



**Scientific advice on possible offshore site
options for consideration as Marine Conservation
Zones to contribute to the MPA network**

February 2017

Available at: <http://jncc.defra.gov.uk/page-7119>

Version control

Build status:

Version	Date	Author	Reason/Comments
0.1	07/12/2016	B. Flavell and E. Novak	Preparation of report template and first draft
0.3	18/01/2017	B. Flavell and H. Carr	Updates and incorporation of site narratives
0.5	23/01/2017	H. Carr	Clean version for internal review
0.8	31/01/2017	B. Flavell	Incorporation of comments
1.0	01/02/2017	B. Flavell	Preparation of copy for MPA Sub Group
1.1	15/02/2017	B. Flavell and H. Carr	Updates in response to MPA Sub Group review
2.0	27/02/2017	B. Flavell	Preparation of version for Defra
2.1	04/06/2018	H. Carr	Review and minor edits ahead of publication
2.2	06/06/2018	H. Carr	Addition of the advice report ' <i>Overview of the contribution to the MPA network of inshore and offshore site options being considered as potential MCZs, February 2017</i> ' into Annex 3
3.0	06/06/2018	H. Carr	Final version for publication

Distribution list:

Version	Date	Author	Reviewer
0.5	23/01/17 – 24/01/17	JNCC	Jon Davies
1.0	01/02/2017	JNCC	JNCC's MPA Sub Group
2.0	28/02/2017	JNCC	Gemma Harper, Paul McLeod, Laura Harland and Sophie Vickery
2.1	05/06/2018	JNCC	Pete Chaniotis
3.0	06/06/2018	JNCC	Published on the JNCC website

Table of Contents

1	INTRODUCTION.....	4
2	METHODS	6
2.1	APPROACH USED TO IDENTIFY NEW SITE OPTIONS IN OFFSHORE WATERS	6
2.2	REVIEW OF NEW SITE OPTIONS	10
2.3	DATA USED IN ASSESSMENT OF NEW SITE OPTIONS	14
2.4	METHODS AND PROTOCOLS FOR ASSESSING NEW SITE OPTIONS.....	15
3	RESULTS.....	18
3.1	SUMMARY OF ASSESSMENTS.....	18
3.2	EAST OF START POINT.....	20
3.3	SOUTH WEST APPROACHES TO BRISTOL CHANNEL.....	25
3.4	WEST OF COPELAND	32
3.5	WEST OF WIGHT BARFLEUR.....	39
	ANNEX 1: DECISION TREE PROCESS FOR THE PROGRESSION AND REFINEMENT OF NEW SITES	45
	ANNEX 2: STATEMENT ON JNCC'S QUALITY ASSURANCE PROCEDURES UNDERTAKEN FOR THE MCZ ADVICE.....	46
	ANNEX 3: OVERVIEW OF THE CONTRIBUTION TO THE MPA NETWORK OF INSHORE AND OFFSHORE SITE OPTIONS BEING CONSIDERED AS POTENTIAL MCZS IN 2017	49

1 Introduction

JNCC and Natural England have been requested by Defra to provide scientific advice on recommended MCZs (**rMCZs**) from the regional Marine Conservation Zone projects to be considered for a third tranche of MCZ designations. JNCC and Natural England have also been asked to identify and provide scientific advice on new site options that could fill any residual shortfalls predicted within the Marine Protected Area (MPA) network once all rMCZs options have been considered. Defra aim to complete the UK Blue Belt and the UK's contribution to the ecologically coherent network of MPAs in the North East Atlantic with the third tranche of MCZ designations. JNCC's pre-consultation advice on rMCZs was submitted to Defra in November 2016. Advice regarding sites proposed for highly mobile species will be provided in a separate report in February 2017.

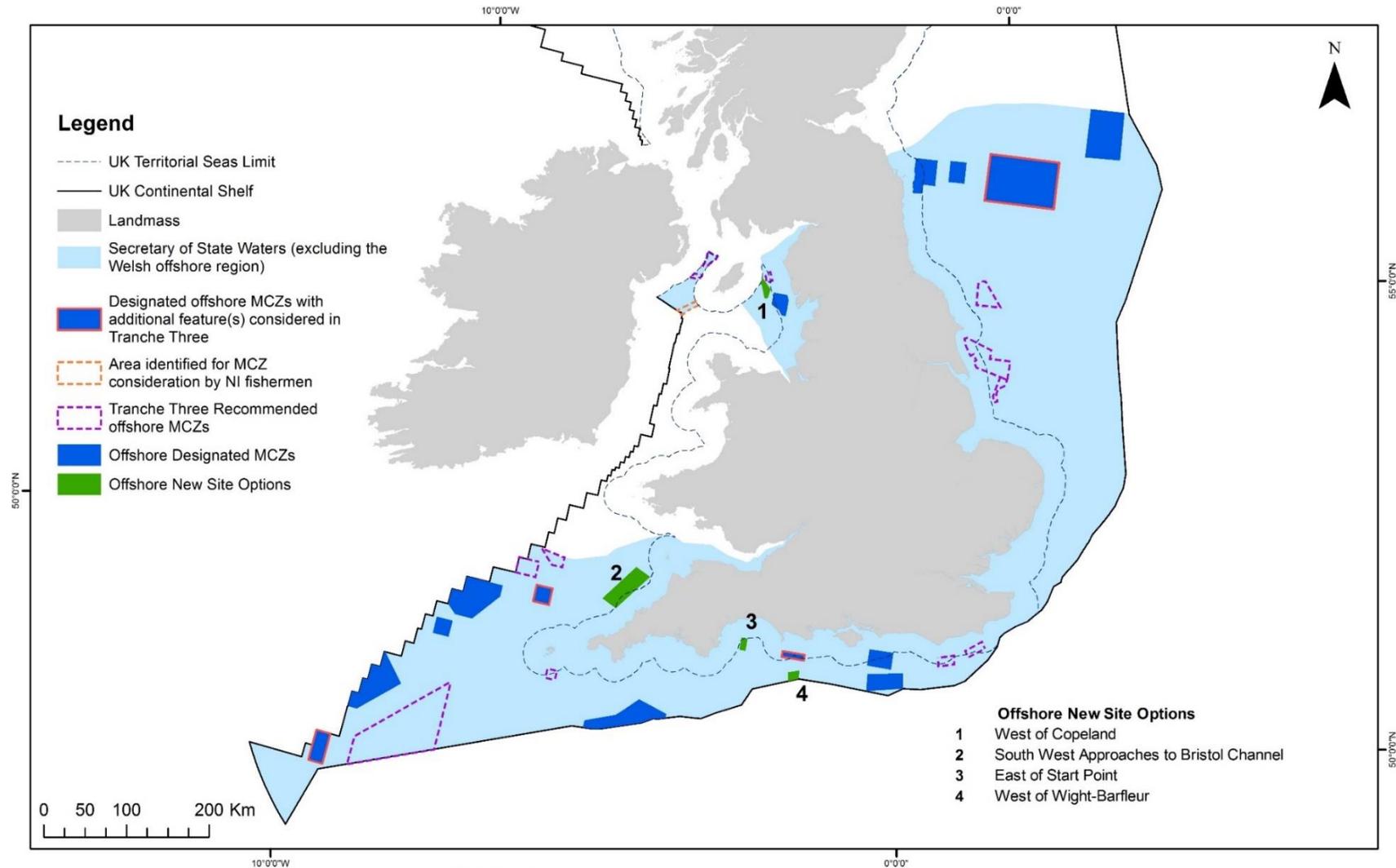
This present summary report details the method followed to identify the potential new offshore MCZs to fill any shortfalls predicted within Defra's contribution to the MPA network, hereafter known as *New Site Options* and JNCC's scientific assessments of each of these sites. JNCC's full scientific advice on all components of Tranche Three as requested by Defra is published on JNCC's website¹.

In total, JNCC and Natural England are proposing 13 New Site Options for possible inclusion in the third consultation of MCZs. Four of these sites are found in the offshore environment (beyond 12 nautical miles from the coast) or span the inshore-offshore boundary, and fall under JNCC's responsibility for advice and reporting. The remaining 9 sites lie in inshore waters (within 12 nautical miles), and are the responsibility of Natural England. These sites will complement the 54 rMCZs for which JNCC and Natural England provided advice to Defra in November 2016. A summary paper that was provided alongside this present advice report (see Annex 3) sets out an overview of these New Site Options on a region by region basis and how they can contribute to the residual gaps in the MPA network. The offshore New Site Options are listed below in [Table 1](#) and presented in [Figure 1](#).

Table 1: Offshore New Site Options to be considered by Defra for inclusion within Tranche Three

Offshore New Site Options	
Biogeographic region	Site name
Eastern Channel	East of Start Point
Eastern Channel	West of Wight Barfleur
Western Channel and Celtic Sea	South West Approaches to Bristol Channel
Irish sea	West of Copeland

¹ JNCC's Tranche Three Pre-Consultation Advice package. Available at: <http://jncc.defra.gov.uk/page-7119>



© JNCC 2017
 UK Territorial Sea Limit. © Contains JNCC and NE information licensed under the Open Government Licence v3.0. Contains derived data from Ordnance Survey © Crown copyright. 100019741 (2015). Contains UKHO data © Crown copyright. All rights reserved. The exact limits of the UK Continental shelf are set out in orders made under section 1 (7) of the Continental Shelf Act 1964 and Continental Shelf (Designation of Area) Order 2013. Combining source layers from UKHO. © Crown copyright © JNCC. World Vector Shoreline © US Defence Mapping Agency. Not to be used for navigation.



Figure 1: The location of offshore New Site Options identified by JNCC

2 Methods

2.1 Approach used to identify New Site Options in offshore waters

In 2016, JNCC analysed the progress towards achieving an ecologically coherent network of MPAs in Secretary of State waters². The analysis identified some residual shortfalls against the criteria set out for an ecologically coherent MPA network, even after considering the remaining recommended MCZs (rMCZs) from the regional MCZ projects not designated in the first or second tranches. Consequently, Defra asked JNCC and Natural England to identify sufficient potential site options to complete the network, including any new areas needed beyond those rMCZs. New Site Options had to be explored with stakeholders. JNCC and Natural England developed an approach for identifying new site options, as set out within the paper 'Identifying potential site options to help complete the Marine Protected Area network in the waters around England'³. The approach is summarised in [Figure 2](#).

² 'Assessing progress towards an ecologically coherent MPA network in Secretary of State Waters in 2016'. Available at: <http://jncc.defra.gov.uk/page-7119>

³ 'Identifying potential site options to help complete the Marine Protected Area network in the waters around England', JNCC and Natural England 2016. Available at: <http://jncc.defra.gov.uk/page-7119>

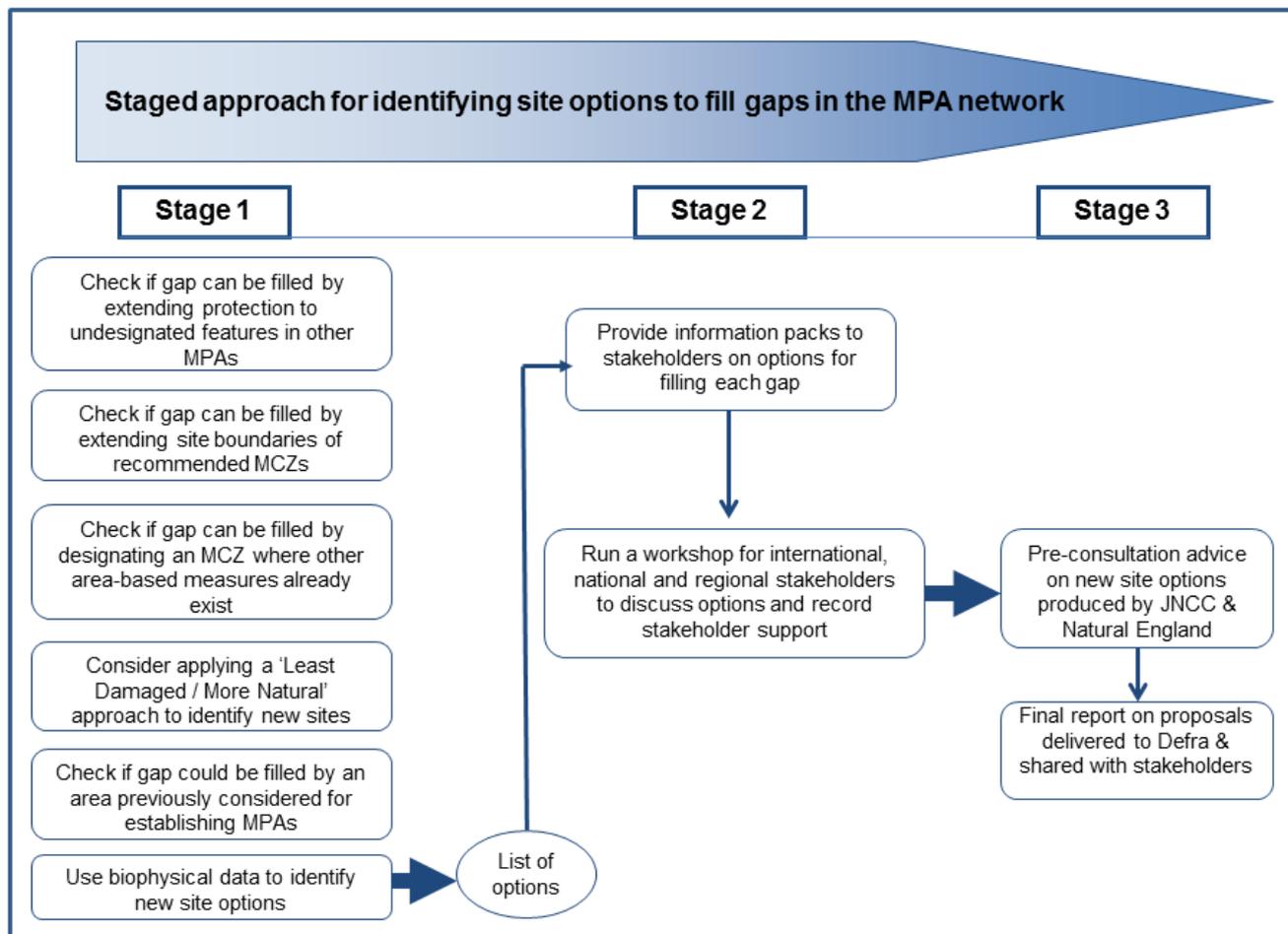


Figure 2: A stepwise approach for identifying New Site Options for possible designation as MCZs to address shortfalls in the existing MPA network.

JNCC and Natural England agreed that potential Areas of Search (AoS) would be identified in the offshore region for the following features in specific biogeographic regions to address the remaining shortfalls in the MPA network:

- Subtidal coarse sediment in the Western Channel and Celtic Sea region;
- Subtidal sand and Subtidal mixed sediments in the Eastern Channel region; and,
- Subtidal coarse sediment in the Irish Sea region.

2.1.1 Application of the agreed approach

Best available data were used for the initial process of identifying AoS following the process set out in stage 1 shown in [Figure 2](#). This stage primarily focussed on suitable sample data and the JNCC Combined Map of seabed habitats, which had been used for the MPA Network Assessment, and is the best available habitat map for UK waters. Survey data in offshore waters outside of MCZs and rMCZs have more limited coverage, therefore EUSeaMap (2012) (which is used within the Combined map) is generally the best available habitat

map for offshore waters. Datasets on human activities such as Vessel Monitoring System data⁴ on fishing vessels and the ICES Abrasion layer were also considered where activities information was required.

An initial 'long list' of possible AoS was reviewed internally by JNCC staff using expert opinion and the application of a series of value judgements to select the most appropriate AoS to progress. Decisions were made based on the ecological contribution the AoS could potentially make to the MPA network, whilst also considering activities taking place within the AoS to identify potential issues for future management. This process and the final selected AoS were discussed and agreed with Defra. The following four AoS were selected based on the methods set out in the approach paper³:

- East of Start Point – for Subtidal sand in the Eastern Channel region (Method 6: a wholly new site based on biophysical data);
- West of Copeland – for Subtidal coarse sediment in the Irish Sea region (Method 4: Least Damaged/More Natural approach but also based on biophysical data from an area previously considered for a Special Area of Conservation);
- South of Chesil Beach – for Subtidal mixed sediments in the Eastern Channel region (Method 6: a wholly new site based on biophysical data);
- West of Lundy – for Subtidal coarse sediment in Western Channel and Celtic Sea region (Method 4: Least Damaged/More Natural approach).

Defra asked JNCC and Natural England to provide information on and discuss options with stakeholders before submitting our scientific advice. This is reflected in stage 2 of the approach ([Figure 2](#)).

2.1.2 Stakeholder Workshop

JNCC hosted a two-day stakeholder workshop in Bristol on the 14th and 15th November 2016. JNCC developed workshop materials⁵ which included options papers for each of the four AoS. The options papers outlined the MPA network shortfall within the region, the potential contribution from the AoS, a habitat map, and an overview of the distribution of habitats and activities within the AoS. The workshop materials were published ahead of the workshop to allow stakeholders to familiarise themselves with the AoS, in order that they could raise any specific questions or flag additional datasets that could potentially be considered in the new sites development process. JNCC also established a web-mapping facility using the Seasketch platform⁶ to present appropriate the data for the AoS and the adjacent regions⁷. An external facilitator was utilised to help run the meeting, and to assist with the collation of thoughts and opinions.

⁴ Vessel monitoring system (VMS) identity, position, speed, and heading data from vessels fishing in offshore waters are transmitted to the Marine Management Organisation of the UK Department of Environment, Food and Rural Affairs.

⁵ JNCC Tranche 3 Stakeholder Workshop materials. Available at: <http://jncc.defra.gov.uk/page-7325>

⁶ See: <http://www.seasketch.org/home.html>

⁷ The JNCC MPA Information System for the MCZ Stakeholder workshop is available at: <http://www.seasketch.org/#projecthomepage/514868903b8e58e2201ee1ec>.

Each AoS was discussed by four separate breakout groups with stakeholders in each session. Specific interests and recommendations as well as additional information and data brought forward by stakeholders were recorded, to help to inform the decision process and advice for the new site options. Post-workshop reports were prepared to reflect all views expressed at the workshop⁵. Several stakeholders proposed modifications to the originally AoS or wholly new areas for JNCC to consider as new site options.

2.1.3 Refining Areas of Search into New Site Options

After the initial identification of sites and the stakeholder engagement, JNCC needed a further process for the selection of final AoS and then refining these areas into New Site Options that could be advised to Defra ([Figure 3](#)). The first step considered the alternative areas proposed by stakeholders alongside the original AoS identified by JNCC in terms of confidence in the feature presence and extent based on the available data. A decision tree aided the decision making as to which areas were deemed suitable for refining into site proposals and then how the AoS would be refined (Annex 1).

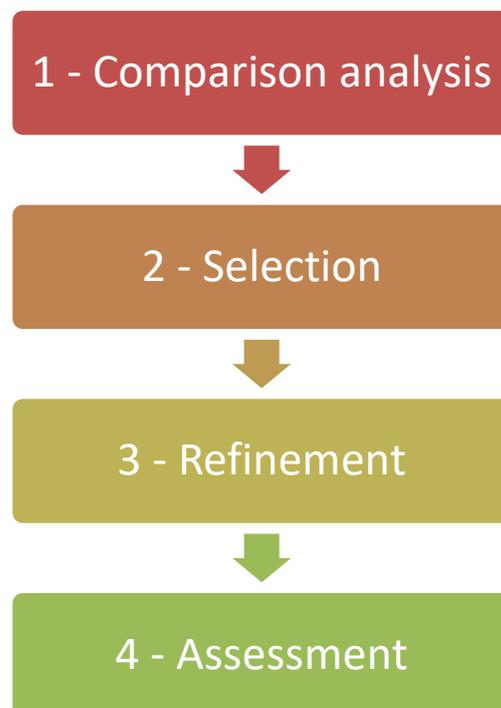


Figure 3: Steps in finalising decisions on New Site Options post- stakeholder workshop. Steps 1 and 2 used the decision tree described in [Annex 1](#).

This process allowed JNCC to consider the confidence in the presence and extent of the feature for which there was a shortfall in the MPA network, the ecological contribution that a site in the AoS could potentially make to the MPA network, the levels of human activity taking place within AoS, and how this information could be used when refining the AoS into New Site Options⁸. Step 2 then compared each of the options and

⁸ The outcome of this initial step was presented in a workshop report published on JNCC's website so that stakeholders could see we had taken their proposals into consideration. Available here: http://jncc.defra.gov.uk/pdf/Alternatives%20Workshop%20report_FINAL.pdf

selected the AoS most appropriate to move onto the next stage. This step used a combination of the outcomes of the decision tree but also expert judgement. The AoS selected as suitable for New Site Options were refined in stage 3, which included delineating indicative site boundaries.

The delineation of boundaries considered the available data supporting the spatial distribution of the proposed features, alongside the information received from stakeholders and information on human activities. Modifications made to the boundary of the AoS followed the MCZ boundary guidance set out in the MCZ Ecological Network Guidance⁹. This process resulted in the following four New Site Options (see Figure 4, Figure 5 and Figure 6).

- East of Start Point – for Subtidal sand in the Eastern Channel region;
- West of Copeland – for Subtidal coarse sediment in the Irish Sea region;
- South West Approaches to Bristol Channel – for Subtidal coarse sediment in Western Channel and Celtic Sea region; and,
- West of Wight Barfleur – for Subtidal mixed sediments in the Eastern Channel region.

These became the MCZ New Site options considered appropriate for further consideration in the Tranche Three process as potential MCZs and were further assessed in step 4, using the methods and protocols outlined in Section 2.4.

2.2 Review of New Site Options

JNCC completed site assessments between December 2016 and January 2017 for the four offshore New Site Options. The site narratives in section 3 describe JNCC's assessments of:

- confidence in feature presence and feature extent;
- confidence in feature condition;
- feature vulnerability and feature risk; and,
- the data to support the designation of a feature or site from scientific evidence-based perspective.

JNCC has not previously provided advice on the MCZ New Site options, so our assessments are based on the best-available evidence (see [Table 2](#)), and have followed published peer-reviewed protocols established throughout previous tranches of MCZ advice¹⁰ (see Section 2.4).

JNCC assessed 10 features within the 4 offshore New Site Options.

⁹ Natural England and JNCC 'MCZ Project Ecological Network Guidance' (2010). Available at: http://jncc.defra.gov.uk/PDF/100705_ENG_v10.pdf

¹⁰ Protocols are listed on the JNCC website <http://jncc.defra.gov.uk/page-5999>

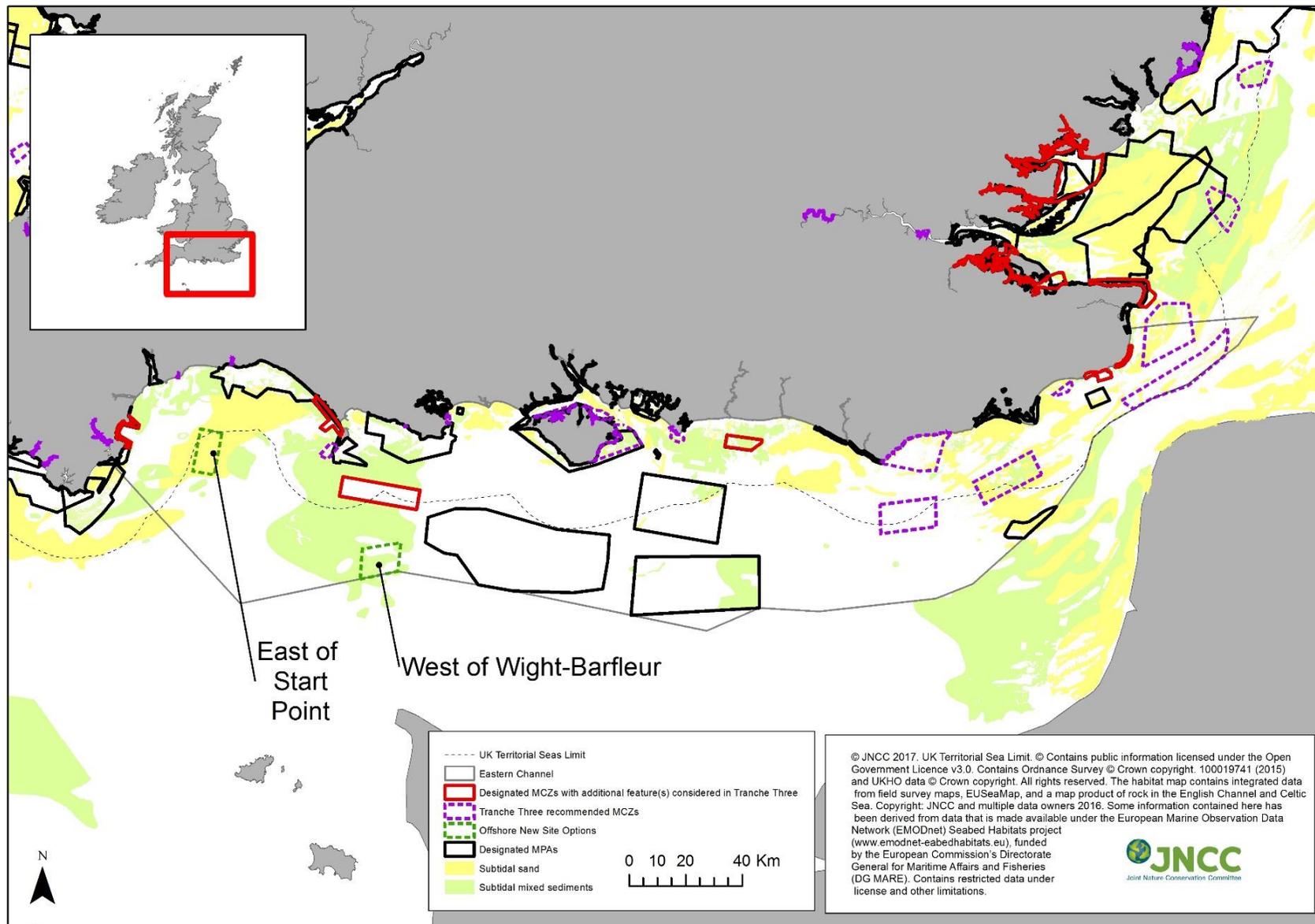


Figure 4: New Site Options identified in the Eastern Channel region and the distribution of Subtidal sand and Subtidal mixed sediment habitats for which gaps remain in the MPA network.

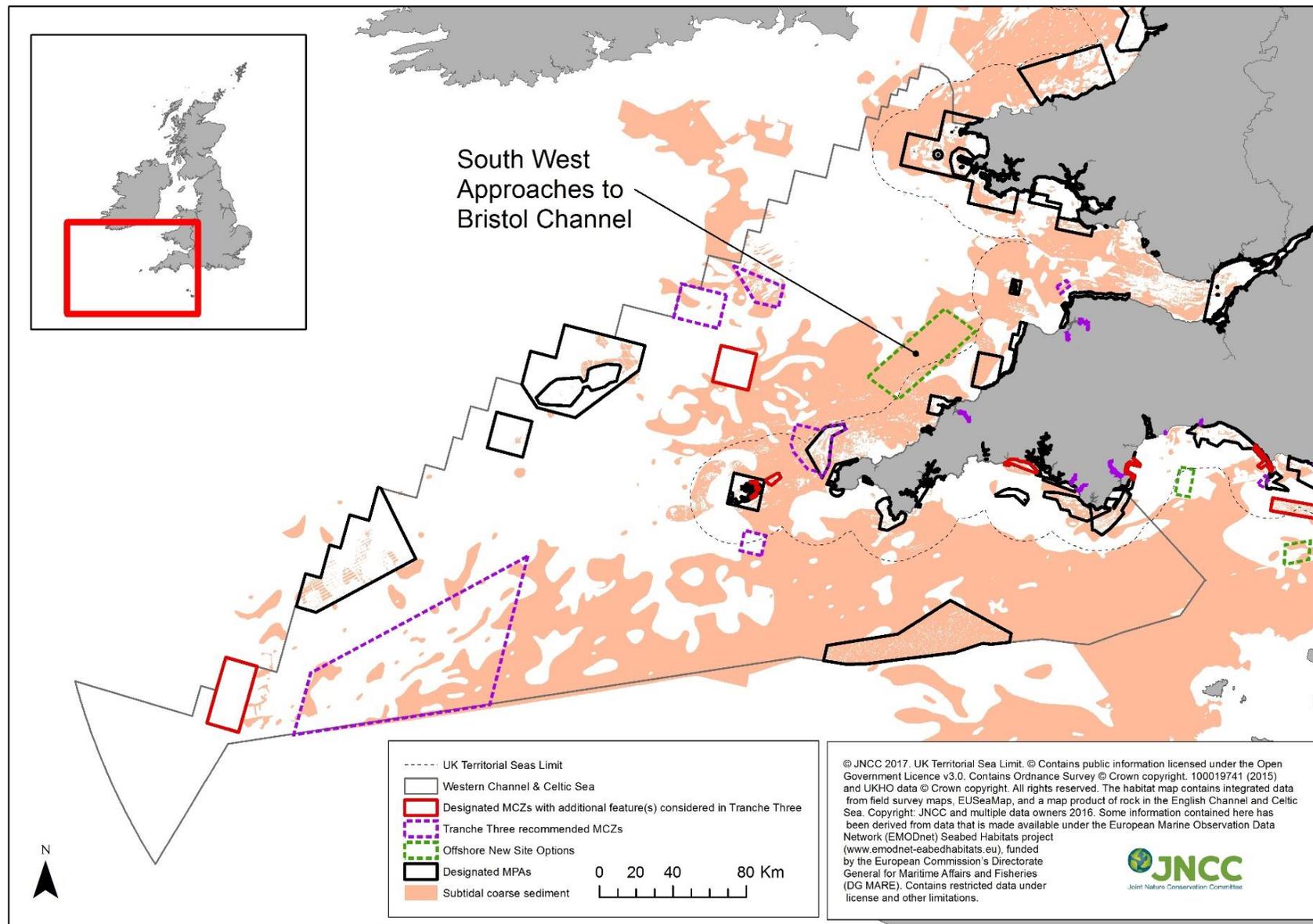


Figure 5: New Site Options identified in the Western Channel and Celtic Sea region and the distribution of Subtidal coarse sediment habitats for which a gap remains in the MPA network.

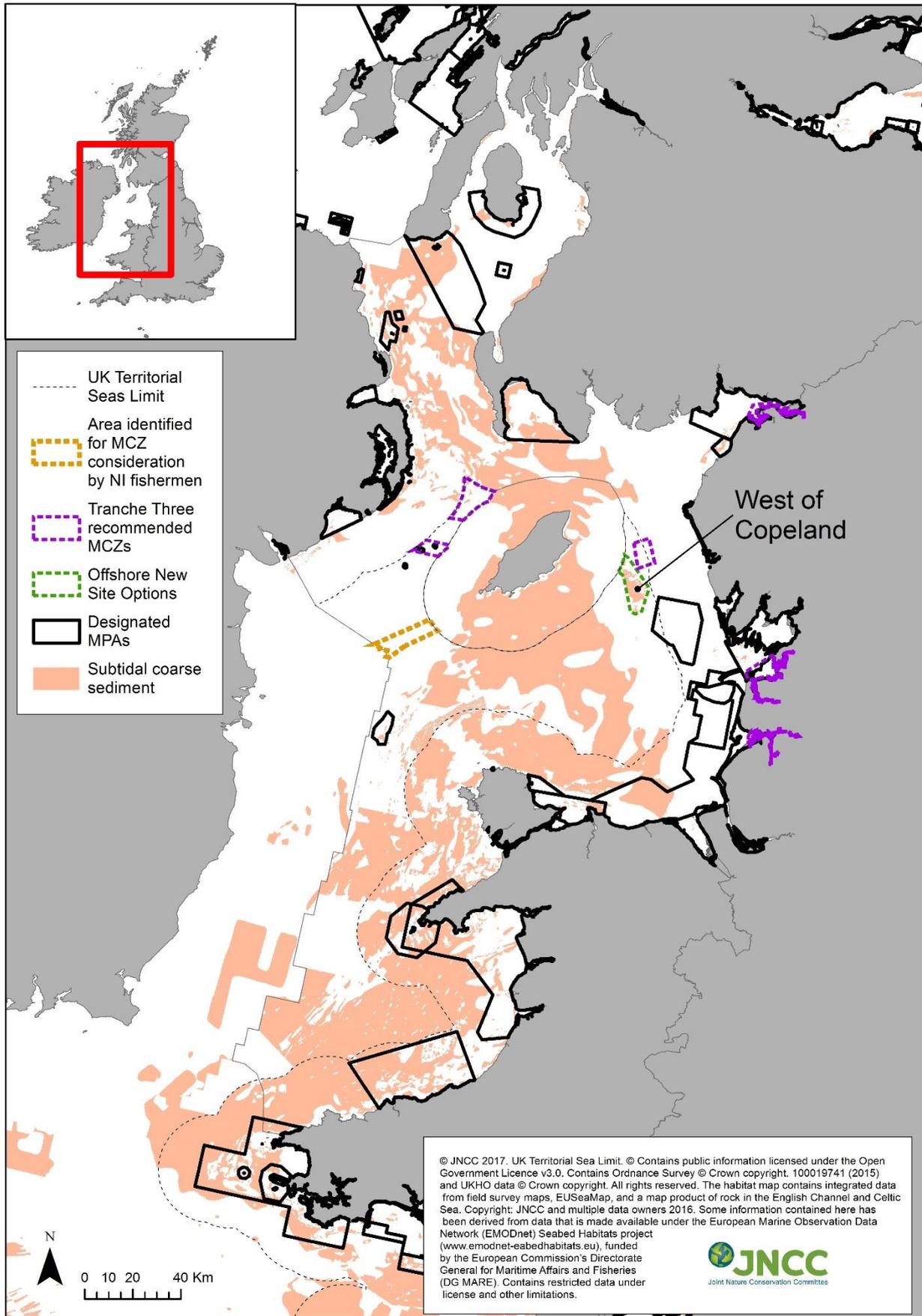


Figure 6: New Site Options identified in the Irish Sea region and the distribution of Subtidal sand and Subtidal coarse sediment habitats for which gap remains in the MPA network.

2.3 Data used in assessment of New Site Options

Table 2: Biophysical data used in assessment of New Site Options

New Data
EUSeaMap (2012) ¹¹
Cefas data collation 2011 ¹²
British Geological Survey Particle Size Analysis data ¹³
Marine Recorder snapshot ¹⁴
2006 Mapping Annex I Reefs in the Central English Channel survey ¹⁵
Dorset Wildlife Trust habitat map from 2007 Lyme Bay study ¹⁶
2004-11 RV Corystes East of Isle of Man Sandbank survey by JNCC and AFBI ¹⁷
JNCC Annex I Sandbanks layer ¹⁸
Envision SAC 067 Eastern Irish Sea mapping (2013) ¹⁹

¹¹ Further information available at: <http://jncc.defra.gov.uk/page-5020>

¹² Data from a project commissioned by JNCC for Cefas to review their data holdings to identify any additional data to support the MCZ process, out with the MCZ surveys or verification work.

¹³ An updated version of the BGS PSA dataset was downloaded from http://mapapps2.bgs.ac.uk/geindex_offshore/home.html in August 2015 and translated into broad-scale habitats by JNCC

¹⁴ JNCC Marine Recorder. Available at: <http://jncc.defra.gov.uk/page-1599> [Version on 07/07/2016]

¹⁵ 2006 Mapping Annex I Reefs in the Central English Channel survey. Report available here: <http://www.cefas.co.uk/publications/techrep/techreport145.pdf>

¹⁶ Dorset Wildlife Trust habitat map from 2007 Lyme Bay study. Report available here: http://www.lymebayreserve.co.uk/download-centre/files/LymeBay_AppendixA_DeskReviewExclFish_180914.pdf

¹⁷ 2004-11 RV Corystes East of Isle of Man Sandbank survey by JNCC and AFBI. Report available here: <http://jncc.defra.gov.uk/page-4449>

¹⁸ JNCC Annex I Sandbanks layer. More information available at: <http://jncc.defra.gov.uk/page-3058>

¹⁹ Envision Mapping (2013) NE Commissioned Report: Eastern Irish Sea Habitat Mapping

2.4 Methods and protocols for assessing New Site Options

2.4.1 Confidence in feature presence and extent

JNCC completed confidence assessments for the presence and extent of the proposed features in line with the criteria outlined in Technical Protocol E²⁰, and the supporting guidance on its application²¹. Methods defined and described within JNCC's previous scientific advice were applied where relevant. A table detailing the full assessment will be provided in an Annex to the full report due to be published in summer 2017.

2.4.2 Confidence in feature condition

JNCC assessed the confidence in a feature's condition in line with MCZ Technical Protocol F²². The protocol outlines different approaches, depending on whether the feature's condition was assessed using direct evidence, or by way of the vulnerability assessment process. The assessment results are provided in the site-specific sections below. A table detailing the full assessments will be provided in an Annex to the full report due to be published in summer 2017.

2.4.3 Advice on the General Management Approach required to achieve conservation objectives

The conservation objective for each feature is to achieve *favourable condition*²³. The General Management Approach (GMA) is the broad action required to achieve the conservation objective based on a feature's present condition (i.e. to maintain or to restore). A vulnerability assessment was undertaken which used wider activities data and VMS fisheries data from 2009-15²⁴. However, JNCC reserves the right to further amend our advice should new information that informs feature condition become available.

2.4.4 Feature risk

The methodology for assessing feature risk is contained within the annex to the paper '*MCZ Levels of Evidence – Advice on when data supports a feature/site for designation from a scientific, evidence-based*

²⁰ MCZ Technical Protocol E. Available at:

http://jncc.defra.gov.uk/pdf/120111_SNCB%20MCZ%20Advice_Protocol_Feature%20Evidence%20V5.0.pdf

²¹ Guidance on aspects of the practical application of the Technical Protocol E for MPA work. Available at:

<http://jncc.defra.gov.uk/pdf/181113%20Protocol%20E%20supplementary%20guidance.pdf>

²² MCZ Technical Protocol F – Assessing scientific confidence of feature condition. Available at:

http://jncc.defra.gov.uk/pdf/120106_SNCBs%20MCZ%20Advice%20protocol%20F_confidence%20in%20feature%20condition_v5%200_FINAL.pdf

²³ Please note that the full conservation objective for each feature is: The conservation objective of the 'MCZ' is that the habitats—
(a) so far as already in favourable condition, remain in such condition [known as *maintain*]; and
(b) so far as not already in favourable condition, be brought into such condition, and remain in such condition [known as *restore*].

²⁴ Vessel monitoring system (VMS) records contain the identity, the position, the speed, and heading data from vessels fishing in offshore waters are transmitted to the Marine Management Organisation of the UK Department of Environment, Food and Rural Affairs. For this analysis, we used all available VMS records for vessels active in the areas under consideration for the period 2009-2015.

*perspective*²⁵. For each site, two risk scores are provided for each feature that considers the current and future risk for each feature. Risk has been categorised as High (Red), Moderate (Amber), or Low (Green) depending on how sensitive a feature is to pressures. There are a number of caveats associated with this assessment as set out in the methodology.

2.4.5 Advice on when data support a feature and site for designation from a scientific, evidence-based perspective

The process for establishing 'data sufficiency' or scientific justification for designation of a feature or site is outlined in the MCZ Levels of evidence protocol²⁵ and the addendum from November 2016²⁶. Firstly, JNCC's advice determines whether a feature has enough data to support its designation, using outputs of the application of Technical Protocol E²⁰ and its supplementary guidance²¹.

Where there are inadequate data to support confidence in feature presence or extent, additional conservation/ecological considerations that may indicate any priority for designation of the feature are considered. This additional consideration uses information from JNCC's 2016 network analysis²⁷ along with expert judgement²⁸. Further detail on the application of expert judgement is provided is outlined in the MCZ Levels of evidence protocol²⁴ and the addendum²⁵. The assessment also considers risk (Section 3.4), and whether a precautionary approach should be taken to protect the feature.

JNCC's advice on when scientific data supports a feature/site for designation is presented in a table with an accompanying narrative where necessary. Features have also been colour coded green, yellow and red depending on whether they meet the criteria, partially meet the criteria or don't meet the criteria. Our approach aims to provide Defra with clear advice on whether a feature/site could be designated as a MCZ.

2.4.6 Quality Assurance Process

When compiling our advice, JNCC endeavour to comply with the Government Chief Scientific Adviser's guidelines for preparing scientific advice²⁹, and the recommendations of the Graham-Bryce report³⁰ that reviewed the evidence process for selecting marine Special Areas of Conservation (SACs). JNCC has also

²⁵ JNCC/NE, Advice on when data support a feature/site for designation from a scientific, evidence-based perspective, July 2014. Available at: <http://jncc.defra.gov.uk/page-5999>

²⁶ Addendum to MCZ Levels of evidence protocol. Available at: http://jncc.defra.gov.uk/pdf/MCZDataSufficiency_v6_0_addendum.pdf

²⁷ JNCCs 2016 Network Analysis. Methods section available at: http://jncc.defra.gov.uk/pdf/JNCC_NetworkProgressInSoSWaters2016_Methods_Final.pdf Results section available at: http://jncc.defra.gov.uk/pdf/JNCC_NetworkProgressInSoSWaters2016_Results_Final.pdf

²⁸ Barnard, S and Boyes, S.J. (2013) Review of Case Studies and Recommendations for the Inclusion of Expert Judgement in Marine Biodiversity Status Assessments. JNCC Report 490. Available at: <http://jncc.defra.gov.uk/page-6513>

²⁹ Guidelines for preparing scientific advice. Available at: <http://www.bis.gov.uk/go-science/science-in-government/strategy-and-guidance>

³⁰ Graham-Bryce Report. Available at: <https://www.gov.uk/government/publications/independent-review-of-the-evidence-process-for-selecting-marine-special-areas-of-conservation>

applied its own internal Evidence Quality Assurance (EQA) Policy³¹ to ensure our advice is scientifically robust.

The JNCC MCZ Evidence Quality Assurance (EQA) Group reviewed the assessment process, and applied judgement where required to ensure that our assessments in the degree of confidence in the presence and extent of features were consistent and appropriate, using a clearly described rationale. The EQA group signed off the assessments once it was satisfied that all technical protocols had been followed.

Overall, we are content that our advice is a quality-assured product, and is fit for purpose to assist the UK Government to make decisions on the designation of MCZs. Our advice has been quality assured through our internal systems, and reviewed and signed-off by our independent non-executive MPA Sub-Group.

Detailed information on the QA procedures followed during this advice package can be found in Annex 2 within the Evidence QA statement.

³¹ JNCC Evidence Quality Policy. Available at: <http://jncc.defra.gov.uk/page-6675>

3 Results

3.1 Summary of assessments

Table 3: Site assessment summary table

The following table summarises the outcomes of JNCC's assessments using evidence available up to 23rd December 2016.

NB: This table is only a summary and it must be used in conjunction with the full rationale behind each assessment provided in the subsequent site narratives.

Site Name	Ecological Network Guidance (ENG) feature	Confidence in feature presence (MCZ Technical Protocol E ²⁰ and guidance ²¹)	Confidence in feature extent/distribution (MCZ Technical Protocol E ²⁰ and guidance ²¹)	Confidence in feature condition (MCZ Technical Protocol F ²²)	General Management Approach advised (MCZ Conservation Objective Guidance)
East of Start Point	Subtidal sand	High	High	Low	Recover
South West Approaches to Bristol Channel	Moderate energy circalittoral rock	Low	Low	Low	Recover
	Subtidal coarse sediment	High	Moderate	Low	Recover
	Subtidal sand	Moderate	Moderate	Low	Recover
West of Copeland	Subtidal coarse sediment	High	Moderate	Low	Recover
	Subtidal sand	High	Moderate	Low	Recover
	Subtidal mud	Low	Low	Low	Recover
	Subtidal mixed sediments	High	High	Low	Recover
	Subtidal coarse sediment	High	High	Low	Recover

Site Name	Ecological Network Guidance (ENG) feature	Confidence in feature presence (MCZ Technical Protocol E²⁰ and guidance²¹)	Confidence in feature extent/distribution (MCZ Technical Protocol E²⁰ and guidance²¹)	Confidence in feature condition (MCZ Technical Protocol F²²)	General Management Approach advised (MCZ Conservation Objective Guidance)
West of Wight Barfleur	Subtidal mixed sediments	High	Moderate	Low	Recover

3.2 East of Start Point

JNCC's most recent assessment of the MPA network² identified a shortfall in the protection of Subtidal sand in the Eastern Channel region. Only ~11% of Subtidal sand would be protected in MPAs within the region (including potential rMCZs from MCZ Regional Projects), falling short of the minimum target for adequacy of 15% set out in the Ecological Network Guidance (ENG)⁹ for this feature. The shortfall in proportion translates to an area of approximately 100km² in the region.

Following the agreed approach for identifying potential site options to help complete the MPA network³, JNCC investigated the best available data and the human activities known to occur in the region. Following method 6 from that paper, JNCC identified an Area of Search (AoS) based on biophysical data to the south of the Lyme Bay and Torbay SAC¹⁶ which was called 'East of Start Point' AoS. Following the stakeholder workshop and the refinement process described in Section 1 above, the East of Start Point New Site Option was developed out of this original AoS and is situated in the west of Eastern Channel region, approximately 12nm south of Lyme Bay (see [Figure 7](#)). The New Site Option covers approximately 116 km² and the extent of the Subtidal sand sediments contributes 115 km² towards the remaining shortfall for this feature in the region. Whilst the amount of Subtidal sand in the site is more than the remaining shortfall in the region, the site boundary has been reduced as much as possible without compromising the available evidence base supporting the presence and extent of the features, and not just including the bare minimum also allows for some contingency when it comes to meeting the targets for this feature.

3.2.1 Assessment of Feature Presence and Extent

Ground-truth data available for this New Site Option are derived from a combination of British Geological Survey (BGS) records and the 2011 Cefas data mining exercise¹². The results of Particle Size Analysis (PSA) of seabed samples have been translated into their constituent broad-scale habitats using the Modified Folk Triangle³². There is no recent habitat map from direct survey for the site; only maps derived from habitat models including EUSeaMap, the Cefas Mapping Annex I Reefs in the central English Channel survey in 2006¹⁵ and the 2007 Wildlife Trust survey of Lyme Bay and Torbay SAC¹⁶.

JNCC followed Technical Protocol E²⁰ and the associated guidance²¹ to assess confidence in feature presence and feature extent, utilising all available data for the site. A summary of the assessments is presented below in Table 4.

³² UK Sea Map Technical Report 3. See: http://jncc.defra.gov.uk/pdf/UKSeaMap2010_TechnicalReport_3_Substrate2.pdf

Table 4: East of Start Point New Site Option Evidence Assessment Summary

Site	Feature	Evidence Assessment Results			
		Confidence in presence	Rationale for confidence in Feature presence	Confidence in extent	Rationale for confidence in Feature extent
East of Start Point New Site Option	Subtidal coarse sediment	Low	There is only 1 ground-truth sample and a modelled habitat map.	Low	There is only 1 ground-truth sample and a modelled habitat map.
	Subtidal sand	High	Multiple ground-truth PSA samples and a modelled habitat map verify the presence of Subtidal sand within the New Site Option.	High	The extent of Subtidal sand is supported by a modelled habitat map and 24 ground-truth samples.

JNCC have **Low** confidence in the presence and extent of **Subtidal coarse sediment** since there is only supporting evidence from a modelled habitat map and 1 PSA ground-truth sample. Furthermore, the habitat model indicates there is less than 1km² of sediment so JNCC will not provide any further advice on this feature in this new site option.

JNCC have **High** confidence in the presence of **Subtidal Sand** in the New Site Option by virtue of multiple ground-truth samples collected by Cefas at 18 locations within 1km² between 1999 and 2008, and half a dozen BGS samples collected in 1974. **High** confidence in the extent of **Subtidal Sand** is supported by the good distribution of sample data.

3.2.2 Advice on the General Management Approach for MCZ features

A summary of JNCC’s assessments of confidence in feature condition and the General Management Approach (**GMA**) proposed are presented below in Table 5 (see Section 2.4.3 for the approach).

Table 5: Summary of JNCC’s conservation advice for features in East of Start Point New Site Option

Site	Feature	Confidence in Feature condition (MCZ Technical Protocol F ²²)	General Management Approach advised (MCZ Conservation Objective Guidance)
East of Start Point New Site Option	Subtidal sand	Low	Recover

After reviewing currently available data, JNCC advise that a GMA of **Recover** is appropriate for the feature **Subtidal sand**.

Aggregated VMS data of fishing activity for 2009–2015 show relatively high levels of Beam trawling (max 1,622 hours 2009-2015) and low to moderate levels of Dredging (max 1,001 hours 2009-2015) are occurring over the feature within the site. **Subtidal sand** is highly sensitive to pressures associated with benthic trawling. As a result, **Subtidal sand** is considered to have high vulnerability to benthic trawling and therefore JNCC advise a GMA of **Recover** for **Subtidal sand**.

3.2.3 Confidence in Feature condition

Technical Protocol F²² states that confidence defaults to low for any feature condition established indirectly through the vulnerability assessment approach unless further criteria are satisfied. JNCC has **Low** confidence in feature condition for the broad-scale habitat **Subtidal sand**.

3.2.4 Feature Risk

Section 2.4.4 provides information on the data used and methodology followed for the assessment of risk, set out in Table 6. Details on those pressures to which features are currently **Moderately** or **Highly** vulnerable, and features that are considered to be at **High** future risk and the pressures to which these features are **Highly** sensitive (with moderate/high confidence) will be presented in the full report to be published later in 2017.

Table 6: East of Start Point New Site Option feature risk assessment

Site	Feature	Current risk	Future risk ³³
East of Start Point New Site Option	Subtidal sand	High Feature is highly vulnerable to one/more pressures associated with benthic trawling.	High Feature is highly sensitive (with moderate/high confidence) to physical removal (extraction of substratum).

3.2.5 Advice on the scientific basis to support feature/site designation

JNCC considered the 'data sufficiency' or scientific justification for designation of a feature or site as described in Section 2.4.5 above. Firstly, JNCC's advice determines whether a feature has enough data to support its designation, and then reviews the site as a whole.

³³ The assessment of future risk will not incorporate any consideration of exposure of features to pressures from ongoing activities or any judgement of the likelihood of activities occurring in the future. This is based purely on a features sensitivity to pressures and therefore may result in a different or lower risk score than Current Risk.

Feature assessment

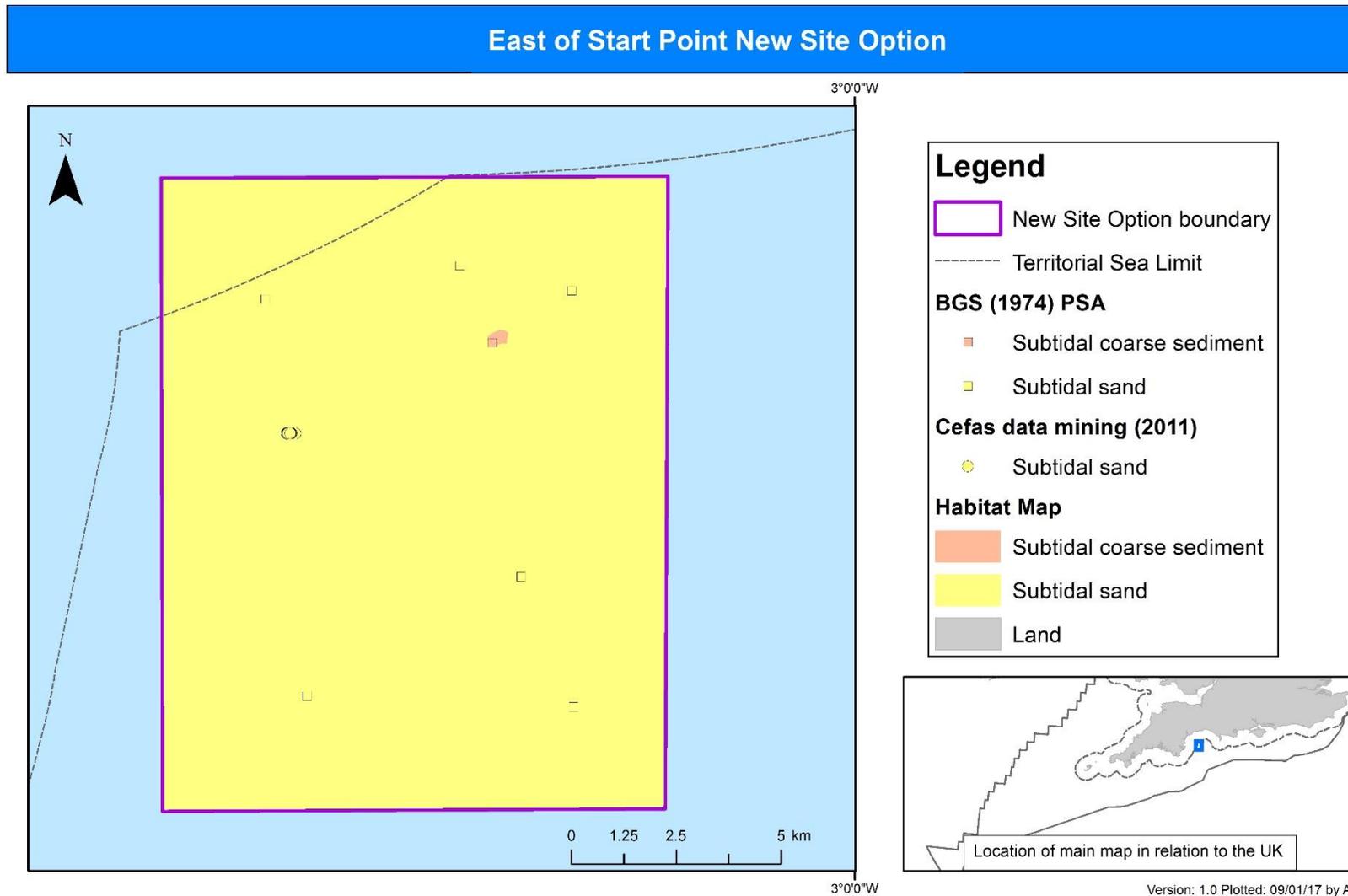
Table 7: East of Start Point New Site Option feature data sufficiency assessment and additional conservation / ecological considerations.

Site	Feature	Q1a. Confidence score of at least moderate for feature presence?	Q1b. Is 1a based only on parent habitat being present?	Q1c. Confidence score of at least moderate for extent / distribution ?	Outcome from Question 1 assessment	Q2a: Does the feature fill a 'gap' in the network AND have confidence score of at least moderate for feature presence?	Q2b: Is the feature at high risk of damage?	Outcome from Question 2 assessment
East of Start Point New Site Option	Subtidal sand	Yes (High confidence)	No	Yes (High confidence)	Data support designation of feature			

Site assessment

Table 8: East of Start Point New Site Option site level assessment

Question	Response
Q1: Are there grounds for considering designating more features at this site in order to fully protect one or more features which do have sufficient confidence?	N/A
Q2: Where this can be answered, what proportion of area do the features that meet Q1 in the 'Feature Assessment' above cover within the site?	99.4%
Q3: Does this site fill a 'gap' in the network based on confidence assessments in feature presence and extent?	<p>Yes – This site has been specifically identified to address residual gaps in the MPA network for Subtidal sand in the Eastern Channel region. Currently 3.5% of Subtidal sand is protected within MPAs which would rise to 13% if all potential Tranche Three rMCZs were designated. The minimum ENG target is 15% however and so an additional 2% would still be needed. This site would add 4% to the minimum target for Subtidal sand.</p> <p>This site could also improve connectivity between inshore and offshore sites protecting subtidal sediment habitats.</p>



© JNCC 2016. UK Territorial Sea Limit & UK Continental Shelf - Contains public sector information, licensed under the Open Government Licence v2.0, from the United Kingdom Hydrographic Office
 © Crown copyright. GB coastline - Contains Ordnance Survey data © Crown copyright. BGS Sample points Contains British Geological Survey materials © NERC 2015. Cefas data mining records
 © Cefas/JNCC 2011. Information contained here has been derived from data that is made available under the European Marine Observation Data Network (EMODnet) Seabed Habitats project
 www.emodnet-seabedhabitats.eu), funded by the European Commission's Directorate General for Maritime Affairs and Fisheries (DG MARE). Map Projection:WGS84, Inset: BNG.

Figure 7: Distribution of broad-scale habitats in East of Start Point New Site Option

3.3 South West Approaches to Bristol Channel

JNCC's most recent assessment of the MPA network identified a shortfall in the protection of Subtidal coarse sediment in the Secretary of State waters part of the Western Channel and Celtic Seas Region². Only 13.6% of Subtidal coarse sediment would be protected in MPAs within the Secretary of State waters part of the region, falling short of the minimum target for adequacy of 17% set out in the Ecological Network Guidance⁹ (ENG) for this feature. The shortfall in proportion translates to an area of approximately 1,220 km² in the region.

Following the agreed approach for identifying potential site options to help complete the MPA network³, JNCC investigated the best available data and the human activities known to occur in the region. Following method 4 in that paper, JNCC identified an Area of Search (AoS) called West of Lundy by applying the 'Least Damaged/ More Natural' approach, to identify areas where there are fewer human activities occurring, and therefore the seabed habitats are potentially less damaged. The AoS included approximately 1,954km² of Subtidal coarse sediment, more than would be required to complete the shortfall in the region, if all other rMCZs are designated in Tranche Three. Following discussions with stakeholders and further consideration of data, the boundary of the West of Lundy AoS was refined to the present South West Approaches to Bristol Channel New Site Option which includes approximately 1,104 km² of Subtidal coarse sediment.

The South West Approaches to Bristol Channel New Site Option is located offshore from the northern coast of Cornwall and spans the 12 nm boundary (see [Figure 8](#)). The eastern half of the site overlaps with the Bristol Channel Approaches candidate Special Area of Conservation (cSAC) for harbour porpoise.

3.3.1 Assessment of Feature Presence and Extent

The British Geological Survey (BGS) have records of grab samples from within the site area which have undergone Particle Size Analysis (PSA) to determine the sediment type. JNCC translated the results of the PSA into the broad-scale habitats using the Modified Folk Triangle³². There is no habitat map from recent direct survey for the site and therefore the EUSeaMap habitat map derived from modelling is the best available habitat map for the site.

JNCC followed Technical Protocol E²⁰ and the associated guidance²¹ to assess confidence in feature presence and feature extent, utilising all available data for the site. A summary of the assessments is presented below in Table 9. The data and detailed assessments will be available in the full report in summer 2017.

Table 9: South West Approaches to Bristol Channel New Site Option Evidence Assessment Summary

South West Approaches to Bristol Channel New Site Option	Feature	Evidence Assessment Results			
		Confidence in presence	Rationale for confidence in Feature presence	Confidence in extent	Rationale for confidence in Feature extent
	Moderate energy circalittoral rock	Low	There are no ground-truth records to verify the presence of the feature and presence is only supported by EUSeaMap. Therefore, confidence in presence is Low.	Low	There are no ground-truth records to verify the presence of the feature and extent is only supported by EUSeaMap. Therefore, confidence in extent is Low.
	Subtidal coarse sediment	High	Confidence in the presence of the feature is derived from 19 interpreted ground-truth records and the EUSeaMap habitat map.	Moderate	The interpreted ground-truth records support the mapped extent of the feature from EUSeaMap however large sections of the mapped extent do not include any ground-truth records. Confidence in extent is therefore Moderate.
	Subtidal sand	Moderate	There are two ground-truth records that verify the presence of the feature within the site. Confidence in presence is therefore Moderate.	Moderate	EUSeaMap habitat map indicates two small patches of the feature within the site. Both of these contain a supporting ground-truth record. Therefore, confidence in extent is Moderate.

The EUSeaMap habitat map indicates some small scattered patches of **Moderate energy circalittoral rock** within the site. There are no available ground-truth data to verify the presence of this feature in South West Approaches to Bristol Channel New Site Option. JNCC has **Low** Confidence in presence and extent of **Moderate energy circalittoral rock**, because the feature presence and extent is only known from the habitat model.

There are 19 ground-truth records from the BGS PSA dataset supporting the presence of **Subtidal coarse sediment** in South West Approaches to Bristol Channel New Site Option. As there are more than five ground-truth records, JNCC has **High** confidence in the presence of the feature. The EUSeaMap model predicts a large area of **Subtidal coarse sediment** within the site. This modelled extent was informed by the BGS PSA records and therefore there is agreement between the ground-truth records and the mapped extent. There are large areas of the mapped extent of **Subtidal coarse sediment** without any ground-truth records, for example in the south of the site and a band near the middle. According to Protocol E²⁰ and associated guidance²¹, sample data needs to be well distributed across more than 50% of the modelled extent for confidence in feature extent to be High. Expert judgement has been used to assign **Moderate** confidence in the extent of **Subtidal coarse sediment** in South West Approaches to Bristol Channel New Site Option because the ground-truth records are not considered to be well distributed over the mapped extent of the feature.

JNCC’s confidence in the presence of **Subtidal sand** is **Moderate** because there are two ground-truth records from the BGS PSA records. The EUSeaMap model shows two small patches of **Subtidal sand** within

the site boundary. Both these patches contain a ground-truth record for **Subtidal sand**. The ground-truth records are evenly distributed in the mapped extent of **Subtidal sand** modelled by EUSeaMap, therefore in accordance with Protocol E and associated guidance JNCC’s confidence in the modelled extent is **Moderate**.

3.3.2 Advice on the General Management Approach for MCZ features

A summary of JNCC’s assessments of confidence in feature condition and the General Management Approach (**GMA**) proposed are presented below in Table 10 (see Section 2.4.3 for the approach). Further information on the vulnerability assessments will be provided in the full report to be published later in 2017.

Table 10: Summary of JNCC’s conservation advice for features in South West Approaches to Bristol Channel New Site option

Site	Feature	Confidence in Feature condition (MCZ Technical Protocol F ²²)	General Management Approach advised (MCZ Conservation Objective Guidance)
South West Approaches to Bristol Channel New Site Option	Moderate energy circalittoral rock	Low	Recover
	Subtidal coarse sediment	Low	Recover
	Subtidal sand	Low	Recover

Aggregated VMS data of fishing activity for 2009–2015 show demersal trawling, beam trawling and some boat dredging occurring within the site. Demersal trawling dominates fishing activity in the south of the site. Most cells (of 0.05 by 0.05 decimal degrees) in the south western corner of South West Approaches to Bristol Channel New Site Option have over 900 hours of demersal trawling over a seven-year period. In one grid cell, a total of 463 hours of beam trawl, 357 hours of boat dredge and 1,247 hours of demersal trawl occurred between 2009 and 2015. In the northern half of the site almost all cells experienced over 630 hours of beam trawling over the seven years, which is the threshold for high exposure to associated pressures. Several cells in the northern corner of the site experienced >1,000 hours of beam trawling between 2009 and 2015. These levels of activity indicate the features experience high exposure to some pressures that are known to have an adverse effect on feature quality. All the broad-scale habitats within the South West Approaches to Bristol Channel New Site Option are highly sensitive to pressures associated with benthic trawling. As a result, **Moderate energy circalittoral rock**, **Subtidal coarse sediment** and **Subtidal sand** are considered to have high vulnerability to benthic trawling and JNCC advise a GMA of **Recover**.

3.3.3 Confidence in Feature condition

Technical Protocol F²², states that confidence defaults to low for any feature condition established indirectly through the vulnerability assessment approach unless further criteria are satisfied. JNCC has low confidence in the extent of **Moderate energy circalittoral rock**, **Subtidal coarse sediment** and **Subtidal sand** have a range of sensitivities to the pressures to which they are considered moderately or highly vulnerable. As none of the features satisfy the additional criteria, JNCC’s confidence in condition is **Low** for **Moderate energy circalittoral rock**, **Subtidal coarse sediment** and **Subtidal sand**.

3.3.4 Feature Risk

Section 2.4.4 provides information on the data used and methodology followed for the assessment of risk, as set out in Table 11. Details on those pressures to which features are currently **Moderately** or **Highly** vulnerable, and the features that are considered to be at **High** future risk and the pressures to which these features are **Highly** sensitive (with moderate/high confidence) will be presented in the full report to be published later in 2017.

Table 11: South West Approaches to Bristol Channel New Site Option feature risk assessment

Site	Feature	Current risk	Future risk ³³
South West Approaches to Bristol Channel New Site Option	Moderate energy circalittoral rock	High Feature is highly vulnerable to one/more pressures associated with benthic trawling.	High Feature is highly sensitive (with moderate/high confidence) to the removal of non-target species.
	Subtidal coarse sediment	High Feature is highly vulnerable to one/more pressures associated with benthic trawling.	Moderate Feature is moderately sensitive (with moderate/high confidence); or Feature is highly sensitive (with low confidence) to surface abrasion: damage to seabed surface features; and physical removal (extraction of substratum).
	Subtidal sand	High Feature is highly vulnerable to one/more pressures associated with benthic trawling.	High Feature is highly sensitive (with moderate/high confidence) to physical removal (extraction of substratum).

3.3.5 Advice on the scientific basis to support feature/site designation

JNCC considered the ‘data sufficiency’ or scientific justification for designation of a feature or site as described in Section 2.4.5 above. Firstly, JNCC’s advice determines whether a feature has enough data to support its designation, and then reviews the site as a whole.

Feature assessment

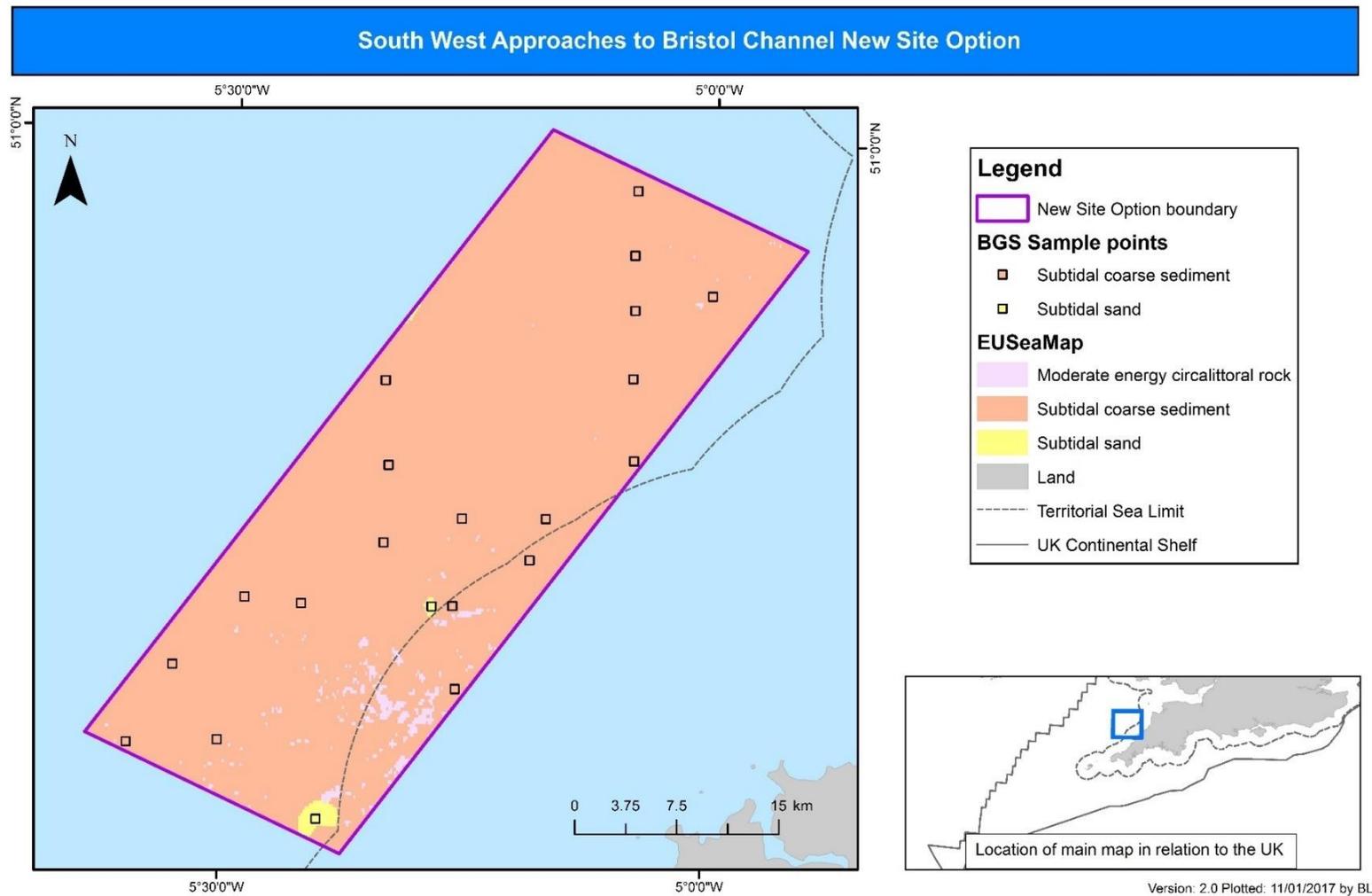
Table 12: South West Approaches to Bristol Channel New Site Option feature data sufficiency assessment and additional conservation / ecological considerations.

Site	Feature	Q1a. Confidence score of at least moderate for feature presence?	Q1b. Is 1a based only on parent habitat being present?	Q1c. Confidence score of at least moderate for extent / distribution ?	Outcome from Question 1 assessment	Q2a: Does the feature fill a 'gap' in the network AND have confidence score of at least moderate for feature presence?	Q2b: Is the feature at high risk of damage ?	Outcome from Question 2 assessment
South West Approaches to Bristol Channel New Site Option	Moderate energy circalittoral rock	No (Low confidence)	No	No (Low confidence)	Move to Question 2 of the feature assessment	No – the feature is already adequately protected within the region.	Yes	Feature should be further considered - however JNCC advise that at present Defra do not designate this feature as there are no ground-truth data to support the feature's presence in the site.
	Subtidal coarse sediment	Yes (High confidence)	No	Yes (Moderate confidence)	Data support designation of feature			
	Subtidal sand	Yes (Moderate confidence)	No	Yes (Moderate confidence)	Data support designation of feature			

Site assessment

Table 13: South West Approaches to Bristol Channel New Site Option site level assessment

Question	Response
Q1: Are there grounds for considering designating more features at this site in order to fully protect one or more features which do have sufficient confidence?	N/A
Q2: Where this can be answered, what proportion of area do the features that meet Q1 in the 'Feature Assessment' above cover within the site?	98.6%
Q3: Does this site fill a 'gap' in the network based on confidence assessments in feature presence and extent?	<p>Yes - This site has been specifically identified to address residual gaps in the MPA network for Subtidal coarse sediment in the Western Channel and Celtic Sea region. Currently 7% of Subtidal coarse sediment is protected within MPAs in the region, which will rise to ~14% if all rMCZs are designated in Tranche Three. The minimum ENG target for Subtidal coarse sediment is 17% therefore an additional 3% would be required to meet the target. This site contributes >3% towards this target.</p> <p>This site could also improve connectivity between inshore and offshore sites protecting subtidal sediment habitats and could also be of ecological importance in covering the transition zone between shallow and deeper areas by representing a more diverse range of biological communities.</p>



© JNCC 2017. UK Territorial Sea Limit & UK Continental Shelf - Contains public sector information, licensed under the Open Government Licence v2.0, from the United Kingdom Hydrographic Office
 © Crown copyright. GB coastline - Contains Ordnance Survey data © Crown copyright. BGS Sample points Contains British Geological Survey materials © NERC 2015. Information contained here has been derived from data that is made available under the European Marine Observation Data Network (EMODnet) Seabed Habitats project www.emodnet-seabedhabitats.eu, funded by the European Commission's Directorate General for Maritime Affairs and Fisheries (DG MARE). Map Projection:WGS84UTM30N, Inset: BNG.

Figure 8: Distribution of broad-scale habitats in South West Approaches to Bristol Channel New Site

3.4 West of Copeland

JNCC's recent MPA network assessment² identified a shortfall in the protection of Subtidal coarse sediment against the MPA network targets in the Secretary of States waters part of the Irish Sea region. Only ~7% of Subtidal coarse sediment would be protected in MPAs within Secretary of State waters in the region, falling short of the minimum target for adequacy of 17% set out in the Ecological Network Guidance⁹ (ENG) for this feature. The shortfall in proportion equates to an area of approximately 76km² in the region.

Following the agreed approach for identifying potential site options to help complete the MPA network³, JNCC investigated the best available data and the human activities known to occur in the region. Following method 4 in that paper JNCC identified an Area of Search (AoS) by applying the 'Least Damaged/ More Natural' approach, to identify areas where there are fewer human activities occurring, and therefore potentially less damage to seabed habitats; the AoS was called West of Copeland. It was based on biophysical data from an area previously considered as a potential Special Area of Conservation (SAC) although subsequent assessment showed the area did not meet the necessary selection criteria for a SAC. The West of Copeland AoS is situated in the east of Irish Sea CP2 region, approximately 5km northwest from West of Walney MCZ and included approximately ~75km² of Subtidal coarse sediment. Following discussions with stakeholders and further considerations of the data and proximity to surrounding Mud Hole rMCZ and existing West of Walney MCZ, the boundary of the West of Copeland AoS has been refined to a smaller new site option which includes the extent of a sandbank feature within Secretary of State waters, following suggestions by stakeholders to maximise the ecological benefits of the site. The New Site Option (see [Figure 9](#)) can contribute approximately ~73km² of Subtidal coarse sediment, which would still leave a very small shortfall (~3km²) for Subtidal coarse sediment in the Secretary of State waters part of the Irish Sea CP2 region. While this site does not fully address the shortfall in the MPA network, it was identified as the best option in Secretary of State waters within the Irish Sea CP2 region due to the availability of good quality data from previous surveys which identified a large non-fragmented area of the feature and a relatively low level of human activity.

3.4.1 Assessment of Feature Presence and Extent

A combination of Particle Size Analysis (PSA) information from ground-truth data and survey data on infaunal biotopes from the East of Isle of Man Sandbank survey undertaken in 2004-2006 by AFBI and JNCC is available for the West of Copeland New Site Option. A habitat map was created from a model by Envision in 2015¹⁹ using these ground-truth data, with a MESH confidence score of 74, indicating high confidence in data quality. This habitat map is the best available broad-scale habitat map for this site.

JNCC followed Technical Protocol E²⁰ and the associated guidance²¹ to complete a confidence assessment in feature presence and feature extent, utilising all available data for the site. A summary of the assessments is presented below in Table 14.

Table 14: West of Copeland New Site Option Evidence Assessment Summary

Site	Feature	Evidence Assessment Results			
		Confidence in presence	Rationale for confidence in Feature presence	Confidence in extent	Rationale for confidence in Feature extent
West of Copeland New Site Option	Subtidal coarse sediment	High	Feature presence is supported by 14 verified ground-truth records and a modelled habitat map.	Moderate	Habitat extent is supported by a modelled habitat map. Over 85% ground-truth records for Subtidal coarse sediment agree with the modelled habitat map, however there is an uneven distribution of ground-truth points across the modelled extent of the mapped feature. Whilst there is one ground-truth record of Subtidal sand and one of Subtidal mixed sediments occurring within the mapped extent of Subtidal coarse sediment, this contradiction does not sufficiently impact the moderate confidence in the extent of coarse sediment in the site.
	Subtidal sand	High	Feature presence is supported by 42 verified ground-truth records and a modelled habitat map.	Moderate	Habitat extent is supported by a modelled habitat map. Over 90% of ground-truth records for Subtidal sand agree with the modelled habitat map class, however there is a lack of data points in the southern extent of the modelled feature in the habitat map.
	Subtidal mud	Low	Feature presence is only supported by 1 ground-truth record and a modelled habitat map.	Low	The 1 ground-truth record does not agree with the modelled habitat map class, so confidence in the extent is low.
	Subtidal mixed sediment	High	Feature presence is supported by 12 ground-truth records verifying the presence of the feature within the site.	High	Habitat extent is supported by a modelled habitat map. Over 80% of ground-truth records for Subtidal mixed sediment samples agree with the modelled habitat map class.

JNCC have **High** confidence in the presence of **Subtidal coarse sediment**, **Subtidal sand** and **Subtidal mixed sediments** in the West of Copeland New Site Option. Our confidence is based on there being multiple infaunal biotope and ground-truthing points collected by AFBI and JNCC between 2004-2006 as part of the East of Isle of Man sandbank survey. JNCC have **Low confidence** in the presence of **Subtidal mud**, that is based on a single ground-truth sample records from BGS, noting this sample lies within the mapped extent of Subtidal coarse sediment.

JNCC have **High** confidence in extent of **Subtidal mixed sediments**, supported by a good spread in the distribution of ground-truth samples, with over 80% of the records agreeing with the Envision 067 SAC Irish Sea habitat map¹⁹ for this feature. JNCC have **Moderate** confidence in extent of **Subtidal coarse sediment** and **Subtidal sand**. According to Protocol E²⁰ and associated guidance²¹, sample data needs to be well distributed across more than 50% of the modelled extent for confidence in feature extent to be High. The confidence in extent was downgraded from high using expert judgement due to an uneven spread in the distribution of ground-truth samples across the site. Over 90% of Subtidal sand and 85% of Subtidal coarse sediment records agree with the Envision 067 SAC Irish sea habitat map for these features. JNCC only have **Low confidence** in the feature extent due to no spatial agreement between the modelled map extent and ground-truth record of the feature.

3.4.2 Advice on the General Management Approach for MCZ features

A summary of JNCC's assessments of confidence in feature condition and the General Management Approach (GMA) proposed are presented below in Table 15 (see Section 2.4.3 for the approach).

Table 15: Summary of JNCC's conservation advice for features in West of Copeland New Site Option

Site	Feature	Confidence in Feature condition (MCZ Technical Protocol F ²²)	General Management Approach advised (MCZ Conservation Objective Guidance)
West of Copeland New Site Option	Subtidal coarse sediment	Low	Recover
	Subtidal sand	Low	Recover
	Subtidal mud	Low	Recover
	Subtidal mixed sediment	Low	Recover

Aggregated Vessel Monitoring System (VMS) data (2009-2015) for fishing activity indicates that demersal trawling, beam trawling and boat dredging, both UK and non-UK, occurs at relatively low levels within the boundaries of the West of Copeland AoS. Demersal trawling shows highest activity in the north eastern corner of the site boundary with ~392 hours of recorded over the seven years. The highest level of Demersal trawling recorded outside the site, in the wider Secretary of State Irish Sea region, is recorded as ~5,611 hours. Beam trawling is highest in the southernmost part of the site with ~459 hours occurring at the site boundary between 2009-2015, compared to ~724 hours recorded in the wider region. Boat dredging is highest in the north west corner of the site boundary with ~32 hours recorded between 2009-2015, compared to ~2,337 hours in the wider region. These levels of activity indicate that the features are experiencing moderate exposure to some of the pressures associated within fishing operations. All the broad-scale habitats within West of Copeland are highly sensitive to pressures associated with benthic trawling. Consequently, JNCC consider the **Subtidal coarse sediment, Subtidal sand, Subtidal mud and Subtidal mixed sediments** features to have a high vulnerability to benthic trawling and we advise a GMA of **Recover**.

In addition, the site lies within the licensed Walney Extension wind farm area. Activities have not yet commenced on this extension and so this has not been included in this assessment.

3.4.3 Confidence in Feature condition

Technical Protocol F²², states that the confidence in any feature condition defaults to low when established indirectly through the vulnerability assessment approach unless further criteria are satisfied. JNCC has **Low** confidence in feature condition for the broad-scale habitats **Subtidal coarse sediment**, **Subtidal sand**, **Subtidal mud** and **Subtidal mixed sediments**.

3.4.4 Feature Risk

Section 2.4.4 provides information on the data used and methodology followed for the assessment of risk, as set out in Table 16. Details on those pressures to which features are currently **Moderately** or **Highly** vulnerable, and the features that are considered to be at **High** future risk and the pressures to which these features are **Highly** sensitive (with moderate/high confidence) will be presented in the full report.

Table 16: West of Copeland New Site Option feature risk assessment

Site	Feature	Current risk	Future risk ³³
West of Copeland New Site Option	Subtidal sand	High Feature is highly vulnerable to one/more pressures associated with benthic trawling.	High Feature is highly sensitive (with moderate/high confidence) to physical removal (extraction of substratum).
	Subtidal coarse sediment	High Feature is highly vulnerable to one/more pressures associated with benthic trawling.	Moderate Feature is moderately sensitive (with moderate/high confidence); or Feature is highly sensitive (with low confidence) to surface abrasion: damage to seabed surface features and physical removal (extraction of substratum).
	Subtidal mixed sediments	Moderate Feature is moderately vulnerable to one/more pressures associated with benthic trawling.	Moderate Feature is moderately sensitive (with moderate/high confidence); or Feature is highly sensitive (with low confidence) to the introduction or spread of non-indigenous species, the removal of non-target species, penetration and/or disturbance of the substrate below the surface of the seabed, shallow abrasion/penetration: damage to seabed surface and penetration, physical removal (extraction of substratum), physical change (to another seabed type) and to the introduction of microbial pathogens.
	Subtidal mud	Moderate Feature is moderately vulnerable to one/more pressures associated with benthic trawling.	Moderate Feature is moderately sensitive (with moderate/high confidence); or Feature is highly sensitive (with low confidence) to the removal of target species, removal of non-target species and organic enrichment.

3.4.5 Advice on the scientific basis to support feature/site designation

JNCC considered the 'data sufficiency' or scientific justification for designation of a feature or site as described in Section 2.4.5 above. Firstly, JNCC's advice determines whether a feature has enough data to support its designation, and then reviews the site as a whole.

Feature assessment

Table 17: West of Copeland New Site Option feature data sufficiency assessment and additional conservation / ecological considerations.

Site	Feature	Q1a. Confidence score of at least moderate for feature presence?	Q1b. Is 1a based only on parent habitat being present?	Q1c. Confidence score of at least moderate for extent / distribution ?	Outcome from Question 1 assessment	Q2a: Does the feature fill a 'gap' in the network AND have confidence score of at least moderate for feature presence?	Q2b: Is the feature at high risk of damage?	Outcome from Question 2 assessment
West of Copeland New Site Option	Subtidal coarse sediment	Yes (High confidence)	No	Yes (Moderate confidence)	Data support designation of feature			
	Subtidal sand	Yes (High confidence)	No	Yes (Moderate confidence)	Data support designation of feature			
	Subtidal mud	No (Low confidence)	No	No (Low confidence)	Move to Question 2 of the feature assessment	No	No	Conservation benefits support feature designation – however JNCC advise that because the feature has limited supporting data and there are not likely to be more data collected in the near future, there are risks to designating the feature due to uncertainty in its extent.
	Subtidal mixed sediment	Yes (High confidence)	No	Yes (High confidence)	Data support designation of feature			

Site assessment

Table 18: West of Copeland New Site Option site level assessment

Question	Response
Q1: Are there grounds for considering designating more features at this site in order to fully protect one or more features which do have sufficient confidence?	N/A
Q2: Where this can be answered, what proportion of area do the features that meet Q1 in the 'Feature Assessment' above cover within the site?	95.8%
Q3: Does this site fill a 'gap' in the network based on revised confidence assessments in feature presence and extent?	<p>Yes - This site has been specifically identified to address residual gaps in the MPA network for Subtidal coarse sediment in the Irish sea CP2 region. Currently ~6% of Subtidal coarse sediment is protected within MPAs in the region, which will rise to ~7% if all rMCZs are designated in Tranche Three. The minimum ENG target for Subtidal coarse sediment is 17% therefore an additional 10% would be required to meet the target. This site contributes 10% towards this target and whilst the current boundary leaves a tiny shortfall, it is considered the best option due to the availability of good quality data.</p> <p>Additionally, the distribution of MPAs within this region is disproportionate, with higher representation inshore. This will most likely result in some habitats and species occurring in offshore areas not being represented in the network. This site could help increase the representation of these subtidal coarse sediment habitats in offshore waters and therefore increase the likelihood of the full range occurring in this region being represented in the MPA network. It could also improve connectivity between the inshore and offshore sites designated for protecting subtidal sediment habitats.</p>

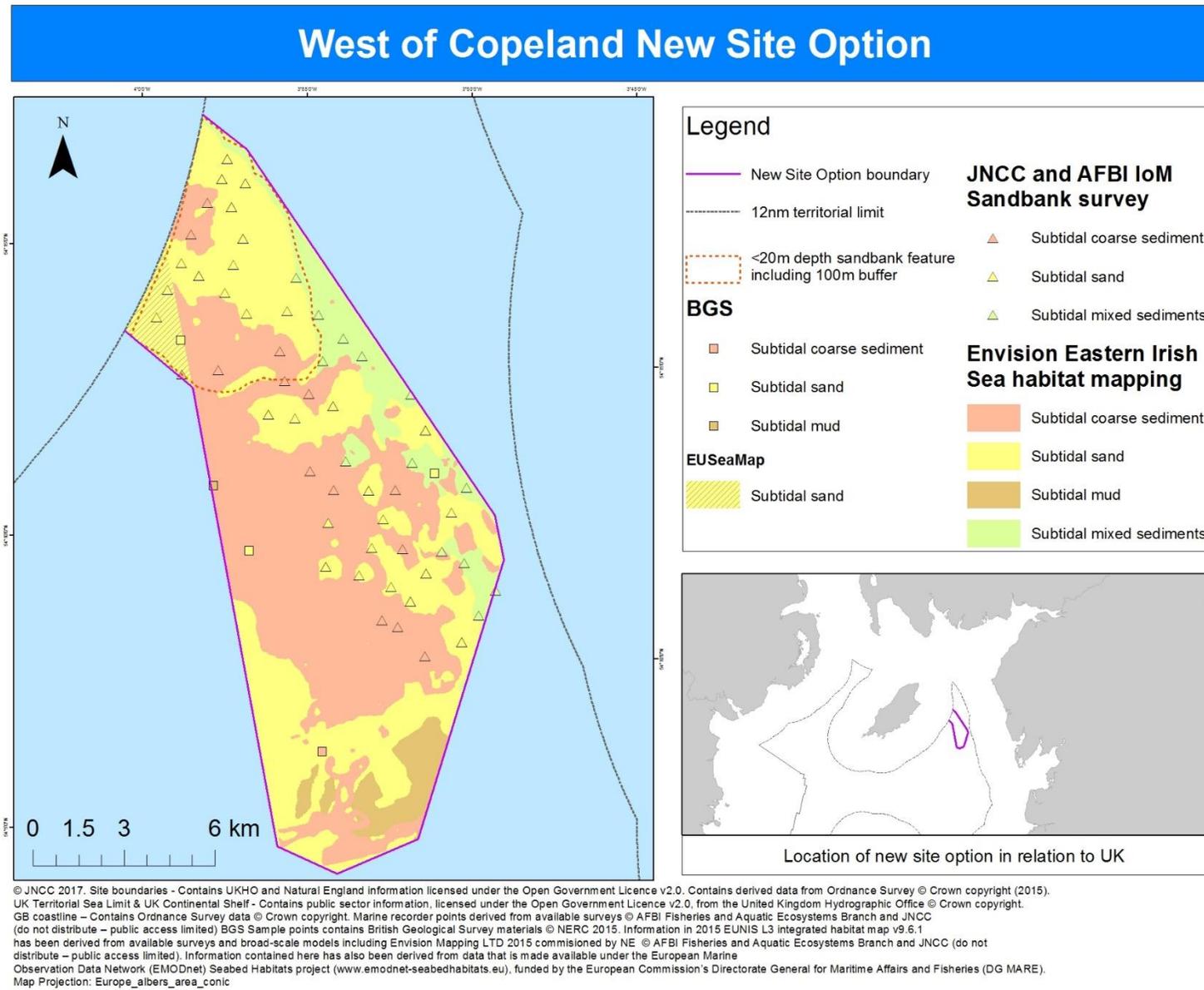


Figure 9: Distribution of broad-scale habitats in West of Copeland New Site Option

3.5 West of Wight Barfleur

JNCC's most recent assessment of the MPA network² identified a shortfall in the protection of Subtidal mixed sediments in the Eastern Channel region. Only 14.5% of Subtidal mixed sediments would be protected in MPAs within the region, falling slightly short of the minimum target for adequacy of 15% set out in the Ecological Network Guidance⁹ (ENG). The shortfall in proportion translates to an area of approximately 80km² in the region.

Following the agreed approach for identifying potential site options to help complete the MPA network³, JNCC investigated the best available data and the human activities known to occur in the region. Following method 6 from that paper, JNCC identified a wholly new Area of Search (AoS) called South of Chesil Beach based on biophysical data. This AoS was discussed during the MCZ stakeholder workshop in November 2016 but received limited support. An alternative location to the west of Wight Barfleur Reef was proposed by stakeholders as an AoS. Following discussions with stakeholders and further consideration of data, JNCC concluded that the alternative proposal, now called West of Wight Barfleur AoS, was more suitable to progress than the original South of Chesil Beach AoS. JNCC assessed the available data that show that the West of Wight Barfleur New Site Option could contribute ~80km² of Subtidal mixed sediments towards the remaining shortfall in the MPA network.

The West of Wight Barfleur New Site Option is situated in the west of the Eastern Channel region, approximately 12km south of South Dorset MCZ and 8km west of Wight-Barfleur Reef SAC (see Figure 10). The New Site Option covers approximately 137 km², and the extent of the Subtidal mixed sediments mapped across the site contributes 82 km² towards the remaining shortfall for this feature in the region.

3.5.1 Assessment of Feature Presence and Extent

The British Geological Survey (BGS) has records of grab samples from the area which have undergone Particle Size Analysis (PSA) to determine the sediment type. JNCC translated the results of the PSA into the broad-scale habitats using the Modified Folk Triangle³². There is no habitat map from recent direct survey for the site; maps derived from habitat models, including EUSeaMap and Cefas' mapping of Annex I Reefs in the central English Channel survey in 2006¹⁵.

JNCC followed Technical Protocol E²⁰ and the associated guidance²¹ to assess confidence in feature presence and feature extent, utilising all available data for the site. A summary of the assessments is presented below in Table 19.

Table 19: West of Wight Barfleur New Site Option Evidence Assessment Summary

Site	Feature	Evidence Assessment Results			
		Confidence in presence	Rationale for confidence in Feature presence	Confidence in extent	Rationale for confidence in Feature extent
West of Wight Barfleur	Subtidal coarse sediment	High	Confidence in Subtidal coarse sediment is derived from multiple (16) PSA ground-truth points and the modelled habitat map.	High	Confidence in the extent of Subtidal coarse sediment is based on the modelled habitat map and a high degree of concordance between this map and the ground-truth data.
	Subtidal mixed sediments	High	There are 12 ground-truth samples and the modelled habitat map that support the presence of mixed sediments.	Moderate	The confidence in the extent of Subtidal mixed sediments is supported by a modelled habitat map and 12 ground truth samples. JNCC applied expert judgement to reduce the confidence score in extent of this feature from High to Moderate since there was a poor spread of ground-truth data in the south-west part of the site.

JNCC have **High** confidence in the presence of **Subtidal coarse sediment** as there are multiple ground-truth data gathered by BGS between 1975 and 1978 and samples collected by Cefas as part of their Mapping Annex I Reefs in the central English Channel survey in 2006¹⁵. JNCC also have **High** confidence in extent from the habitat map that comprises of the EUSeaMap product and the Cefas 2006 survey.

The presence of multiple ground-truth data points gives JNCC **High** confidence in the presence of **Subtidal mixed sediments** within the site. JNCC have **Moderate** confidence in the extent of **Subtidal mixed sediments** from the map based on a habitat model, which included data from the Mapping Annex I Reefs in the central English Channel survey¹⁵ (2006). However, JNCC applied expert judgement to reduce the confidence score in extent of this feature from High to Moderate since there was a poor spread of ground-truth data in the south-west part of the site.

3.5.2 Advice on the General Management Approach for MCZ features

A summary of JNCC’s assessments of confidence in feature condition and the General Management Approach (**GMA**) proposed are presented below in Table 20 (see Section 2.4.3 for the approach).

Table 20: Summary of JNCC's conservation advice for features in West of Wight Barfleur New Site Option

Site	Feature	Confidence in Feature condition (MCZ Technical Protocol F ²²)	General Management Approach advised (MCZ Conservation Objective Guidance)
West of Wight Barfleur New Site Option	Subtidal coarse sediment	Low	Recover
	Subtidal mixed sediments	Low	Recover

After reviewing currently available data, JNCC advise that a GMA of **Recover** is appropriate for the features **Subtidal coarse sediment** and **Subtidal mixed sediments**.

Aggregated VMS data for fishing activity from 2009–2015 suggest that low to moderate levels of demersal trawling occur over the features within the site. **Subtidal coarse sediment** and **Subtidal mixed sediments** are highly or moderately sensitive to pressures associated with benthic trawling. As a result, JNCC consider **Subtidal coarse sediment** and **Subtidal mixed sediments** to have high vulnerability to benthic trawling and therefore advise GMA of **Recover**.

3.5.3 Confidence in Feature condition

Technical Protocol F²², states that the confidence in any feature condition defaults to low when established indirectly through the vulnerability assessment approach unless further criteria are satisfied. JNCC has **Low** confidence in feature condition for the broad-scale habitats **Subtidal coarse sediment** and **Subtidal mixed sediments**.

3.5.4 Feature Risk

Section 2.4.4 provides information on the data used and methodology followed for the assessment of risk, as set out in Table 21. Details on those pressures to which features are currently **Moderately** or **Highly** vulnerable, and features that are considered to be at **High** future risk and the pressures to which these features are **Highly** sensitive (with moderate/high confidence) will be provided in the full report to be published later in 2017.

Table 21: West of Wight Barfleur New Site Option feature risk assessment

Site	Feature	Current risk	Future risk ³³
West of Wight Barfleur New Site Option	Subtidal coarse sediment	High Feature is highly vulnerable to one/more pressures associated with benthic trawling.	Moderate Feature is moderately sensitive (with moderate/high confidence); or Feature is highly sensitive (with low confidence) to physical loss (to land or freshwater habitat), surface abrasion: damage to seabed surface features and physical removal (extraction of substratum).
	Subtidal mixed sediments	Moderate Feature is moderately vulnerable to one/more pressures associated with benthic trawling.	Moderate Feature is moderately sensitive (with moderate/high confidence) or Feature is highly sensitive (with low confidence) to the introduction or spread of non-indigenous species, the removal of non-target species, penetration and/or disturbance of the substrate below the surface of the seabed, shallow abrasion/penetration: damage to seabed surface and penetration, physical removal (extraction of substratum), physical change (to another seabed type) and to the introduction of microbial pathogens.

3.5.5 Advice on the scientific basis to support feature/site designation

JNCC considered the ‘data sufficiency’ or scientific justification for designation of a feature or site as described in Section 2.4.5 above. Firstly, JNCC’s advice determines whether a feature has enough data to support its designation, and then reviews the site as a whole.

Feature assessment

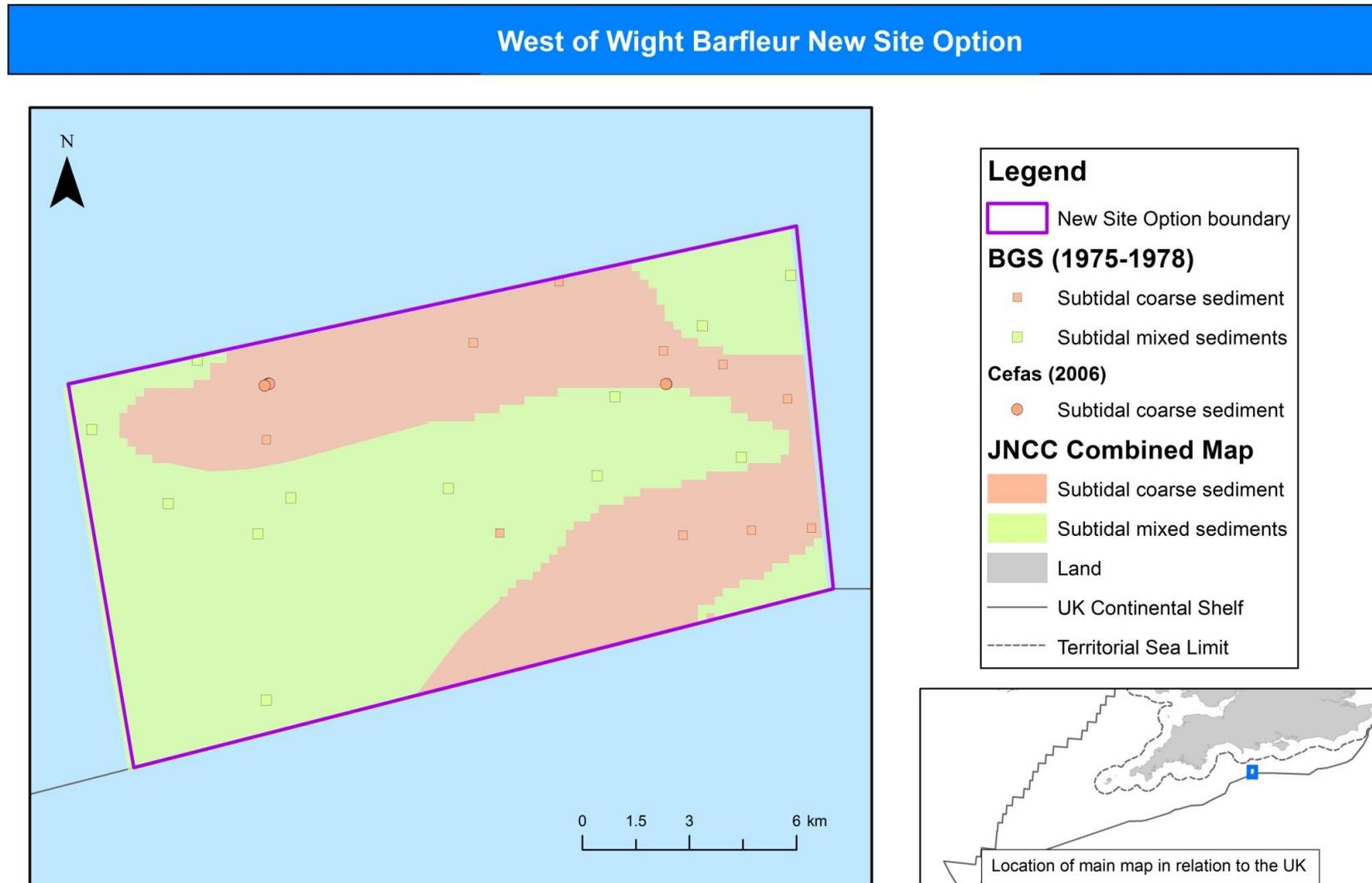
Table 22: West of Wight Barfleur New Site Option feature data sufficiency assessment and additional conservation / ecological considerations.

Site	Feature	Q1a. Confidence score of at least moderate for feature presence?	Q1b. Is 1a based only on parent habitat being present?	Q1c. Confidence score of at least moderate for extent / distribution?	Outcome from Question 1 assessment	Q2a: Does the feature fill a ‘gap’ in the network AND have confidence score of at least moderate for feature presence?	Q2b: Is the feature at high risk of damage ?	Outcome from Question 2 assessment
West of Wight Barfleur New Site Option	Subtidal coarse sediment	Yes (High confidence)	No	Yes (High confidence)	Data support designation of feature			
	Subtidal mixed sediments	Yes (High confidence)	No	Yes (Moderate confidence)	Data support designation of feature			

Site assessment

Table 23: West of Wight Barfleur New Site Option site level assessment

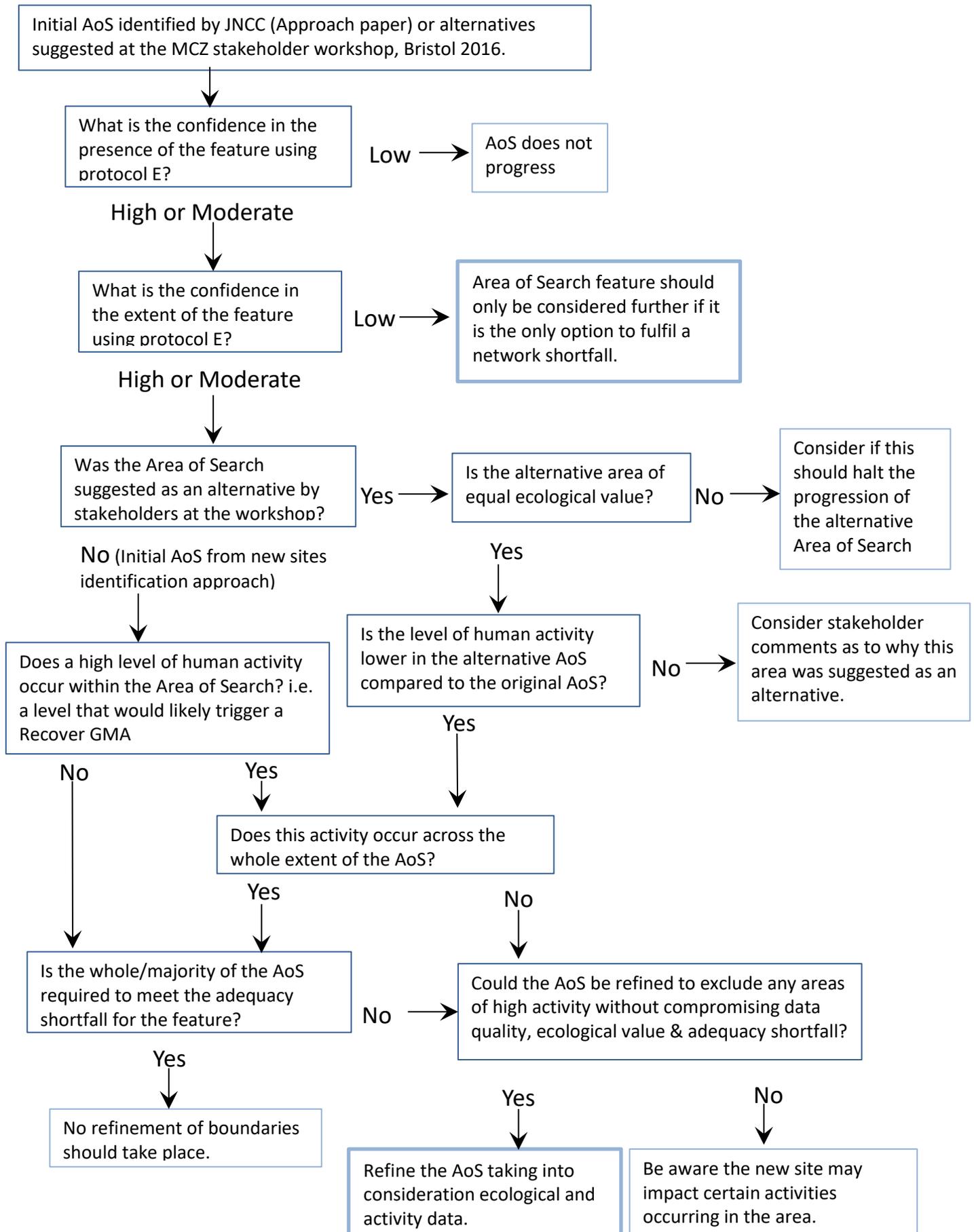
Question	Response
Q1: Are there grounds for considering designating more features at this site in order to fully protect one or more features which do have sufficient confidence?	N/A
Q2: Where this can be answered, what proportion of area do the features that meet Q1 in the 'Feature Assessment' above cover within the site?	99.9%
Q3: Does this site fill a 'gap' in the network based on confidence assessments in feature presence and extent?	<p>Yes – There is a shortfall in the protection of both Subtidal coarse sediment and Subtidal mixed sediments in the Eastern Channel region. West of Wight Barfleur site has been specifically identified to address the shortfall for Subtidal mixed sediments. Currently 9% of Subtidal mixed sediments are protected within existing MPAs, that would rise to 14% if all rMCZs are designated in Tranche Three. The minimum ENG target is 16% therefore an additional ~2% is required to meet the target. This site contributes this ~2%. Additionally, the current protection of Subtidal coarse sediment within existing MPAs is ~9% which will rise to ~14% if all rMCZs are designated in Tranche Three. The minimum ENG target is 17% therefore an additional 3% is required to meet the target. This site contributes <<1% towards this target. Also, this site could improve connectivity between sites in the offshore area designated to protect subtidal sediments.</p>



Version: 1.0 Plotted: 09/01/17 by AC
 © JNCC 2016. UK Territorial Sea Limit & UK Continental Shelf - Contains public sector information, licensed under the Open Government Licence v2.0, from the United Kingdom Hydrographic Office
 © Crown copyright. GB coastline – Contains Ordnance Survey data © Crown copyright. BGS Sample points Contains British Geological Survey materials © NERC 2015. Information contained here has been
 www.emodnet-seabedhabitats.eu), funded by the European Commission's Directorate General for Maritime Affairs and Fisheries (DG MARE). Map Projection:WGS84, Inset: BNG.

Figure 10: Distribution of broad-scale habitats in West of Wight Barfleur New Site Option

Annex 1: Decision tree process for the progression and refinement of new sites

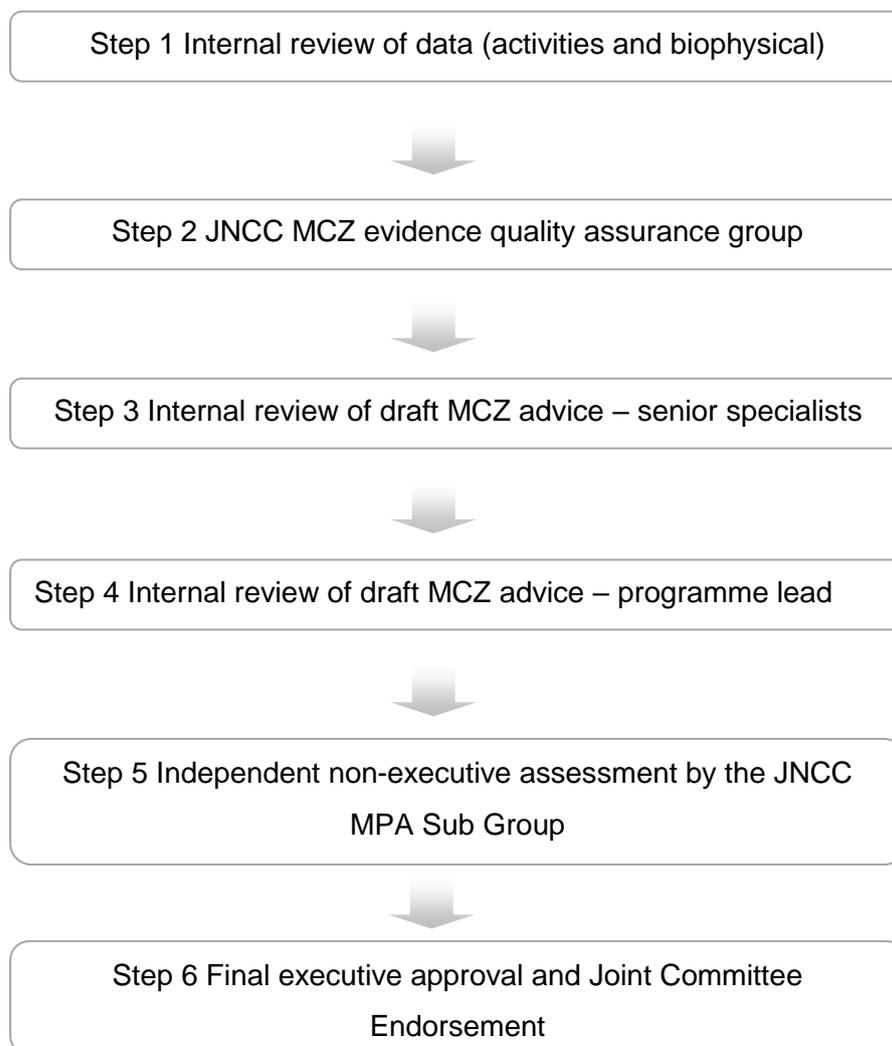


Annex 2: Statement on JNCC's Quality Assurance procedures undertaken for the MCZ advice

This Annex provides a summary of the quality assurance (QA) processes applied to JNCC's 2017 advice on New Site options to ensure its scientific advice is robust and in accordance with both JNCC's internal Evidence QA policy and the Government Chief Scientific Adviser's guidelines for preparing scientific advice²⁹.

Figure 11 outlines the steps in the process adopted by JNCC and the subsequent text provide details regarding each step. It should be noted that each step in the QA process relies on the previous step having been undertaken in a robust manner in order to ensure that no systematic issues are replicated through the advice.

Figure 11: The QA process for JNCC's 2017 advice on potential offshore MCZs



Step 1 Internal review of new data (activities and biophysical)

Data to support the New Site options were considered by the MCZ team who conducted an in depth review of the data whilst undertaking the assessments contained within this advice. Any issues with the data were

flagged with the JNCC's Marine Evidence team and resolved with the data providers where possible. Where issues were not resolved, these limitations to the data were logged and incorporated into our advice, and further considered at subsequent steps in the QA process.

Any data supplied to JNCC as part of its data collection program were reviewed by the Marine Evidence team who undertake quality assurance of the data, paying particular attention to the associated metadata and its geospatial coordinates to check they provide sufficient information and are accurate. Certain standards, such as being INSPIRE³⁴ compliant, are required of all such data, even where it has been subject to a separate QA process by the data provider prior to delivery to JNCC.

Step 2 JNCC MCZ Evidence Quality Assurance Group

This formal JNCC group (Terms of Reference are provided in Annex 5 of JNCC's 2014 advice³⁵) reviewed the biophysical data available for each feature and concluded on the appropriateness of the use of those data. Key decisions and conclusions are recorded within the minutes of the Group meetings. Where issues with data were identified, they were logged with the Marine Evidence team and resolved with the data providers where it was possible to do so. Where issues were not resolved, any limitations to the data that impacted JNCC's assessments were logged and incorporated into our advice, and further considered at subsequent steps in the QA process.

The Group also reviewed the confidence scores assigned in draft by the MCZ team for the feature presence and feature extent assessments. This review considered the evidence available to support the score for that feature. Where necessary, any expert judgement applied was agreed through the members of the Group.

Step 3 Internal review of draft MCZ advice – senior specialists

The draft advice was prepared by the MCZ team and reviewed by senior specialists with expertise in the relevant topics (evidence, fisheries pressures, conservation advice). The specialists review focused predominantly on the site narratives, although some activities data were reviewed to check the vulnerability assessments.

Step 4 Internal review of draft MCZ advice – programme lead

The draft advice package, incorporating comments and changes made by senior staff, was reviewed by the MPA Programme Leader. This review did not consider the underlying data used to form this advice, instead

³⁴ Information on INSPIRE. Available at: <http://data.gov.uk/location/inspire>

³⁵ JNCC's pre-consultation scientific advice on Tranche Two MCZ. Available at: http://jncc.defra.gov.uk/PDF/140627_final_JNCC2preconsultation_MCZAdvice_2014_V5_0.pdf

it focussed on the results and explanations together with checking the application of protocols and guidance and earlier QA steps.

Step 5: Independent non-executive assessment

The advice was then shared with the Joint Committee's MPA Sub Group (an independent non-executive group) for their review of the QA steps applied through the process to derive the advice, offering challenge to any conclusions that do not appear to be appropriately justified. The MPA Sub Group also generally reviewed whether the work was broadly fit for purpose. The group provides independent scientific advice and scrutiny to JNCC, and comprises specialists drawn from wider academic, public and private sector communities. Their review does not consider the data underlying the advice.

Any comments received from the Group were logged together with subsequent actions to ensure a full audit of changes was available.

Step 6: Executive approval and Joint Committee endorsement

The final advice was reviewed by the MPA Programme Leader to check the actions implemented following step 5 and the overall advice then signed off by the Marine Director on behalf of JNCC's Executive Management Board. Any changes that were made during this sign off process were recorded in the comments log.

The MPA Sub Group Chair recommended the final results to the JNCC Joint Committee. The Chair of the Joint Committee reviewed the recommendation and endorsed the advice as of sufficient quality to be sent to Defra.

Annex 3: Overview of the contribution to the MPA network of inshore and offshore site options being considered as potential MCZs in 2017



Overview of the contribution to the MPA network of inshore and offshore site options being considered as potential MCZs in 2017

February 2017

Version Control

Build status

Version	Date	Author	Reason/Comments
1.0	08/02/2017	E. Novak, H. Carr, H. Pardoe, T. Barnfield, R. Bullimore and J. Davies	First final draft to be reviewed by the JNCC MPA Sub Group after Natural England's technical review
2.2	22/02/2017	H. Carr, E. Novak, H. Pardoe and J. Davies	Clean version to be reissued to the JNCC MPA Sub Group and reviewed by the Natural England Director of Government Advice.
3.0	24/02/2017	H. Carr, E. Novak, H. Pardoe	Final version incorporating minor final amendments from review.
4.0		H. Pardoe, T. Barnfield, H. Carr, Hugh Wright	Updated version for publication

Distribution List

Copy	Version	Issue Date	Issued To
Electronic	1.0	08/02/2017	JNCC MPA Sub Group
Electronic	2.2	22/02/2017	JNCC MPA Sub Group and Natural England Director of Government Advice
Electronic	3.0	28/02/2017	Defra (JNCC submission – see version control table for Natural England's Annex 2 advice in relation to Natural England's submission of this joint advice)

Contents

1	Summary.....	52
2	Introduction.....	52
2.1	Purpose of this advice	52
3	Overview of sites by region.....	54
3.1	Southern North Sea.....	54
3.2	Eastern Channel.....	56
3.3	Western Channel and Celtic Sea.....	64
3.4	Irish Sea.....	68
4	Bibliography.....	70

Acknowledgements

Emma Novak, Hannah Carr, Hugh Wright and Jon Davies (JNCC) and Heidi Pardoe, Tom Barnfield, Ross Bullimore (Natural England)

1 Summary

The present paper provides an overview of how inshore and offshore New Site Options identified by Natural England and JNCC could address remaining shortfalls in the MPA network in Secretary of State waters (see [JNCC 2016](#)). JNCC and Natural England have been able to identify 12 New Site Options based on available data. These New Site Options, alongside the remaining site recommendations from the regional MCZ projects, provide Defra with the opportunity to select a Third Tranche of potential MCZs to complete the MPA network in Secretary of State waters. The paper describes the current shortfalls together with the potential site options available for each region.

2 Introduction

Purpose of this advice

In summer 2016, JNCC completed an analysis of Defra's progress towards achieving an ecologically coherent MPA network in Secretary of State waters ([JNCC 2016](#)). Defra indicated the MPA network should achieve the targets advised by JNCC and Natural England in the Ecological Network Guidance (ENG) ([Natural England and JNCC 2010](#)). The analysis revealed a shortfall in the protection of several features in four out of five Charting Progress (CP2) regions³⁶ that overlap with Secretary of State (SoS) waters; where the analysis concluded a habitat or species is not considered to be adequately protected within the existing MPA network in the region. Some features were still considered as a shortfall after considering the potential contribution from remaining Regional Project recommended MCZs (rMCZs); these shortfalls are summarised in Table 1. To mitigate the shortfalls, JNCC and Natural England developed new offshore and inshore options respectively. These options provide additional contributions towards meeting the shortfall in features that could be considered by Defra alongside the rMCZs that are also under consideration in Tranche 3. Initial Areas of Search (AoS) to meet shortfalls were discussed with stakeholders for both offshore and inshore sites separately and developed into New Site Options.

The purpose of this paper is to provide an overview, by region, of the inshore and offshore New Site Options that have been developed by Natural England and JNCC and the contribution that these could potentially make towards meeting the targets set out for the MPA network in Secretary of State waters. The paper was developed to clearly summarise the current options that could contribute towards the shortfalls that were identified in the JNCC network assessment ([JNCC 2016](#)), to be considered by Defra alongside JNCC and Natural England's formal Tranche 3 pre-consultation advice.

³⁶ No feature shortfalls were identified within the Northern North Sea region and therefore no New Site options have been proposed for this region.

Table 24. The remaining gaps for Broad-scale habitats, Habitat Features of Conservation Importance (FOCI) and Species FOCI in the MPA network, after considering the potential contribution from remaining recommended MCZs from the Regional MCZ Projects.

CP2 Region	Remaining shortfalls in the MPA network		
	Broad-scale habitats	Habitats FOCI	Species FOCI
Southern North Sea		Sheltered muddy gravels	Native oyster (<i>Ostrea edulis</i>)
Eastern Channel	Subtidal coarse sediment Subtidal sand Subtidal mud Subtidal mixed sediments	Maerl beds	
Western Channel & Celtic Sea	Subtidal coarse sediment Deep-sea bed		Native oyster (<i>Ostrea edulis</i>)
Irish Sea	Subtidal coarse sediment		

The following sections provide a region by region overview of the remaining gaps for Broad-scale habitats, Habitat Features of Conservation Importance (FOCI) and Species FOCI in the MPA network, after considering the potential contribution from remaining recommended MCZs from the Regional MCZ Projects. Each section provides a regional overview map, and a high level overview of the residual gaps listed in Table 1 and New Site Options identified by JNCC and Natural England. This is then followed by a table setting out the detail around the gap for each feature, which network criteria it relates to and what the size of the gap is. A separate table then lists both New Site Options and Regional Project rMCZs that could contribute to addressing the gaps. It should be noted however that many of the other listed features for these sites could also be contributing to shortfalls in the existing MPA network (or may do so depending on decisions over other Tranche 3 rMCZs/MCZs). JNCC and Natural England's advice on 'data sufficiency' should be referred to for further information about these features, along with JNCC's pivot tool.

3 Overview of sites by region

3.1 Southern North Sea

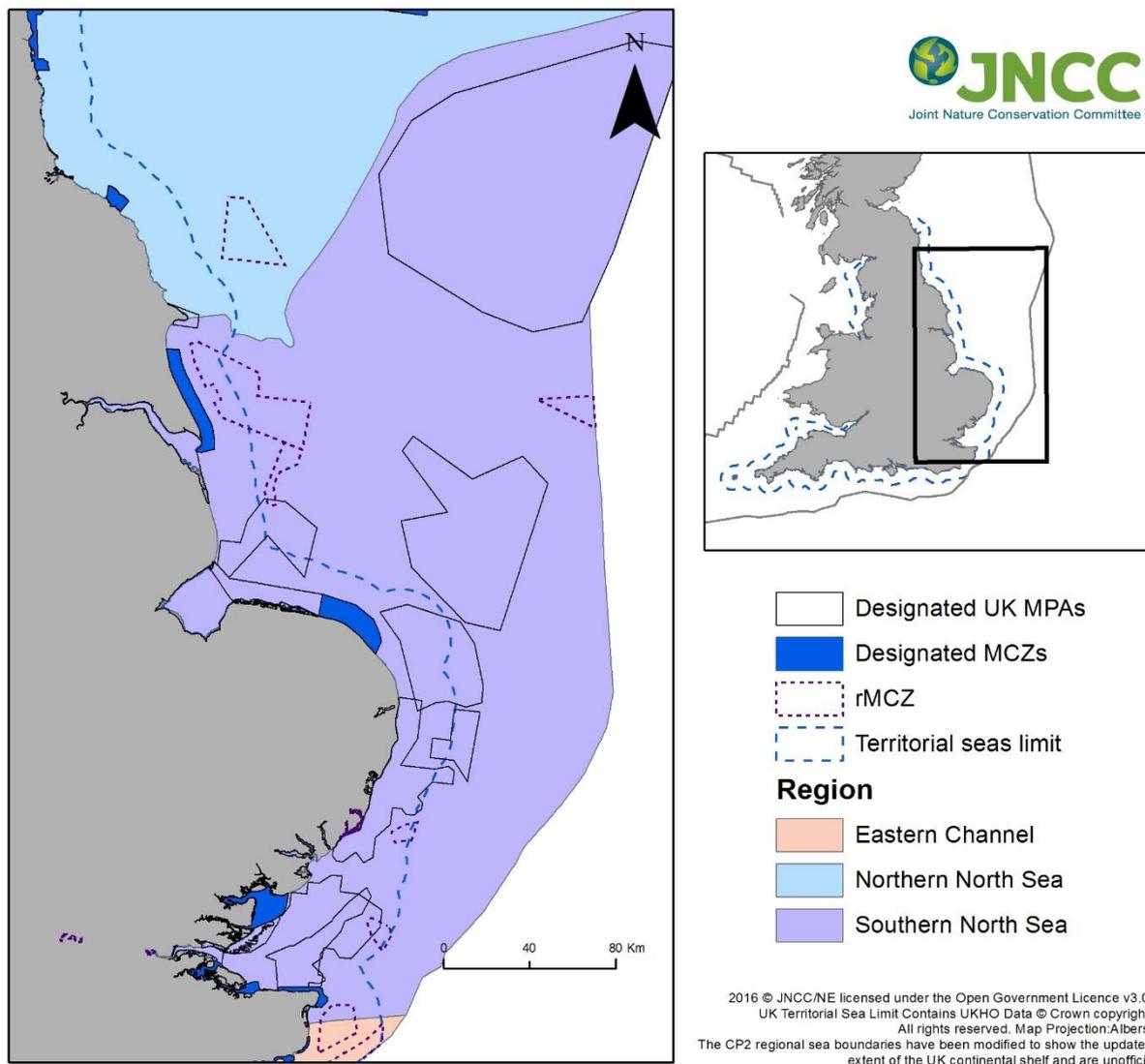


Figure 1 Overview map of MCZs, rMCZs and New Site Options in the Southern North Sea biogeographic region.

All broad-scale habitat features are adequately represented within the Southern North Sea region however a shortfall was identified for Sheltered muddy gravels and Native oyster (*Ostrea edulis*) FOCI (Table 2). During the initial stage of development of AoS, Natural England determined that the **only** suitable option for further protecting Sheltered muddy gravels in the region was the area previously proposed as the Stour and Orwell Estuaries rMCZ i.e. it was only possible to identify 1 further replicate and not 2. Natural England also advised Defra that the site could have provided the additional replicate for Native oyster (*Ostrea edulis*). Based on the best available evidence, Natural England has also been unable to identify any alternative or additional new site options for Native oyster. Defra did not request further advice on this site option as it had previously been decided that the rMCZ was not suitable for designation.

Table 25. Southern North Sea region: Overview of the Features of Conservation Importance (FOCI) for which there is considered a shortfall in protection.

FOCI	Minimum Target in the ENG	Current number of replicates protected within existing MPAs	Number of replicates with potential Tranche Three rMCZs/MCZs also included	Additional number of replicates required to meet ENG target
Sheltered muddy gravels	3 replicates	0	1	2
Native oyster (<i>Ostrea edulis</i>)	3 replicates	1	2	1

Table 3. Southern North Sea region: All potential site options (rMCZs from the regional MCZ projects – note no New Site Options) that could contribute to mitigating the shortfalls set out in Table 2, noting the other features associated with each option.

Site options	Potential network contribution of shortfall features		Other features ³⁷
	Sheltered muddy gravels	Native oyster (<i>Ostrea edulis</i>)	
Regional Project recommended MCZs (note the criteria contributions of each rMCZ/MCZ are part of the 'Potential total number of replicates' presented in Table 2)			
Alde Ore Estuary (Inshore)	1 replicate		Estuarine rocky habitats, Smelt (<i>Osmerus eperlanus</i>), Orfordness (Subtidal geological feature)
Cromer Shoal Chalk Beds (Inshore)		1 replicate	

³⁷ Does not include features for which we have no confidence in their presence and extent.

3.2 Eastern Channel

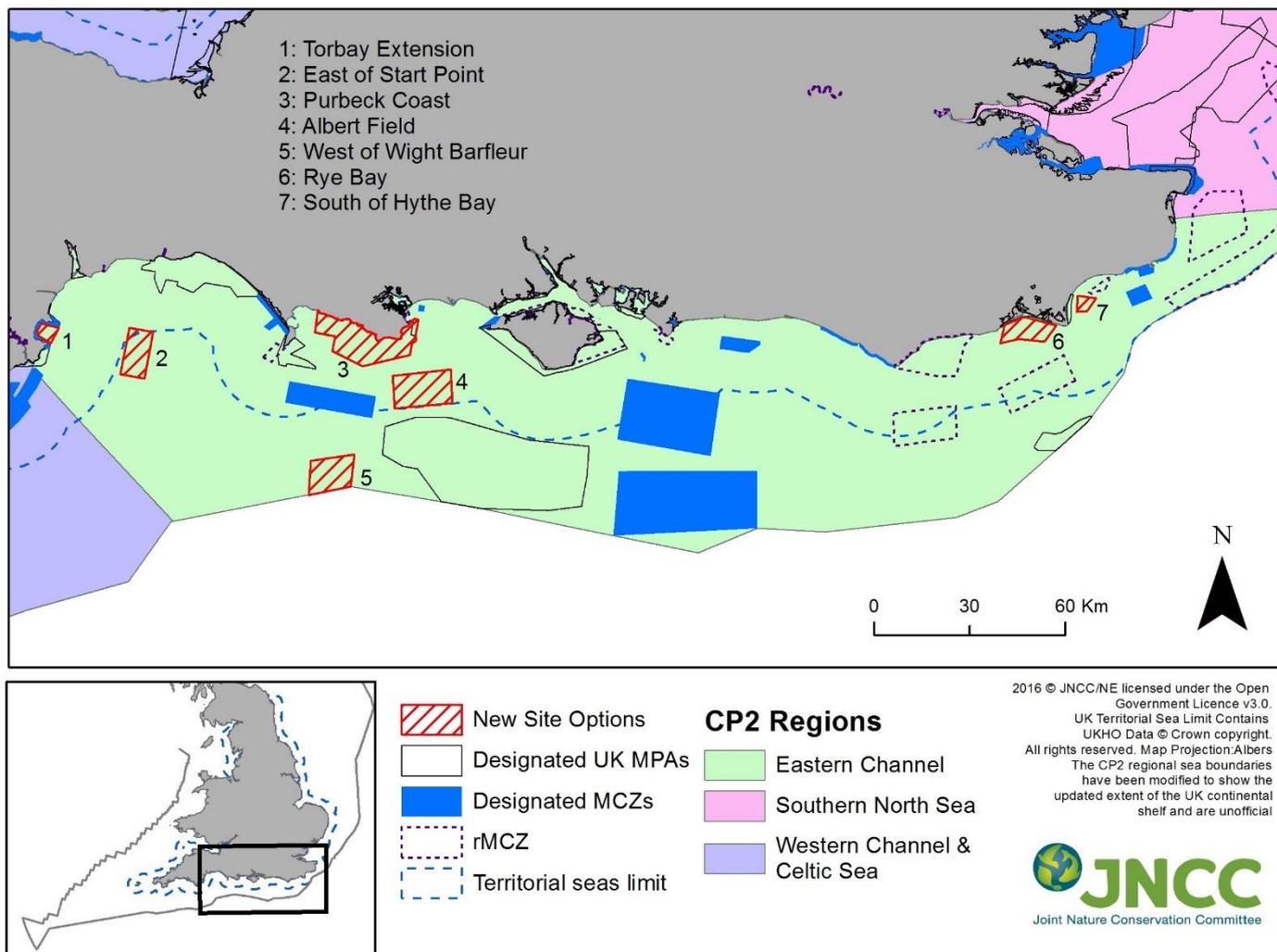


Figure 2 An overview of the distribution of designated MPAs (SACs, SPAs and MCZs), rMCZs and New Site Options in the Eastern Channel biogeographic region.

JNCC's network analysis (2016) identified shortfalls in the Eastern Channel region for the protection of the broad-scale habitats Subtidal coarse sediment, Subtidal sand, Subtidal mud and Subtidal mixed sediments, and the replication of Maerl beds Feature of Conservation Interest (FOCI)³⁸. Table 4 provides an overview of the shortfalls for the broad-scale habitat features in the region and Table 5 for the shortfall in FOCI. Two offshore New Site Options have been developed by JNCC and five inshore options by Natural England to address these gaps. The offshore options are West of Wight Barfleure and East of Start Point, and the inshore options are Albert Field, Purbeck Coast, Rye Bay, Torbay Extension and South of Hythe Bay. These options would contribute as follows:

- West of Wight Barfleure was identified to contribute towards the shortfall in Subtidal mixed sediments but could also contribute to subtidal coarse sediment;
- East of Start Point & Rye Bay for Subtidal sand;

³⁸ Subsequent to this advice being provided to Defra in February 2017, JNCC advised that once fisheries measures are implemented within the Wight-Barfleure SAC (designated for Annex I Reef) a substantial area of subtidal coarse sediment would also be afforded protection incidentally. This will encompass an area of approximately 445km² and if Defra are content to consider the feature protected in this site by the virtue of the management planned, it would make a large contribution to the protection of this feature in the region and contribute to the remaining shortfall in the MPA network.

- Albert Field for Subtidal coarse and Subtidal mixed sediments;
- Purbeck Coast for Subtidal coarse sediment, Subtidal mixed sediments and Maerl beds; and,
- Torbay Extension and South of Hythe Bay for Subtidal mud

Table 4. Eastern Channel region: Overview of the broad-scale habitat features for which there is considered a shortfall in protection. All values are rounded to the nearest integer to reflect residual uncertainty in the underlying spatial data.

Habitat	Minimum Target in the ENG	Current area protected within existing MPAs	Potential total area with Tranche Three rMCZs/MCZs also included	Additional area required to meet ENG target
Subtidal coarse sediment	17% (~2,115 km ²)	~9% (~1067 km ²)	~14% (~1742 km ²)	~3% (~373 km ²)
Subtidal sand	15% (~422 km ²)	~4% (~98 km ²)	13% (~367 km ²)	2% (~55 km ²)
Subtidal mud	15% (~81 km ²)	~2% (~11 km ²)	5% (~26 km ²)	10% (~55 km ²)
Subtidal mixed sediments	16% (~540 km ²)	~9% (~300 km ²)	~14% (~458 km ²)	~2% (~82 km ²)

Table 5. Eastern Channel region: Overview of the Features of Conservation Importance (FOCI) for which there is considered a shortfall in protection.

FOCI	Minimum Target in the ENG	Current number of replicates protected within existing MPAs	Potential total number of replicates with potential Tranche Three rMCZs/MCZs also included	Additional number of replicates required to meet ENG target
Maerl Beds	3 replicates	0	1	2 ³⁹

³⁹ Purbeck Coast inshore new site option has been proposed to provide one of the two replicates needed to address this shortfall (see Table 6). Based on our best available evidence, Natural England and JNCC have not been able to identify any additional new site options for this feature and so although there would only be two options in the region, we would not consider this a true gap if the two Tranche 3 options (Purbeck Coast and Bembridge rMCZ – Table 6) were taken forward.

Table 6. Eastern Channel region: All potential site options (rMCZs from the regional MCZ projects and New Site Options) that could contribute to mitigating the shortfalls set out in Tables 4 and 5, noting the other features associated with each option. All values are rounded to the nearest integer to reflect residual uncertainty in the underlying spatial data.

Site options	Potential network contribution of shortfall features					Other features ⁴⁰
	Subtidal coarse sediment	Subtidal sand	Subtidal mud	Subtidal mixed sediments	Maerl beds	
New site options (note the adequacy criteria contributions of each new site option should be considered in relation to the 'additional area required to meet the ENG target' presented in Table 4 or 'Additional number of replicates required to meet ENG target' presented in Table 5)						
Albert Field (Inshore)	<1% (~79.5 km ²)			Unknown contribution ⁴¹		
East of Start Point (Offshore)		~4% (~114km ²)				N/A
Purbeck Coast (Inshore)	~1% (~104 km ²)			~3% (~98km ²)	1 replicate	High energy intertidal rock. Moderate energy intertidal rock. Intertidal coarse sediment. Stalked jellyfish (<i>Haliclystus species</i>). Peacock's tail (<i>Padina pavonica</i>).
Rye Bay (Inshore)		~3% (~92km ²)				N/A

⁴⁰ Does not include features for which we have no confidence in their presence and extent

⁴¹ Only point data are available for this feature and therefore the area cannot be calculated.

Site options	Potential network contribution of shortfall features					Other features ⁴⁰
	Subtidal coarse sediment	Subtidal sand	Subtidal mud	Subtidal mixed sediments	Maerl beds	
South of Hythe Bay (Inshore)			Unknown contribution ⁴²			N/A
Torbay Extension (Inshore)			~4% (~24 km ²)			N/A
West of Wight Barfleur (Offshore)	<1% (~55 km ²)			~3% (~82km ²)		N/A
Regional Project recommended MCZs (note the adequacy criteria contributions of each rMCZ/MCZ are part of the 'Potential total area' calculations presented in Table 4 or 'Potential total number of replicates' presented in Table 5)						
Beachy Head East (Inshore)	1% (~125 km ²)	~2% (~48 km ²)				High energy intertidal rock. Intertidal coarse sediment. Intertidal mixed sediments. High/Moderate energy circalittoral rock. Infralittoral rock and thin mixed sediment. Infralittoral rock and thin sandy sediment. Blue Mussel beds. Littoral chalk communities. Peat and clay exposures. Ross worm (<i>Sabellaria spinulosa</i>) reefs. Subtidal chalk. Infralittoral rock and thin mixed sediment.

⁴² Only point data are available for this feature and therefore the area cannot be calculated.

Site options	Potential network contribution of shortfall features					Other features ⁴⁰
	Subtidal coarse sediment	Subtidal sand	Subtidal mud	Subtidal mixed sediments	Maerl beds	
						Infralittoral rock and thin sandy sediment. Native oyster (<i>Ostrea edulis</i>). Short snouted seahorse (<i>Hippocampus hippocampus</i>).
Bembridge ⁴³ (Inshore)	<<1% (~4 km ²)	<<1% (~4 km ²)	1% (~5km ²)	~2% (~61 km ²)	1 replicate	Ross worm (<i>Sabellaria spinulosa</i>) reefs. Seagrass beds. Sea-pens and burrowing megafauna communities. Sheltered muddy gravels. Common maerl (<i>Phymatolithon calcareum</i>). Native oyster (<i>Ostrea edulis</i>). Peacock's tail (<i>Padina pavonica</i>). Short snouted seahorse (<i>Hippocampus hippocampus</i>). Stalked jellyfish (<i>Haliclystus</i> species). Stalked jellyfish (<i>Lucernariopsis campanulata</i>). Tentacled lagoon-worm (<i>Alkmaria romijni</i>).
East Meridian (Eastern Side) (Offshore)	~2% (~193 km ²)					N/A
Goodwin Sands (Inshore)	~1% (~102km ²)	~2% (~68 km ²)				Moderate energy circalittoral rock. Moderate energy infralittoral rock. Blue Mussel beds. Ross worm (<i>Sabellaria spinulosa</i>) reefs. English Channel outburst flood features.

⁴³ Area calculations are based on original (Regional Project recommended) rMCZ boundary

Site options	Potential network contribution of shortfall features					Other features ⁴⁰
	Subtidal coarse sediment	Subtidal sand	Subtidal mud	Subtidal mixed sediments	Maerl beds	
Hythe Bay (Inshore)			2% (~10 km ²)			N/A
Inner Bank (Offshore)	<1% (~33 km ²)	~4% (~102 km ²)	<1% (~1 km ²)	~2% (~63 km ²)		N/A
Norris to Ryde (Inshore)	<<1% (<1 km ²)	<<1% (~4 km ²)	Unknown contribution ⁴⁴	<<1% (~1km ²)		Low energy intertidal rock. Estuarine rocky habitats. Peat and clay exposures. Seagrass beds. Sheltered muddy gravels. Native oyster (<i>Ostrea edulis</i>). Tentacled lagoon-worm (<i>Alkmaria romijni</i>).
Offshore Foreland (Inshore)	~2% (~207 km ²)	~1% (~37 km ²)				High energy circalittoral rock. Moderate energy circalittoral rock. High energy infralittoral rock. English Channel outburst flood features
Selsey Bill and the Hounds (Inshore)		<<1% (~2 km ²)		<1% (~6km ²)		High energy infralittoral rock. Moderate energy infralittoral rock. Low energy infralittoral rock. Moderate energy circalittoral rock. Peat and clay exposures. Infralittoral rock and thin sandy sediment. Short snouted seahorse (<i>Hippocampus hippocampus</i>). Bracklesham Bay
South of Portland	<<1% (~3 km ²)	<<1% (< 1 km ²)		<<1% (~8km ²)		High energy circalittoral rock. Moderate energy circalittoral rock. Portland Deep.

⁴⁴ Only point data are available for this feature and therefore the area cannot be calculated.

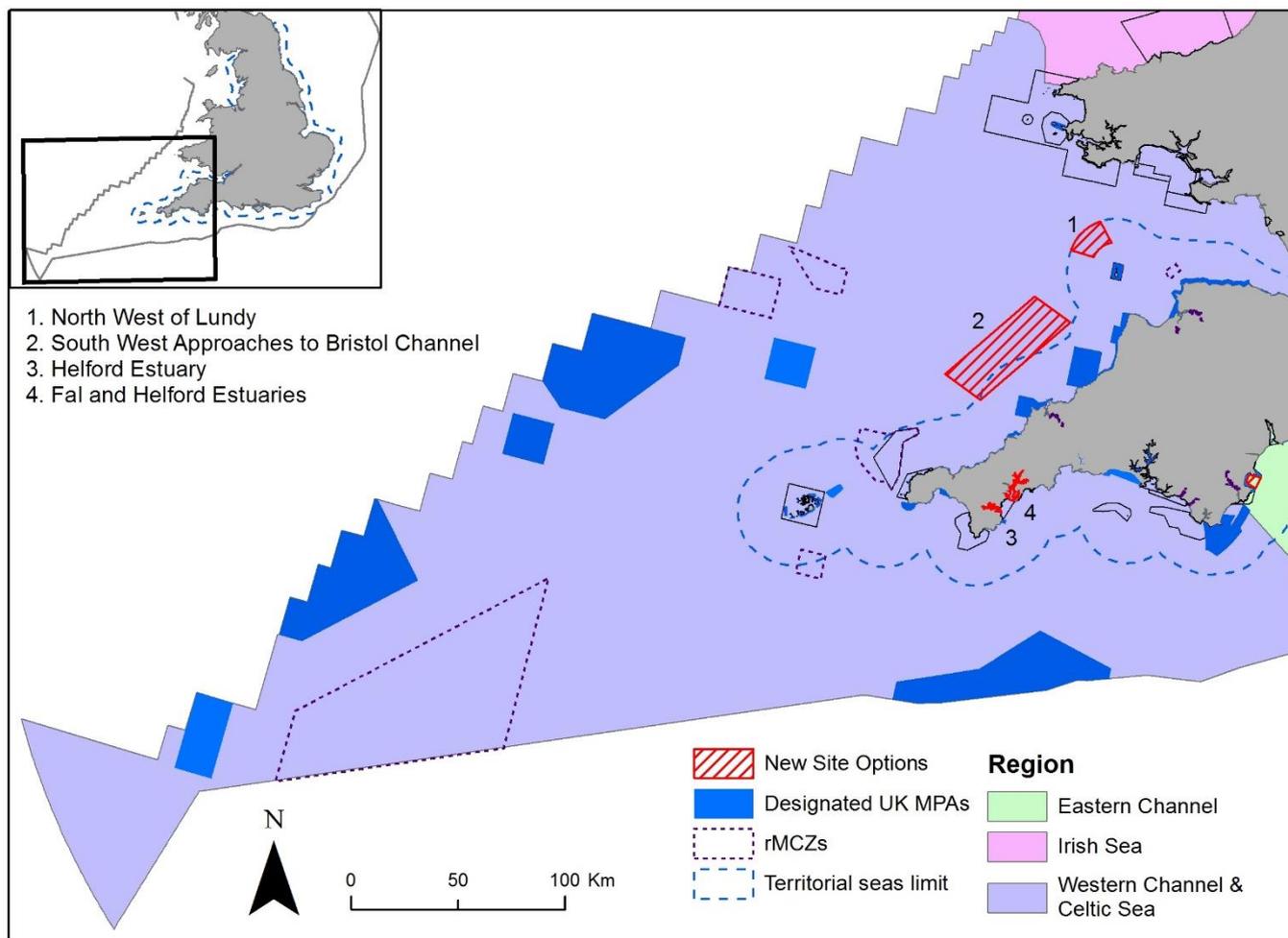
Site options	Potential network contribution of shortfall features					Other features ⁴⁰
	Subtidal coarse sediment	Subtidal sand	Subtidal mud	Subtidal mixed sediments	Maerl beds	
(Inshore)						
Studland Bay (Inshore)	<<1% (<1 km ²)	<<1% (~2km ²)		Unknown contribution		Moderate energy intertidal rock. Intertidal coarse sediment. Intertidal sand and muddy sand. Intertidal mud. Intertidal mixed sediments. Low energy infralittoral rock. Seagrass beds. Sheltered muddy gravels. Long snouted seahorse (<i>Hippocampus guttulatus</i>). Short snouted seahorse (<i>Hippocampus hippocampus</i>). Native oyster (<i>Ostrea edulis</i>).
Yarmouth to Cowes ⁴⁵ (Inshore)	<<1% (~5 km ²)		<<1% (<1km ²)	<<1% (<1km ²)		Moderate energy intertidal rock. Low energy intertidal rock. Intertidal coarse sediment. High energy infralittoral rock. Moderate energy infralittoral rock. High energy circalittoral rock. Moderate energy circalittoral rock. Subtidal biogenic reefs. Intertidal underboulder communities. Littoral chalk communities. Peat and clay exposures. Sheltered muddy gravels. Subtidal chalk. Estuarine rocky habitats. Fragile sponge and anthozoan communities on subtidal rocky habitats. Native oyster beds (<i>Ostrea edulis</i>). Native oyster (<i>Ostrea edulis</i>). Lagoon sand shrimp (<i>Gammarus</i>

⁴⁵ Area calculations are based on original (Regional Project recommended) rMCZ boundary

Appendix 1: Overview of the contribution of new site options to the MPA network
February 2017

Site options	Potential network contribution of shortfall features					Other features ⁴⁰
	Subtidal coarse sediment	Subtidal sand	Subtidal mud	Subtidal mixed sediments	Maerl beds	
						<i>insensibilis</i>). Bouldner Cliff geological features

3.3 Western Channel and Celtic Sea



2016 © JNCC/NE licensed under the Open Government Licence v3.0. UK Territorial Sea Limit Contains UKHO Data © Crown copyright. All rights reserved. Map Projection: Albers. The CP2 regional sea boundaries have been modified to show the updated extent of the UK continental shelf and are unofficial.



Figure 3 An overview of the distribution of designated MPAs (SACs, SPAs and MCZs), rMCZs and New Site Options in the Western Channel and Celtic Sea biogeographic region.

JNCC’s network analysis (2016) identified shortfalls in the Western Channel and Celtic sea region in the protection of the broad-scale habitats Subtidal coarse sediment and Deep-sea bed⁴⁶, and for the replication of Native oyster (*Ostrea edulis*) Feature of Conservation Importance (FOCI). Table 7 provides an overview of the percentage area shortfalls for the broad-scale habitat features in the region and Table 8 for the shortfall in the FOCI. One offshore and three inshore New Site Options have been developed by JNCC and Natural England. The offshore option is South West Approaches to Bristol Channel, and the inshore options are North West of Lundy, Helford Estuary and Fal and Helford Estuaries. South West Approaches to Bristol Channel and North West of Lundy will contribute towards the shortfall in Subtidal coarse sediment in the region whilst Helford Estuary and Fal and Helford Estuaries are options for addressing the shortfall for the replication of Native oyster.

⁴⁶ JNCC will be providing separate advice on the feature Deep-sea bed and so no further information on the shortfall is provided in this document.

Table 7. Western Channel and Celtic Sea region: Overview of the broad-scale habitat features for which there is considered a shortfall in protection in the Secretary of State waters section of the Western Channel and Celtic Sea region. All values are rounded to the nearest integer to reflect residual uncertainty in the underlying spatial data.

Habitat	Minimum Target in the ENG	Current area protected within existing MPAs	Area with potential Tranche Three rMCZs/MCZs also included	Additional area required to meet the ENG target
Subtidal coarse sediment	17% (~6024 km ²)	~7% (~2501 km ²)	~14% (~4,803 km ²)	~3% (~1221 km ²)

Table 8. Western Channel and Celtic Sea region: Overview of the Features of Conservation Importance (FOCI) for which there is considered a shortfall in protection.

FOCI	Minimum Target in the ENG	Current number of replicates protected within existing MPAs	Number of replicates with potential Tranche Three rMCZs/MCZs also included	Additional number of replicates required to meet ENG target
Native oyster (<i>Ostrea edulis</i>)	3 replicates	2	2	1

Table 9. Western Channel and Celtic Sea region: All potential site options (rMCZs from the regional MCZ projects and New Site Options) that could contribute to mitigating the shortfalls set out in Tables 7 and 8, noting the other features associated with each option. All values are rounded to the nearest integer to reflect residual uncertainty in the underlying spatial data.

Site options	Potential network contribution of shortfall features		Other features ⁴⁷
	Subtidal coarse sediment	Native oyster (<i>Ostrea edulis</i>)	
New site options (note the adequacy criteria contributions of each new site option should be considered in relation to the 'additional area required to meet the ENG target' presented in Table 7 or 'Additional number of replicates required to meet ENG target' presented in Table 8)			
Helford Estuary (Inshore)		1 replicate	N/A
Fal and Helford Estuaries (Inshore)			N/A
North West of Lundy (Inshore)	~1% (~173 km ²)		N/A
South West Approaches to Bristol Channel (Offshore)	~3% (~1105km ²)		Moderate energy circalittoral rock. Subtidal sand.
Regional Project recommended MCZs (note the adequacy criteria contributions of each rMCZ/MCZ are part of the 'Potential total area' calculations presented in Table 7 or 'Potential total number of replicates' presented in Table 8)			
Cape Bank (Offshore)	~1% (~333km ²)		Moderate energy circalittoral rock. Spiny lobster (<i>Palinurus elephas</i>).

⁴⁷ Does not include features for which we have no confidence in their presence and extent

Site options	Potential network contribution of shortfall features		Other features ⁴⁷
	Subtidal coarse sediment	Native oyster (<i>Ostrea edulis</i>)	
Isles of Scilly Sites – Bristows to the Stones MCZ	<< 1% (~14km ²)		Moderate energy circalittoral rock.
Morte Platform	<< 1% (~20km ²)		High energy circalittoral rock. Moderate energy circalittoral rock.
North-East of Haig Fras	<< 1% (~57km ²)		Subtidal sand. Subtidal mud.
South of Celtic Deep	<< 1% (~144km ²)		Moderate energy circalittoral rock. Subtidal sand. Subtidal mixed sediments.
South of the Isles of Scilly	<< 1% (~42km ²)		Subtidal sand. Subtidal mixed sediments. Subtidal coarse sediment/Subtidal mixed sediments habitat mosaic. Fan mussel (<i>Atrina fragilis</i>).
South-West Deeps (East)	~5 % (~1693km ²)		Subtidal sand. Deep-sea bed.

3.4 Irish Sea

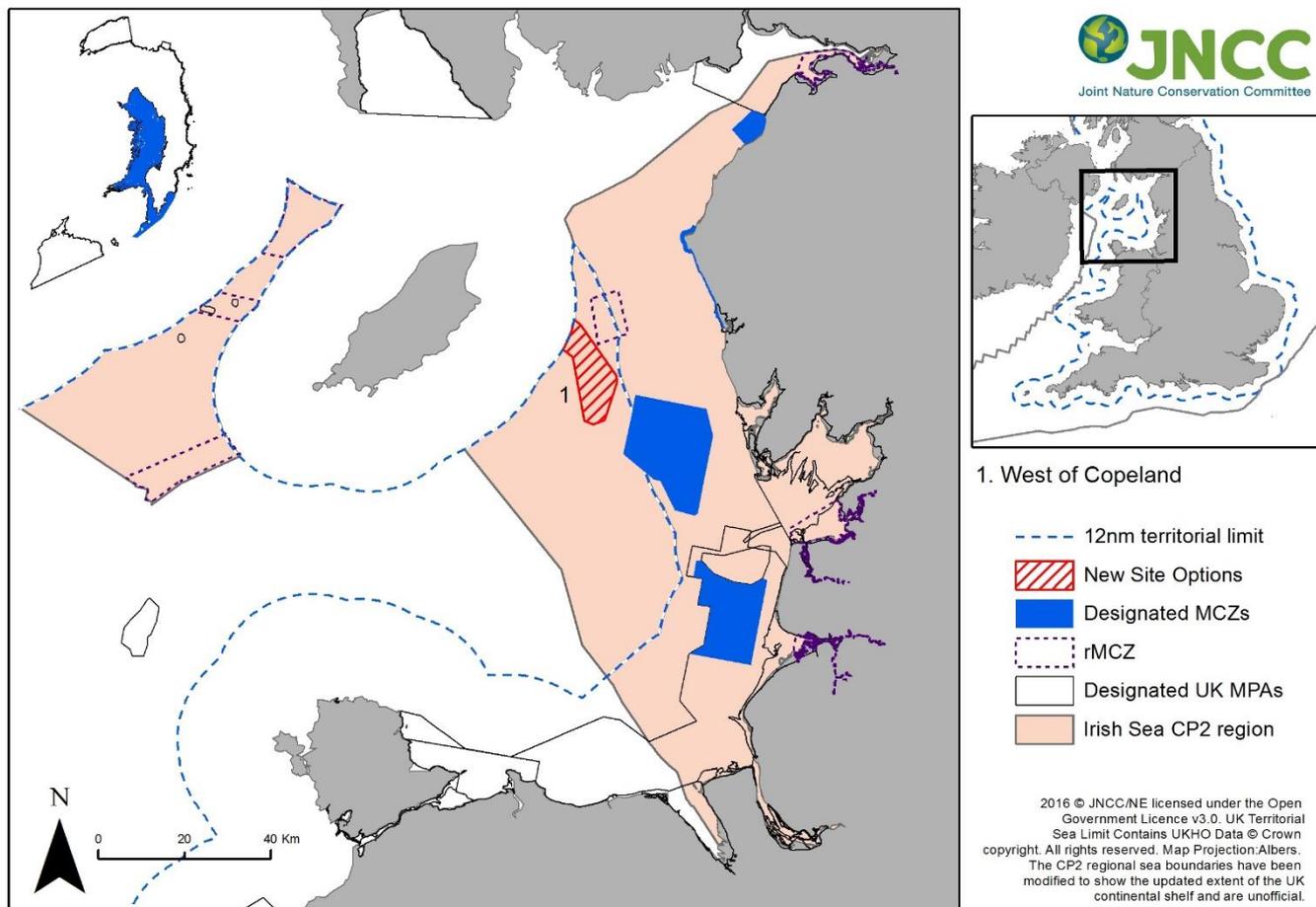


Figure 4. An overview of the distribution of designated MPAs (SACs, SPAs and MCZs), rMCZs and New Site Options in the Secretary of State waters part of the Irish Sea biogeographic region

JNCC’s network analysis (2016) identified a shortfall in the protection of Subtidal coarse sediment in the Irish Sea region; Table 10 provides an overview of the shortfalls. One offshore New Site Option has been developed by JNCC to address this shortfall. The West of Copeland New Site Option could contribute ~10% of the Subtidal coarse sediment protected in the region. No inshore New Site Options have been proposed for this region.

Table 10. Irish Sea region: Overview of the broad-scale habitat features for which there is considered a shortfall in protection in the Secretary of State waters part of the Irish Sea region. All values are rounded to the nearest integer to reflect residual uncertainty in the underlying spatial data.

Habitat	Minimum Target in the ENG	Current area protected within existing MPAs	Area with potential Tranche Three rMCZs/MCZs also included	Additional area required to meet ENG target
Subtidal coarse sediment	17% (~124km ²)	~6% (~40km ²)	~7% (~48km ²)	~10% (~76km ²)

Table 11. Irish Sea region: All potential site options (rMCZs from the regional MCZ projects and New Site Options) that could contribute to mitigating the shortfalls set out in Table 10, noting the other features associated with each option. All values are rounded to the nearest integer to reflect residual uncertainty in the underlying spatial data.

Site options	Potential network contribution of shortfall features	Other features ⁴⁸
	Subtidal coarse sediment	
New site options (note the adequacy criteria contributions of each new site option should be considered in relation to the 'additional area required to meet the ENG target' presented in Table 10)		
West of Copeland (Offshore)	~10% (~73km ²)	Subtidal sand. Subtidal mud. Subtidal mixed sediments.
Regional Project recommended MCZs (note the adequacy criteria contributions of each rMCZ/MCZ are part of the 'Potential total area' calculations presented in Table 10)		
South Rigg (Offshore)	~1% (~8km ²)	Moderate energy circalittoral rock. Subtidal sand. Subtidal mud. Subtidal mixed sediments. Sea-pen and burrowing megafauna communities

4 Bibliography

JNCC (2016). *Assessing progress towards an ecologically coherent MPA network in Secretary of State Waters in 2016*. Available at: <http://jncc.defra.gov.uk/page-7119>

Natural England and JNCC (2010). *The Marine Conservation Zone Project: Ecological Network Guidance*. Sheffield and Peterborough, UK: Natural England and JNCC. Available at: http://jncc.defra.gov.uk/PDF/100705_ENG_v10.pdf

⁴⁸ Does not include features for which we have no confidence in their presence and extent