² Inshore waters are those between the mean high water spring tide and the 12 nautical mile limit of territorial seas. Offshore waters are those between the 12 nautical mile limit of territorial seas and the median line.

²³ A replicate refers to an MPA within which the feature is protected. A replicate should contain multiple records of the feature.

Table 29: Contribution of AoS-F in the Irish Sea to the Welsh MPA network²⁴

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
Pink sea fans	Number of records within AoS-F provides opportunities to address the requirement as representation of feature in Irish Sea however data point is >10yrs old	Number of records within AoS-F only provides opportunities to partially address the requirement for replication of feature in the Irish Sea. However, this is the only possible area available for consideration	There are no SACs within the Irish Sea where this species is currently protected however this is the only possible area available for consideration due to data availability
Fragile sponge and anthozoan	Number of records within AoS-F provides opportunities to address the requirement as representation of feature in Irish Sea however data point is >10yrs old	Number of records within AoS-F only provides opportunities to partially address the requirement for replication of feature in the Irish Sea . One further example is required to meet minimum of 3 replicates	Number of records within AoS-F provides opportunities to address the requirement with similar habitat no more than 80 km apart

10.3 Activities and areas of sectoral interest

The following list of operations include activities which are currently known to occur within the area and which are associated to pressures that the features are known to be sensitive to. For more detail please see the [Considerations section](#).

- Oil and Gas Activity: pipelines cross the AoS.
- Dredging and Disposal: a disposal site overlaps the east of the area slightly.
- Shipping and Anchorage: an anchorage area can be found within the area.
- Demersal fishing activity (vessels 12m and over)

Other fishing activities are known to occur within this area (e.g. potting). However, we do not have comprehensive up to date data to include at this point. We recognise that further discussions are needed to establish key areas for other fishing activities.

Figure 15 provides an indication of fishing activity (vessels 12m and over) within the area. Please see the [Considerations section](#) for detail on the limitations of this dataset.

²⁴ Principles for the Welsh MPA Network are explained in the Process Document

Areas of sectoral interest were registered in AoS-F by the TFG²⁵ which include a coastal agreement and cable agreement. Activities and areas of sectoral interest are presented in Figure 26.

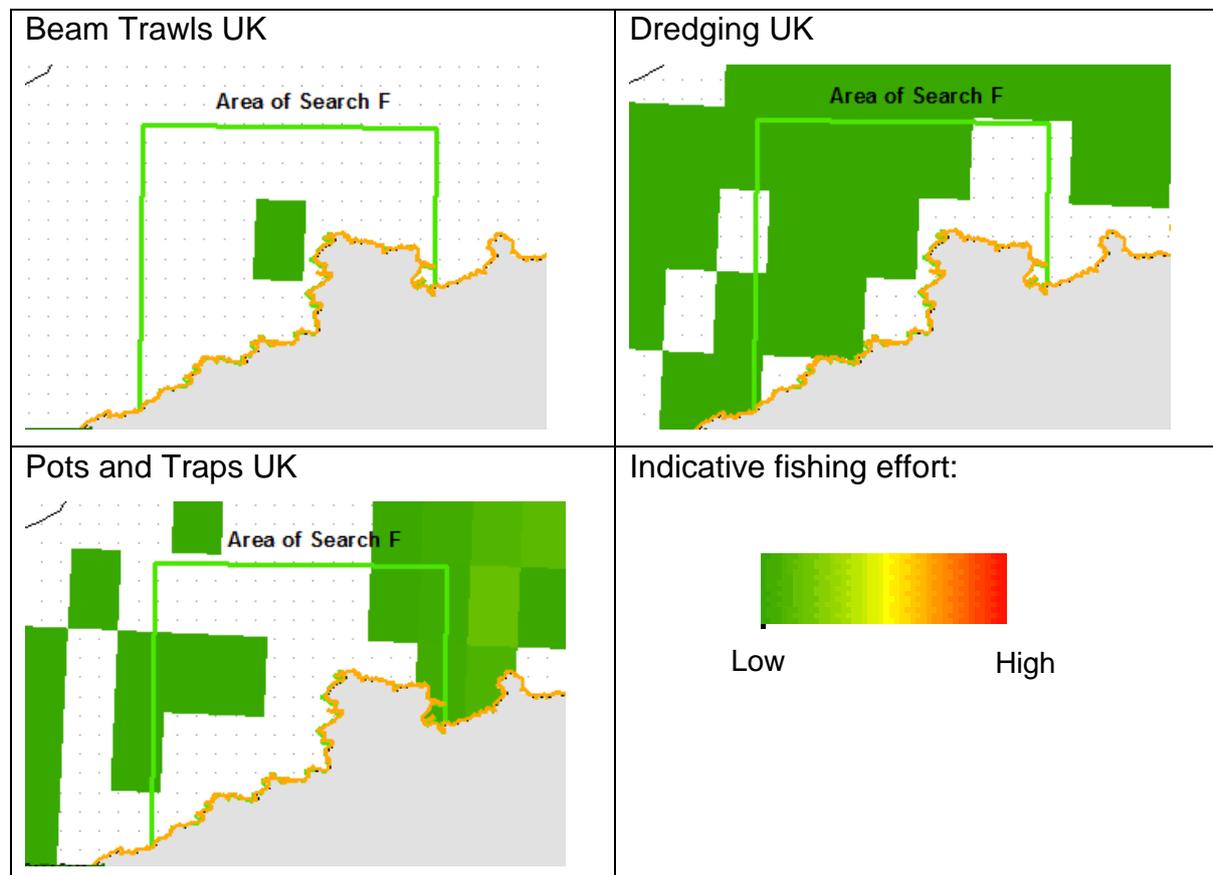


Figure 25: Fishing Activity (vessels 12m and over) in AoS-F interpreted from the Vessel Monitoring System (VMS) 2016-2018 summed data. Please note the ranges are not comparable between fishing gears and should be viewed as an indication of fishing activity only. A generic scale bar has been provided to show indicative levels from low (green) to high (red). The AoS is shown as the green box.

²⁵ Please note areas of sectoral interest were provided by members of the TFG and should not be viewed as a definitive list.

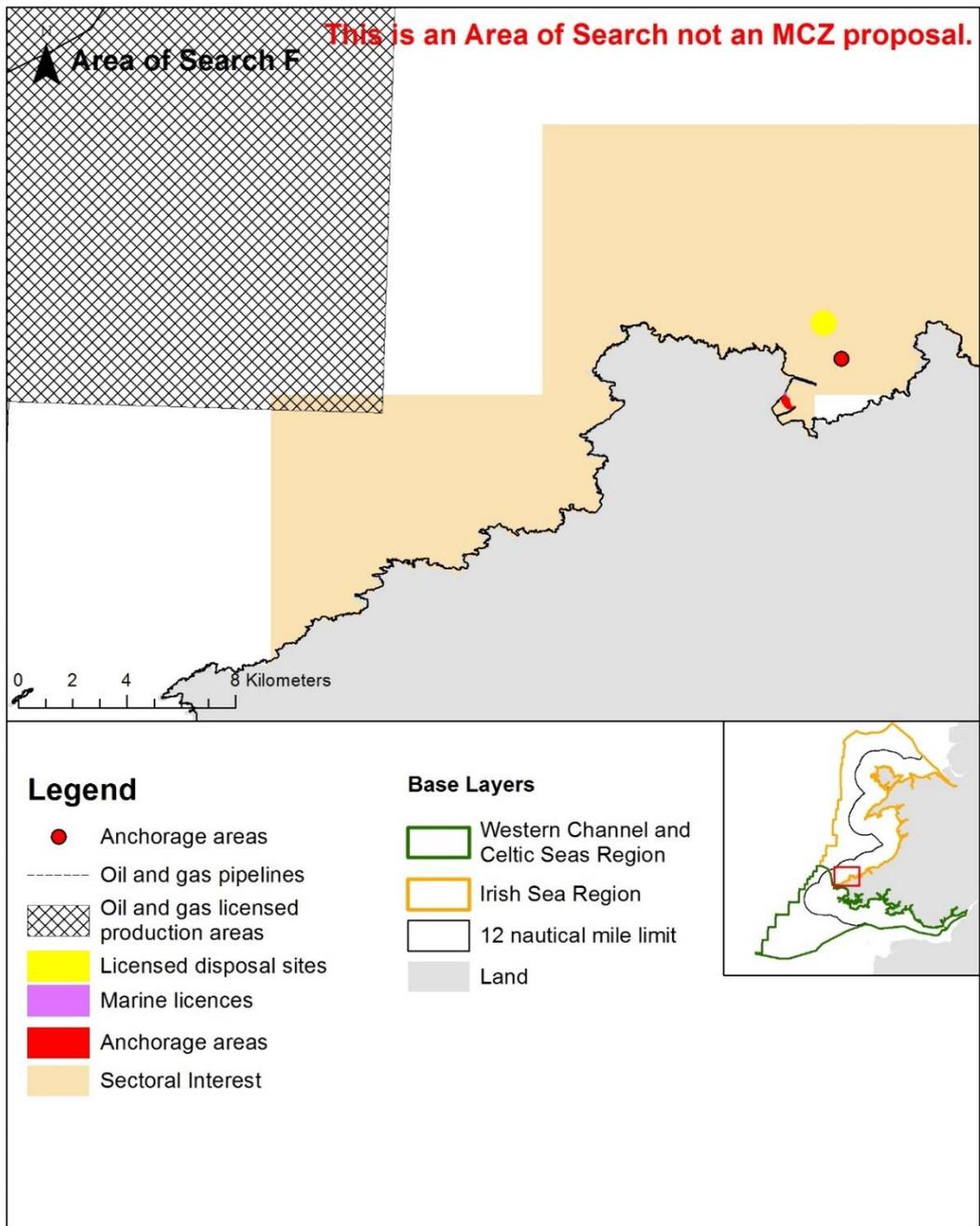


Figure 26: Activities and areas of sectoral interest in AoS-F

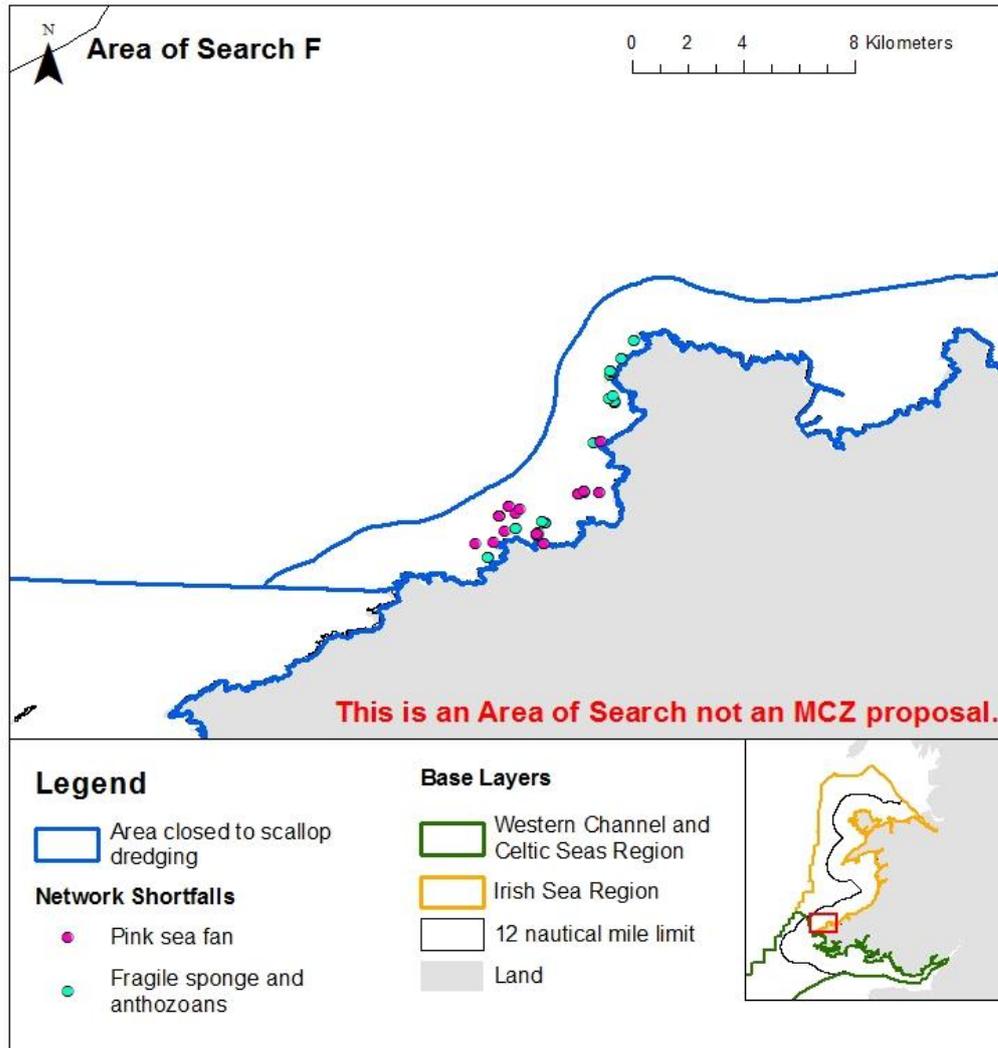


Figure 27: Existing management measures in AoS-F

Figure 27 highlights the existing management measures that overlap with AoS F. The polygons outlined in blue form part of The Scallop Fishing (Wales) (No.2) Order 2010, which restricts fishing for king scallop (*Pecten maximus*) within the mean high water to 1 nautical mile offshore area around the entire coast of Wales and within marine habitat SACs. All vessels that fish for scallops are fitted with iVMS and the data is submitted to WG fisheries enforcement.

10.4 Existing Marine Protected Areas in the vicinity

There are no marine habitat SACs which overlap with AoS-F. The closest Marine SAC is Pembrokeshire Marine/ Sir Benfro Môrol, which is mostly within the Western Channel and Celtic Sea Region.

11 Western Channel and Celtic Sea - Area of Search GH

11.1 Justification

Area of Search GH (AoS-GH) is a large site almost completely in the offshore of the Western Channel and Celtic Sea region. It is an area of particular importance to the completion of the Welsh MCZ network as it has the capability to fully meet 6 of the shortfalls within the region and it is the only opportunity to address the shortfall of Seapens and Burrowing Megafauna communities within this region. As it is mostly offshore it can also help to address the lack of broadscale habitats protected in deeper waters.

Table 30 summarises why AoS-GH was selected, a summary of how each of the Areas of Search within the Western Channel and Celtic Sea address the shortfalls within the region is provided in Table 5.

Table 30: Justification of Shortfall Features within Area of Search GH

Shortfall Feature	Justification
Mud habitats in deep water	Opportunity to fully address shortfall in Western Channel and Celtic Sea region
Subtidal sand	Opportunity to fully address shortfall in Western Channel and Celtic Sea region
Subtidal coarse sediment	Opportunity to fully address shortfall in Western Channel and Celtic Sea region
Subtidal mud	Opportunity to fully address shortfall in Western Channel and Celtic Sea region
Ocean quahog	Opportunity to fully address shortfall in Western Channel and Celtic Sea region
Seapens and burrowing megafauna communities	Only opportunity to fully address the shortfall in Western Channel and Celtic Sea region
Justification: Depth zones	
AoS-GH is predominantly offshore, it would contribute greatly to the connectivity network principle by providing broad-scale habitat features in deeper waters.	

11.2 Overview

An overview of the distribution of shortfall features within AoS-GH is presented in Figure 28, with a description of the area provided in Table 31. Table 32 and Table 33 provide a summary of the shortfall feature areas (in km²) or number of records within AoS-GH; the total area or number of replicates required to meet the shortfall in the region; and whether there is the opportunity for AoS-GH to address the shortfalls. Table 34 details how AoS-GH would contribute to the network of MPAs in Welsh waters.

Information about each of the shortfall features is presented in [Appendix A](#).

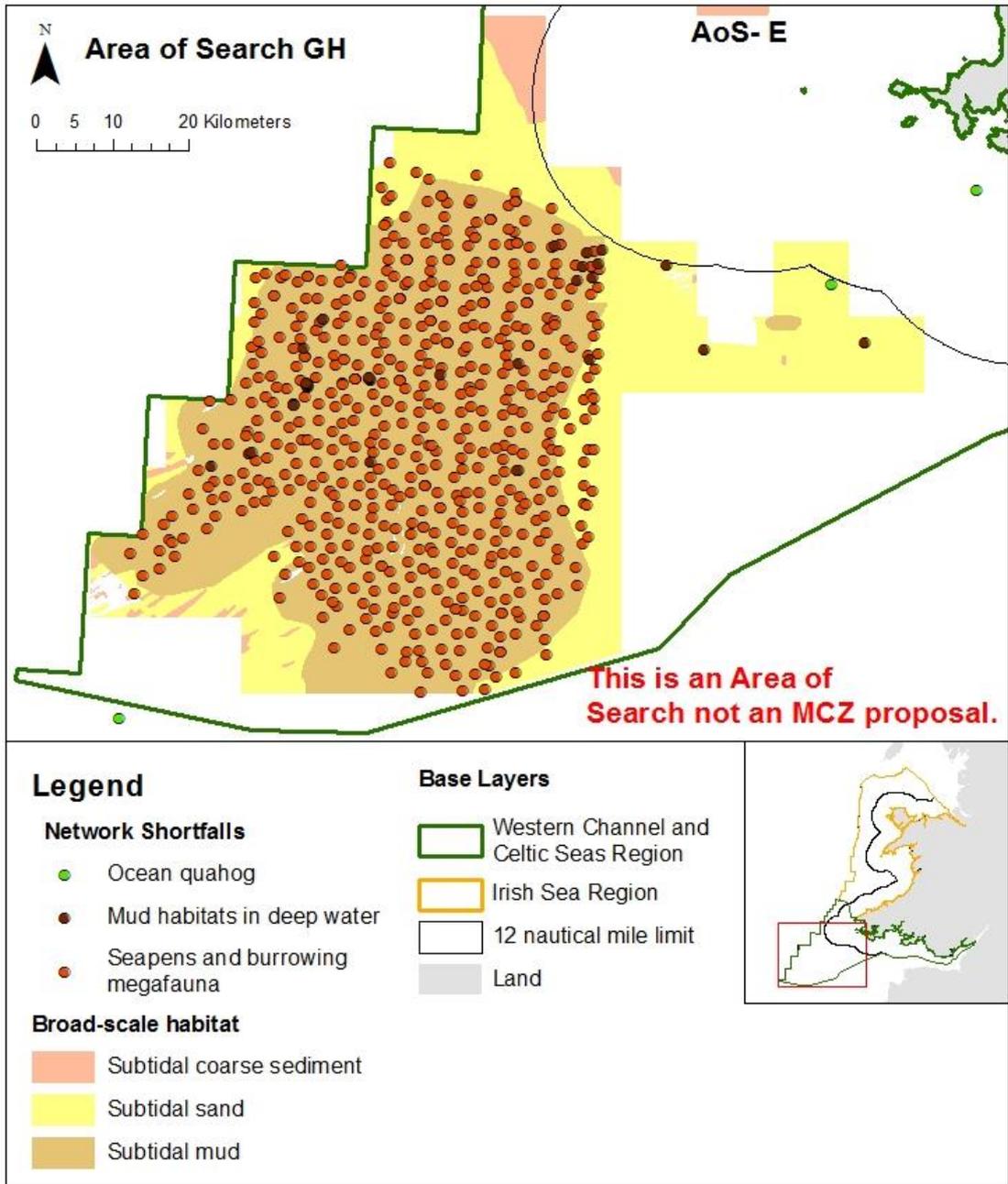


Figure 28: Overview of shortfall features within Area of Search GH

Table 31: Description of Area of Search-GH

Area of Search	AoS-GH
Regional Sea	Western Channel and Celtic Sea
General location	The south west extent of Welsh offshore waters, around Celtic Deep
Size	4,526 km ²
Inshore/offshore	Inshore and offshore (predominantly offshore) ²⁶
Shortfall features	<ul style="list-style-type: none"> • Subtidal coarse sediment • Subtidal mud • Subtidal sand • Ocean quahog • Mud habitats in deep water • Sea-pens and burrowing megafauna communities
Brief description	The area is dominated by subtidal mud in the centre with subtidal sand surrounding it and patches of subtidal coarse sediment. The northern tip of the area contains a greater extent of subtidal coarse sediment and sand. Records of sea-pens and burrowing megafauna communities are located across the subtidal mud extent with records of mud habitats in deep water. A single ocean quahog record is present in the east of the area. An overview map of the Area of Search and shortfall feature distribution is presented in Figure 28.
Proximity to other AoSs	AoS-GH is about 20 km to the south west of AoS-E (See Figure 8 for details).

Table 32: Summary of broad-scale habitats in AoS-GH

Shortfall	Area in AoS-GH (km²)	Area (km²) required to meet shortfall in Western Channel and Celtic Sea
Subtidal coarse sediment	114 km ²	81 km ²
Subtidal mud	2,852 km ²	215 km ²
Subtidal sand	1,493 km ²	25 km ²

²⁶ Inshore waters are those between the mean high water spring tide and the 12 nautical mile limit of territorial seas. Offshore waters are those between the 12 nautical mile limit of territorial seas and the median line.

Table 33: Summary of OSPAR threatened and/or declining habitats and species and Environment (Wales) Act interim Section 7 list in AoS-GH

Shortfall	Number of records in AoS-GH	Replicate ²⁷ required to meet shortfall in Western Channel and Celtic Sea
Ocean quahog	1	1 replicate required
Mud habitats in deep water	32	1 replicate required
Sea-pens and burrowing megafauna communities	647	1 replicate required

Table 34: Contribution of AoS-GH to the Welsh MPA network²⁸

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
Subtidal coarse sediment	Area of feature present within AoS-GH provides opportunities to address the requirement of representation of feature in WCCS	This requirement has already been met as the feature is protected by existing SACs within the region	Area of feature present within AoS-GH provides opportunities to address the requirement as this offshore area would provide representation across depth zones and improved connectivity across the network
Subtidal mud	Area of feature present within AoS-GH provides opportunities to address the requirement of representation of feature in WCCS	This requirement has already been met as the feature is protected by existing SACs within the region	Area of feature present within AoS-GH provides opportunities to address the requirement as this offshore area would provide representation across depth zones and improved connectivity across the network
Subtidal sand	Area of feature present within AoS-GH provides opportunities to address the requirement of representation of feature in WCCS	This requirement has already been met as the feature is protected by existing SACs within the region	Area of feature present within AoS-GH provides opportunities to address the requirement as this offshore area would provide representation across depth zones and improved connectivity across the network
Ocean quahog	Number of records present within AoS-	Number of records present within	Number of records present within AoS-GH provides

²⁷ A replicate refers to an MPA within which the feature is protected. A replicate should contain multiple records of the feature.

²⁸ Principles for the Welsh MPA Network are explained in the Process Document

Shortfall	Welsh MPA network assessment criteria		
	Representation	Replication	Connectivity
	GH partially provides opportunities to address the requirement of representation of feature in WCCS	AoS-GH partially provides opportunities to address the requirement for one additional site required in WCCS. However, there is only one data point and it is >10yrs old. Further investigation would be required	opportunities to address the requirement as this offshore area would provide representation across depth zones and improved connectivity across the network
Mud habitats in deep water	Area of feature present within AoS-GH provides opportunities to address the requirement of representation of feature in WCCS	Area of feature present within AoS-GH provides opportunities to address the requirement for one additional site required in WCCS with data points <10yrs old	Area of feature present within AoS-GH provides opportunities to address the requirement as this offshore area would provide representation across depth zones and improved connectivity across the network
Seapens and burrowing megafauna communities	Number of records present within AoS-GH provides opportunities to address the requirement of representation of feature in WCCS	Number of records present within AoS-GH provides opportunities to address the requirement for one additional site required in WCCS with data points <10yrs old	Number of records present within AoS-GH provides opportunities to address the requirement as this offshore area would provide representation across depth zones and improved connectivity across the network

11.3 Activities and areas of sectoral interest

The following list of operations include activities which are currently known to occur within the area and which are associated to pressures that the features are known to be sensitive to. For more detail please see the [Considerations section](#).

- Oil and Gas Activity: numerous pipelines cross the area.
- Demersal fishing activity (vessels 12 m and over): see below for indicative levels of fishing activity within the area.
- Floating offshore wind licensed areas

Other fishing activities are known to potentially occur within this area (e.g. demersal fisheries of under 12m vessels). However, we do not have comprehensive up to date data to include at this point. We recognise that further discussions are needed to establish key areas for other fishing activities.

Figure 29 provides an indication of fishing activity (vessels 12m and over) within the area. Please see the [Considerations section](#) for detail on the limitations of this dataset.

Areas of sectoral interest were registered in AoS-GH by the TFG²⁹ which include disposal sites, cable agreements, coastal agreements, wind, and wave and tidal. Activities and areas of sectoral interest are presented in Figure 30.

²⁹ Please note areas of sectoral interest were provided by members of the TFG and should not be viewed as a definitive list.

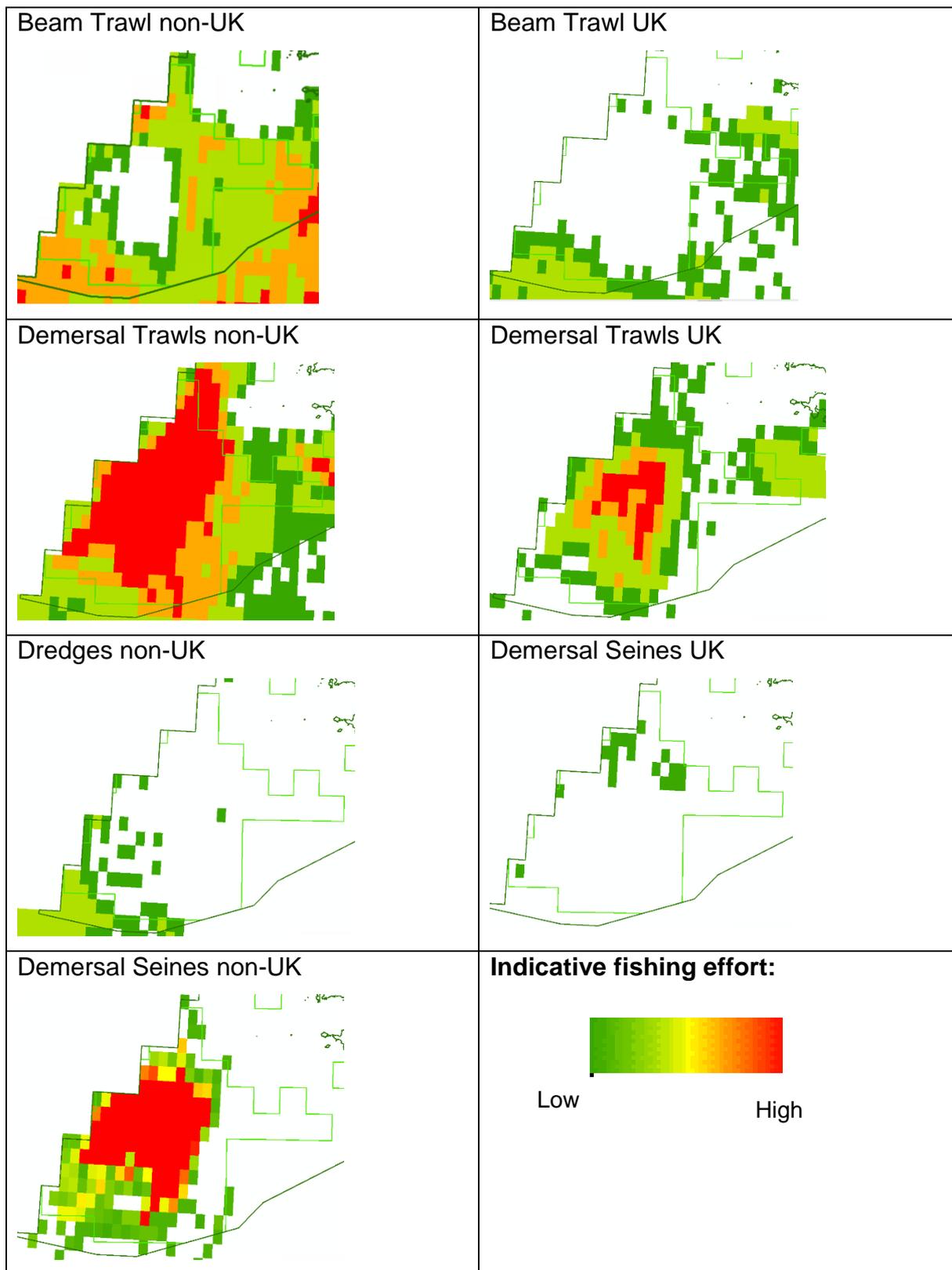


Figure 29: Fishing Activity (vessels 12 m and over) in AoS-GH interpreted from the Vessel Monitoring System (VMS) 2016-2018 summed data. Please note the ranges are not comparable between fishing gears and should be viewed as an indication of fishing activity only. A generic scale bar has been provided to show indicative levels from low (green) to high (red). The AoS is shown as the green box.

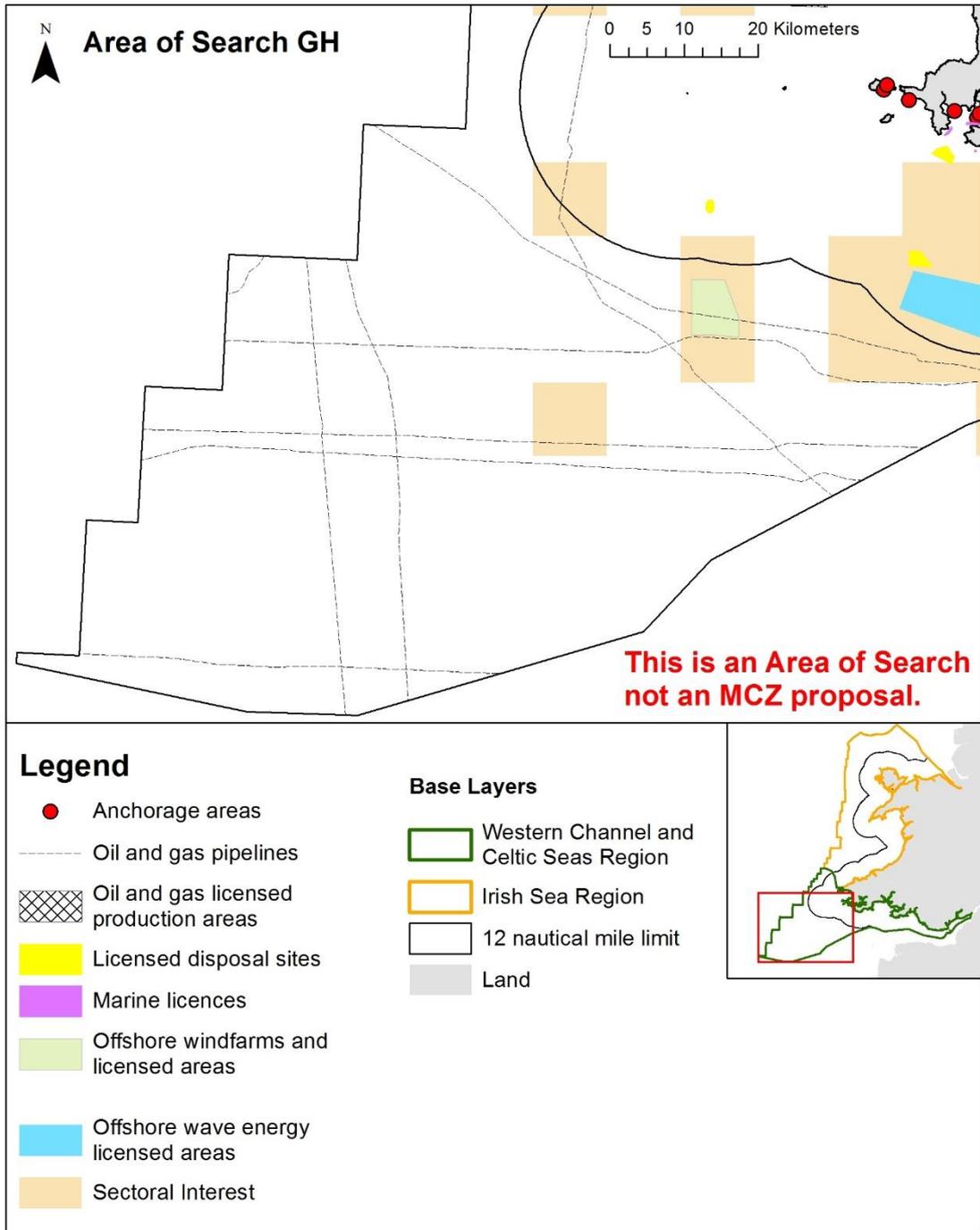


Figure 30: Activities and areas of sectoral interest in AoS-GH

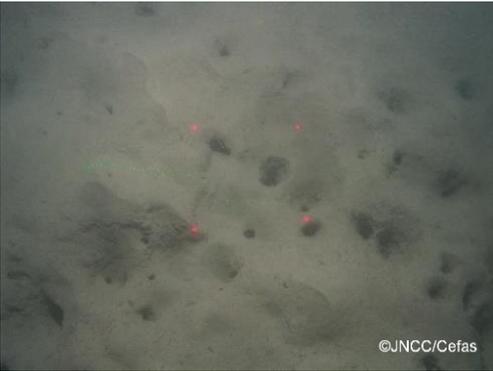
11.4 Existing Marine Protected Areas in the vicinity

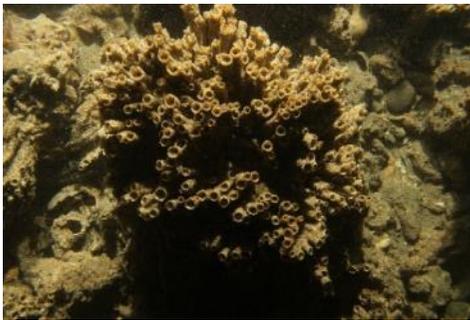
There is are no marine habitat SACs which overlap with AoS-GH.

12 Appendix A: Network shortfalls currently under consideration

Network Shortfall in Welsh waters	Reason for Shortfall	CP2 region where shortfall exists	Brief description of feature	Feature Image
Subtidal coarse sediment	Less than 10% of area currently protected in existing MPAs	Irish Sea Western Channel and Celtic Sea	Coarse sand, gravel, pebbles, shingle and cobbles covered by seawater at all times. This habitat is often unstable due to tidal currents and/or wave action.	
Subtidal sand	Less than 10% of area currently protected in existing MPAs	Western Channel and Celtic Sea	Sandy seabed that is under water at all times. The wave action reduces most mud and clay leaving a loose, changeable habitat which is home to species like flatfish and sand eels.	

Network Shortfall in Welsh waters	Reason for Shortfall	CP2 region where shortfall exists	Brief description of feature	Feature Image
Subtidal mud	Less than 10% of area currently protected in existing MPAs	Western Channel and Celtic Sea	Cohesive sandy muds and mud that are covered by seawater at all times. Extends from the extreme lower shore to offshore, deep sea habitats	 <p>©JNCC/Cefas</p>
Subtidal mixed sediment	Less than 10% of area currently protected in existing MPAs	Irish Sea	This habitat incorporates a range of sediments including muddy gravelly sands and mosaics of cobbles and pebbles embedded in or lying upon the sediment. This combination of sediments and small rocks can allow a variety of animals living within the sediment and on the cobbles and pebbles.	

Network Shortfall in Welsh waters	Reason for Shortfall	CP2 region where shortfall exists	Brief description of feature	Feature Image
Fragile sponge and anthozoan communities on subtidal rocky habitat	Less than 3 replicates are currently protected in existing MPAs.	Irish Sea	This community is made up of sponges that grow proud of the seabed and anthozoans (soft corals, sea fans, and colonial anemones). They require sufficient water movement to bring a ready supply of food. As a result, they are found on shores which are exposed to waves or currents, but also with local shelter from the full force of the waves and	 <p>© NRW</p>
Mud habitats in deep water	Less than 3 replicates are currently protected in existing MPAs.	Western Channel and Celtic Sea	Cohesive sandy muds and mud that are found in depths greater than 20m.	 <p>©JNCC/Cefas</p>

Network Shortfall in Welsh waters	Reason for Shortfall	CP2 region where shortfall exists	Brief description of feature	Feature Image
Sea-pen and burrowing megafauna communities	Less than 3 replicates are currently protected in existing MPAs.	Western Channel and Celtic Sea	On stable plains of fine mud, areas of the seabed may be marked by prominent mounds made by animals like the volcano worm, burrows (e.g. from Dublin Bay prawns and other crustaceans) and delicate sea-pens that reach up into the water to collect food.	
Ross worm reef	Less than 3 replicates are currently protected in existing MPAs.	Irish Sea	The Ross worm (<i>Sabellaria spinulosa</i>) cements grains of sand together to form a tube. These can be found individually or in aggregations forming large reefs. In reef form the worm tubes rise vertically off the sandy or gravelly seabed providing habitat and food for other sea life such as crabs and juvenile fish.	

Network Shortfall in Welsh waters	Reason for Shortfall	CP2 region where shortfall exists	Brief description of feature	Feature Image
<p>Ocean quahog</p> <p><i>Arctica islandica</i></p>	<p>Less than 3 replicates are currently protected in existing MPAs.</p>	<p>Western Channel and Celtic Sea</p>	<p>Ocean quahogs can be found from just below the low water level to depths of about 500m. They live buried in sediment, often entirely hidden with just a small tube extending up to the surface of the seabed. They can live for over 500 years.</p>	 <p>©Kate Lock, NRW</p>
<p>Pink sea-fan</p> <p><i>Eunicella verrucosa</i></p>	<p>Less than 3 replicates are currently protected in existing MPAs.</p>	<p>Irish Sea</p>	<p>The slow growing pink sea-fan lives in areas of strong currents on the rocky reefs. The branches are covered in small bumps from which small anemone like structures emerge to feed. They can grow up to 50cm high and can live for 100 years.</p>	 <p>©Roban Holt</p>

13 Appendix B: Data confidence in the broad-scale habitat data

Shortfalls for Subtidal coarse sediments and Subtidal mixed sediments 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 which is a modelled dataset based on numerous physical parameters. The map below shows 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.

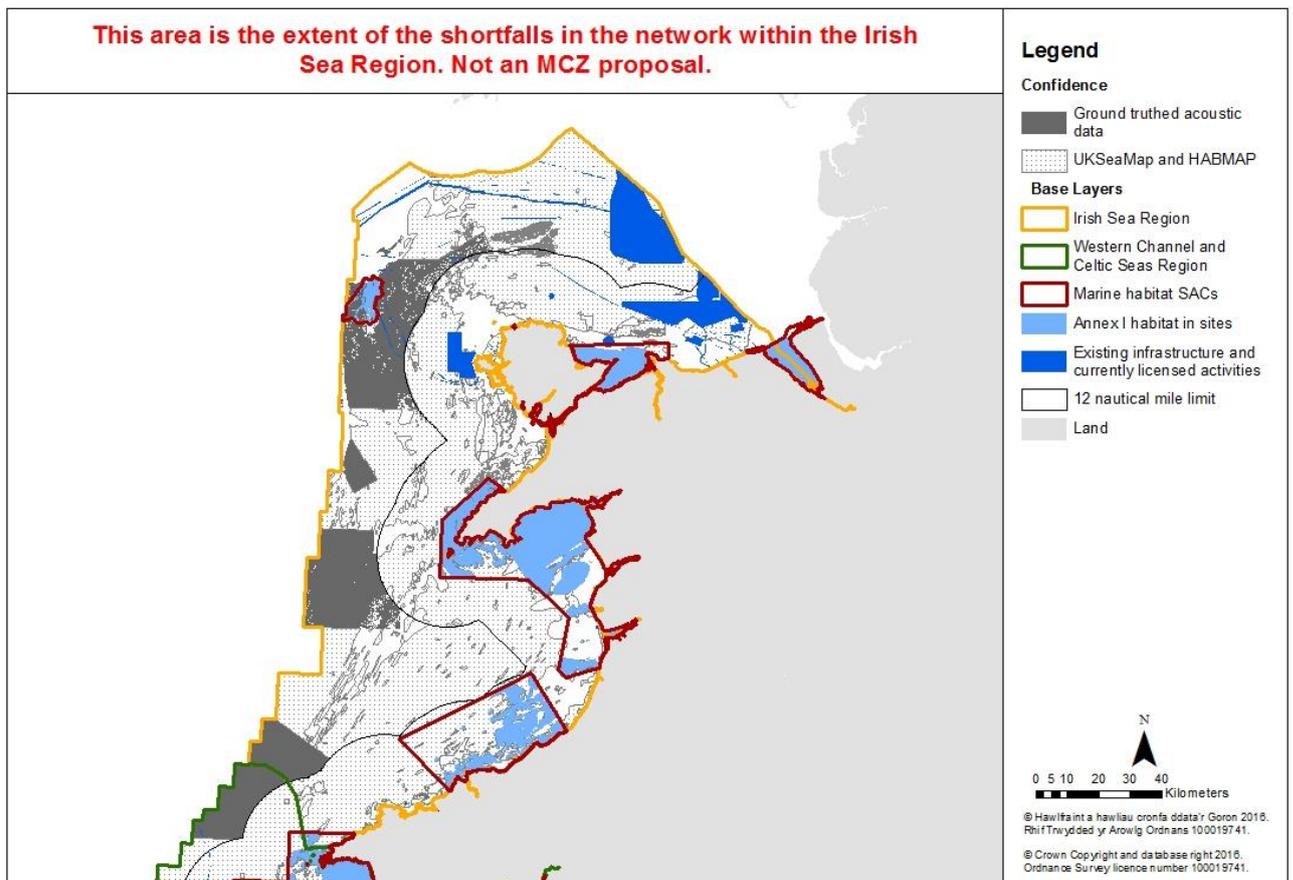


Figure 31 Broad-scale habitat confidence for the Irish Sea region

Areas of search - Irish Sea

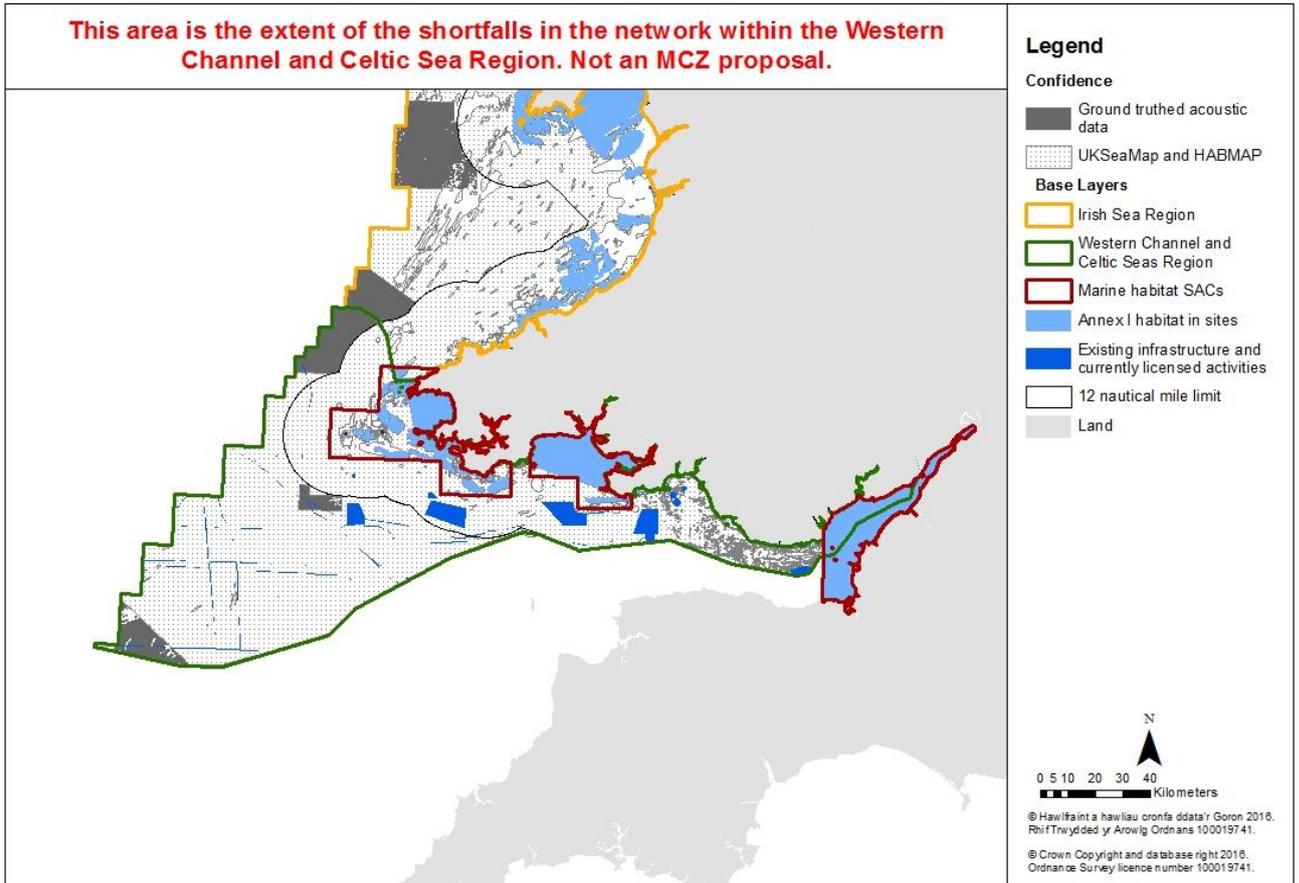


Figure 32 Broad-scale habitat confidence for the Western Channel and Celtic Sea region