



**Advice to Defra from the Joint Nature
Conservation Committee and Natural
England on Areas of Ecological Interest for
candidate Highly Protected Marine Areas in
England**

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Written jointly by the Joint Nature Conservation Committee and Natural England

1. Introduction

Highly Protected Marine Areas (HPMAs) are areas of the sea designated for the protection and recovery of marine ecosystems. They were defined in the Benyon Review and government response as “*Areas of the sea that allow the protection and recovery of marine ecosystems by prohibiting extractive, destructive and depositional uses and allowing only non-damaging levels of other activities to the extent permitted by international law*”. By setting aside some areas of sea with high levels of protection, HPMAs will allow nature to recover to a more natural state, allowing ecosystems to thrive. Their key purpose is biodiversity recovery.

On 8th June 2021, the UK government committed to identify and designate pilot HPMAs in English waters. Pilot HPMA site identification is based on ecological and socio-economic criteria, which ensure that sites selected provide maximum biodiversity benefits, social and economic opportunities and minimise impacts to sea users.

Natural England and the Joint Nature Conservation Committee (JNCC) were commissioned by Defra to work on the initial stages of the pilot HPMA site selection process, which involved developing (based on recommendations from the [Benyon Review](#)) and applying a range of ecological criteria to identify pilot HPMAs based on the ecology. Natural England and JNCC published [ecological guidance](#) to support the initial stages in the process in July 2021.

During August and September 2021, JNCC and Natural England applied the ecological criteria using the best available evidence from a range of data sources to identify important ecological areas, referred to as Areas of Ecological Interest (AEIs). Thirty AEIs were identified, including the consideration of the ecological merit of 26 proposals received from third parties.

This overarching report sets out how Natural England and JNCC undertook the assessment against the criteria set out in the ecological guidance to identify the 30 AEIs. An overview of the process to identify the final five candidate HPMAs from the 30 AEIs following the socio-economic assessment is included in Annex B of the consultation document. It is complemented by narratives (Annex H) and fact sheets (Annexes C-G) for each of the five candidate HPMAs that are the subject of this public consultation.

2. Methodology to identify Areas of Ecological Interest for pilot HPMAs in English waters

JNCC and Natural England followed a number of sequential stages in the identification of AEIs in English waters. Our assessment was underpinned by the best available evidence that could be readily accessed and considered in the timeframe available and took a ‘whole seas’ approach to maximise scientific rigour of the process and avoid bias towards locations where marine protection is already in place.

2.1. Evidence collation and processing

A variety of datasets held by JNCC and Natural England on the presence and extent of marine habitats and species were collated using GIS as a starting point for the identification of AEIs.

Datasets covered seabed marine habitats and species (such as the Marine Recorder Database¹ and JNCC's Combined Habitat Map²) as well as highly mobile species (such as data collated by the Sea Mammal Research Unit, European Seabirds at Sea Database³ and the Joint Cetacean Data Programme⁴).

The narratives for each candidate HPMA that complement this overarching report clearly document which specific datasets were utilised for each particular area. However, an overview of the main datasets JNCC and Natural England used to support the assessment is included in Table 1.

Natural England and JNCC used a scientifically robust, region-by region approach (based on the Charting Progress 2 biogeographical regions⁵) within inshore and offshore waters to identify AEIs in English waters. In some cases, this involved undertaking a 'gridded approach' to consider the relative merit of one location over another. For example, criteria 1a was assessed by considering the relative number of instances of occurrence of unique habitats and species over a given area. This helped JNCC and Natural England identify 'hotspots' of relatively greater levels of biodiversity in a consistent way. Table 1 indicates which criterion and supporting datasets employed a gridded approach.

Table 1. Overview of the main data sources used by JNCC and Natural England to identify Areas of Ecological Interest for HPMAs in English waters.

Ecological Criteria	Primary evidence sources	Gridded approach
Criteria 1a: The location has, or has had, relatively higher levels of biological diversity.	<ul style="list-style-type: none"> Benthic marine habitats and species (Marine Recorder, Natural England's Evidence Base) EUNIS Level 3 habitats (EU SeaMap) 	Yes – to identify areas with a relatively greater proportion of unique instances of marine habitats and species.
	<ul style="list-style-type: none"> Expert knowledge of historical levels of biological diversity 	No
	<ul style="list-style-type: none"> Seabird, fish and marine mammal data (the Joint Cetacean Data Programme, European Seabirds at Sea Database, Sea Mammal Research Unit data) 	No

¹ <https://jncc.gov.uk/our-work/marine-recorder/>

² <https://jncc.gov.uk/our-work/marine-habitat-data-product-eunis-level-3-combined-map/>

³ <https://www.gbif.org/dataset/f8fa5f92-81cf-4b2b-8e20-e0701ca46d31>

⁴ <https://jncc.gov.uk/our-work/joint-cetacean-data-programme/>

⁵ [Assessment areas - Charting Progress 2 \(CP2\) Regions | Marine Scotland Information](#)

Ecological Criteria	Primary evidence sources	Gridded approach
Criteria 1b: The location is known to contain multiple species and / or habitats of national, regional or global importance, or of regional distinctiveness.	<p>Same datasets as 1a, but filtered for those marine habitats and species that occur on lists of national, regional and/or global conservation importance:</p> <ul style="list-style-type: none"> • OSPAR List of Threatened and/or Declining Species; • UK List of Priority Species and Habitats (UK BAP); • Schedule 5 of Wildlife and Countryside Act features. 	Yes – to identify areas with a relatively greater proportion of marine habitats and species of national, regional and/or global importance.
Criteria 1c: The location is of importance to the key life cycle stages and / or behaviours of marine species.	<ul style="list-style-type: none"> • Maps of spawning, breeding, nursing, foraging and feeding areas for fish, birds and marine mammals from a variety of sources such as Katara <i>et al.</i> (2021)⁶. 	No
Criteria 2a: The location represents a relatively natural ecosystem.	<ul style="list-style-type: none"> • Sensitivity maps and activities maps held by JNCC and Natural England • Use of BH3 indicator⁷ to assess the distribution and intensity of pressure from bottom-contact fishing activity and the associated disturbance to the seafloor.⁸ 	No
Criteria 2b: The location represents a relatively degraded ecosystem.	<ul style="list-style-type: none"> • Condition status of designated marine habitats and species within MPAs that overlap with AEIs. 	No
Criteria 3a: The location includes habitats considered to be of importance to the long-term storage of carbon.	<ul style="list-style-type: none"> • The presence/absence of important blue carbon habitats (Gregg <i>et al.</i>, 2021)⁹ drawing on the same datasets used for criteria 1a and 1b. 	No

⁶ Katara, I., Peden, W.J., Bannister, H. *et al.* 2021. Conservation hotspots for fish habitats: A case study from English and Welsh waters. *Regional Studies in Marine Science*, 44, p.101745.

⁷ BH3. 2017. Extent of Physical Damage to Predominant and Special Habitats. 2017. OSPAR Commission. Compiled using data from ICES, JNCC & EMODnet. Licensed for use under CC-BY-2.0.

⁸ BH3. 2017. Extent of Physical Damage to Predominant and Special Habitats. 2017. OSPAR Commission. Compiled using data from ICES, JNCC & EMODnet. Licensed for use under CC-BY-2.0.

⁹ Gregg, R., Elias, J.L., Alonso *et al.* 2021 [Carbon storage and sequestration by habitat: a review of the evidence \(second edition\)](#) Natural England Research Report NERR094. Natural England, York.

Ecological Criteria	Primary evidence sources	Gridded approach
<p>Criteria 3b: The location is of importance to the key life cycle stages of commercially important marine species*.</p> <p>* Commercially important marine species means species of fish and shellfish which may be lawfully taken (as a result of quota allocations) and sold by commercial fishers.</p>	<ul style="list-style-type: none"> • Maps of spawning, breeding and feeding areas for fish that are of commercial importance such as Katara <i>et al.</i> (2021)¹⁰. 	No
<p>Criteria 3c: The location includes, or supports, habitats that are important in the provision of flood / erosion protection (<i>Not applicable for offshore</i>)</p>	<ul style="list-style-type: none"> • Benthic marine habitats filtered for habitats which support the provision of flood / erosion protection (Natural England's Evidence Base) • Environment Agency Flood Map for Planning (Rivers and Sea) • Environment Agency National Coastal Erosion Risk Mapping (NCERM) 	No

2.2. Excluding areas of activity not considered to be compatible with the definition of a pilot HPMA

Once available GI datasets on marine habitats and species had been collated and processed, the next step was to remove those areas in English waters that include structures or consented activities unable to adapt to the location of a pilot HPMA¹¹. Defra led the process of determining those activities not considered to be compatible

¹⁰ Katara, I., Peden, W.J., Bannister, H. *et al.* 2021. Conservation hotspots for fish habitats: A case study from English and Welsh waters. *Regional Studies in Marine Science*, 44, p.101745.

¹¹ Defra requested that areas of the sea where there are physical structures or consented activity which is unable to adapt to the location of a pilot HPMA was excluded. In some cases, areas of the sea with proposed locations for some structures or activities were also excluded, due to the impact these would have on a pilot HPMA when activity starts. These excluded areas are associated with extractive, depositional or destructive activities that are incompatible with the aims of HPMA, and where relocation for pilot HPMA is not possible.

with the definition of a pilot HPMA and provided this information to JNCC and Natural England. JNCC and Natural England then underwent an exercise to exclude known areas of these activities. Further information on activities not considered compatible with the definition of an HPMA is available in Annex B.

Buffers were applied to excluded activities in some cases, accounting for the wider-reaching impacts of activity beyond their focal point. The size of the buffers were specific to each activity type based on best-practice and input from specialist staff at JNCC and Natural England.

2.3. Identifying Areas of Ecological Interest in each biogeographic region

Once areas including structures or consented activities unable to adapt to the location of a pilot HPMA had been excluded, JNCC and Natural England undertook a biogeographic regional approach (Figure 1) within inshore and offshore waters to apply the collated ecological datasets against the ecological criteria.

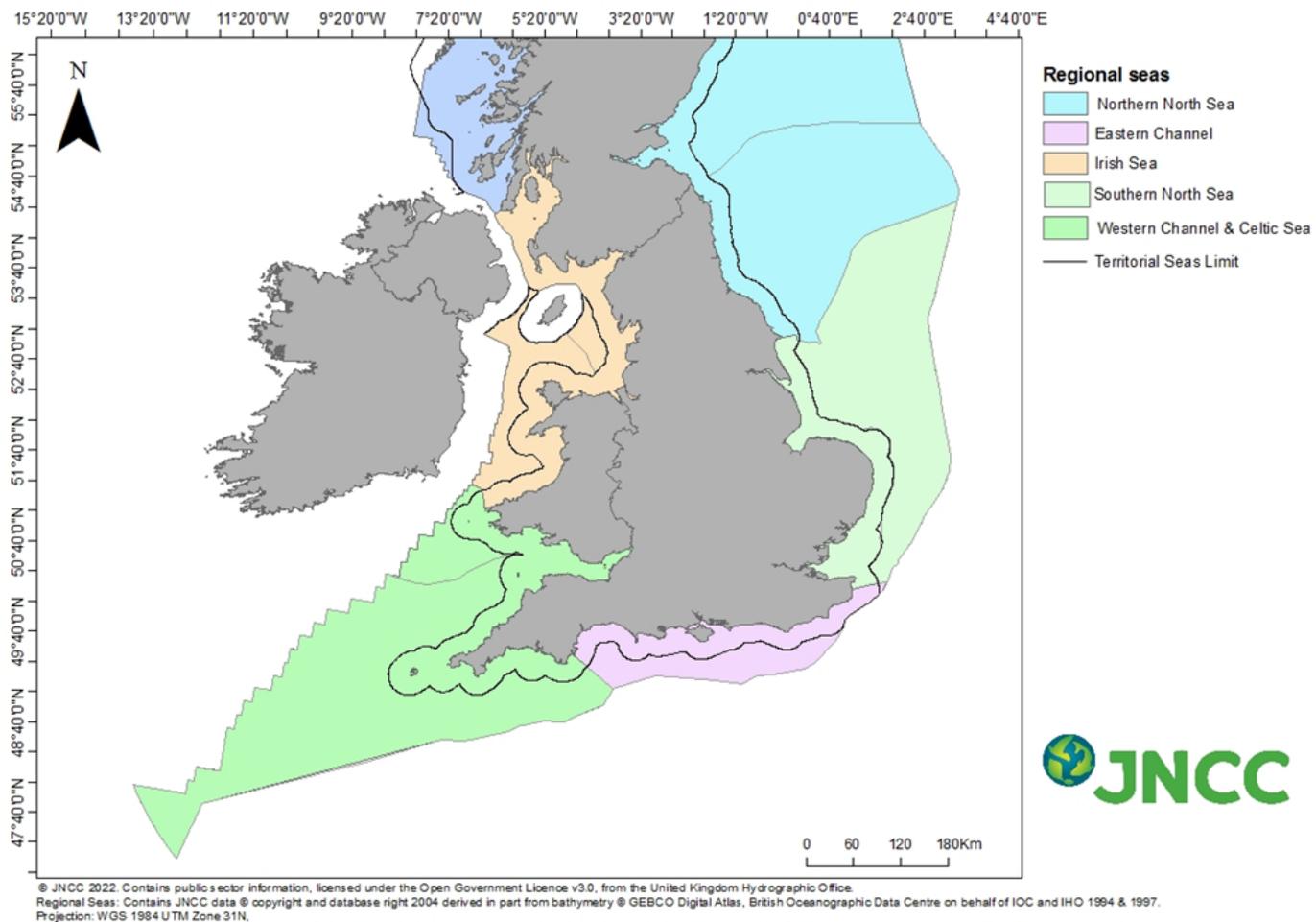


Figure 1. Map of biogeographic regions used to support the identification of AEIs by Natural England and JNCC in English waters

To keep the overall number of AEIs manageable, JNCC and Natural England agreed to identify approximately 5 initial areas per biogeographic region, within inshore and offshore waters ('long-list' of AEIs). The initial step was application of the gridded datasets associated with criteria 1a and 1b. Emerging 'hotspots' were then prioritised based on application of the remaining ecological criteria.

We drew on expert input from specialist staff during the long-list stage (for example, input from area teams in Natural England) to ensure we were not missing areas that may, historically, have had relatively greater levels of biodiversity; thereby helping to ensure we were not missing potentially strong candidates for biodiversity recovery.

Once the long-list of AEIs had been identified, JNCC and Natural England looked to refine the boundaries. The first check was to ensure that none of the long-list AEIs were less than 5km in diameter, as set out as a key practical consideration in the ecological guidance for identifying pilot HPMA¹².

The second check was to set the boundaries based on all available datasets. The boundaries were established to be as ecologically meaningful as possible (e.g. following the full extent of a given habitat type or seafloor topographic feature). However, in many cases boundaries were determined by the spatial footprint associated with activities not considered to be compatible with the definition of an HPMA.

Importantly, JNCC and Natural England included areas within the boundaries of the long-list of AEIs where ground-truthed ecological data were somewhat more sparse. This was to ensure the process was not biased towards areas where there had been relatively greater data collection efforts; in this case in areas that had been designated or initially considered in the past for designation as a Marine Protected Area (MPA).

2.4. Ranking the long-list of Areas of Ecological Interest

Once the long-list of AEIs had been identified (approximately 60 locations), JNCC and Natural England applied a quantitative and systematic process to identify the highest ranking AEIs in each biogeographic region, and in inshore and offshore waters of each of those regions.

The appropriate ecological selection criteria were assigned an ecological ranking factor, and this was used to score the AEI's for performance against each of the selection criteria. Table 2 outlines the ranking factors that were considered against each of the ecological criteria.

¹² Identifying pilot Highly Protected Marine Areas in English waters: Ecological principles and criteria guidance: <https://hub.jncc.gov.uk/assets/47bafb41-05d8-4929-b236-162f4eddd22f>

Table 2. List of ecological ranking factors associated with each of the ecological criteria

Criteria	Ecological factor
1a	Number of habitats and species per km ²
1b	Number of threatened and/or declining habitats and species per km ²
1c	Total number of behaviours/key life cycle stages and species combinations
3a	Total area (km ²) covered by blue carbon habitats
3b	Total number of key life cycle stages and species combinations for commercially important marine species
3c	Total area (km ²) of flood & erosion protecting habitats in areas at risk

A qualitative description for criteria 2 was given to identify if either: the location represents a relatively natural ecosystem (yes, no, mixed) or the location represents a relatively degraded ecosystem (yes, no, mixed). The aim was to ensure a range of relatively degraded and relatively natural locations was maintained across each biogeographic region and in inshore and offshore waters, respectively.

Each long-list AEI was then given a ranking against each ecological factor according to how well it ranked within the values. For example, if AEI 'A' had the 4th highest number of species and habitats per km² it would receive a '4' against that ranking factor. The best ranking AEIs in each biogeographic region and in inshore and offshore waters of each region, respectively, were then shortlisted – resulting in having the initial long-list of approximately 60 locations down to approximately 30.

2.5. Scoring the short list of Areas of Ecological Interest

Following the short-listing phase, a summary table was then produced for the best ranking AEIs, which documented whether or not each potential location met each criterion, with justifications; and an assessment against the evidence standards as set out in the ecological guidance.

JNCC and Natural England then held a workshop to consider our assessments in the round, which also included the processing and consideration of the 26 proposals put forward by third-parties (see Section 3). This process resulted in the further refinement of the AEIs. Figure 2 provides an overview of the broad areas of interest for pilot HPMAs as identified by JNCC and Natural England.

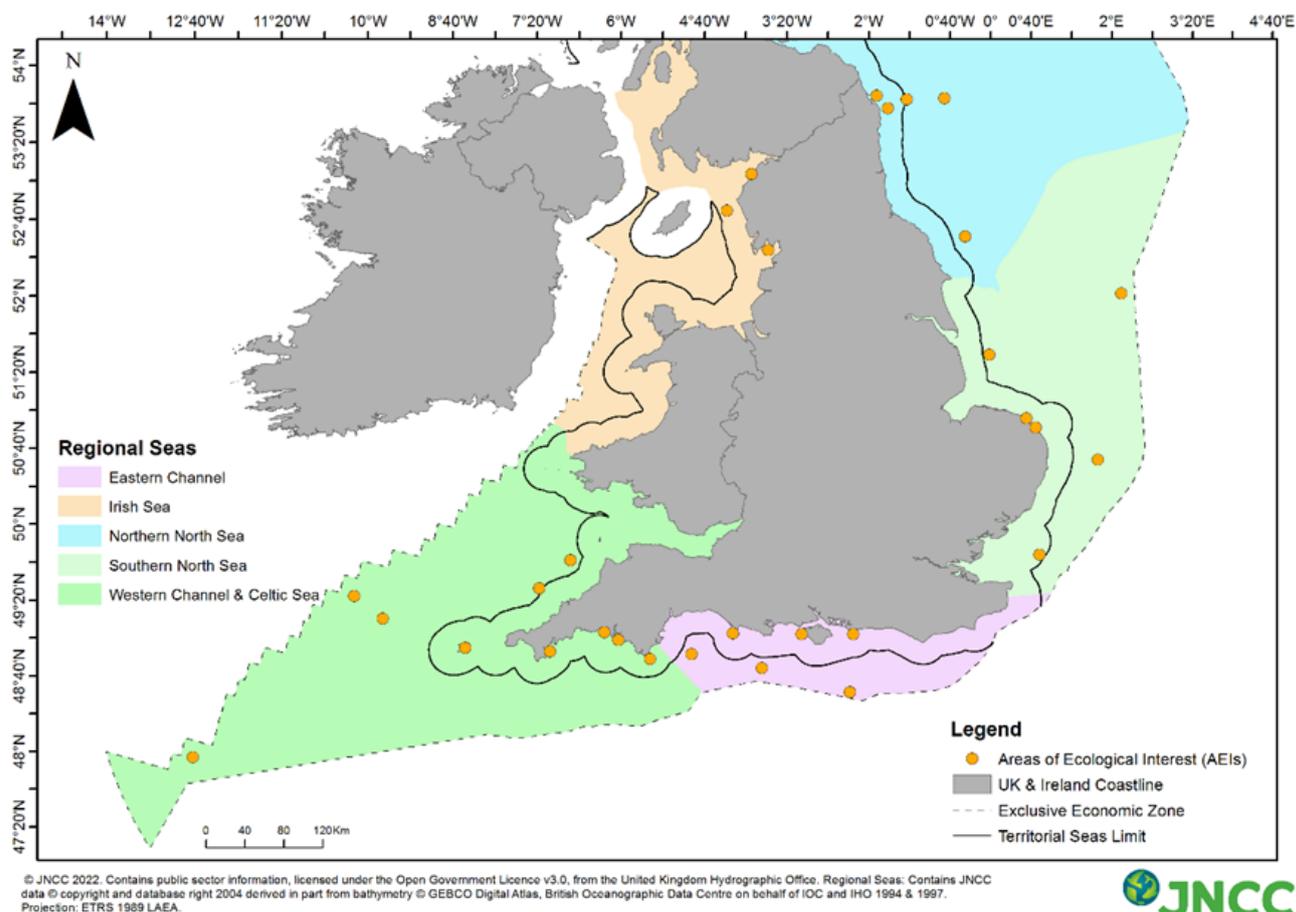


Figure 2. Areas identified on ecological grounds by JNCC and Natural England as AEIs for pilot HPMA.

At this stage, 30 AEIs went through quality assurance procedures within both Natural England and JNCC prior to submission to Defra for socio-economic analysis. Please see Section 4 for further information on quality assurance procedures for the work Natural England and JNCC have undertaken to identify AEIs for pilot HPMA on ecological grounds.

3. Third-party proposals

Third-parties were invited to propose locations for consideration as pilot HPMA to JNCC and Natural England based on their ecological merit, following submission guidance and a template developed by JNCC and Natural England¹³. A total of 26 proposals were received and are summarised in Annex 1. Note a proponent representing an individual has been coded to comply with GDPR.

¹³ <https://webarchive.nationalarchives.gov.uk/ukgwa/20210901103137/https://hub.jncc.gov.uk/assets/47bafb41-05d8-4929-b236-162f4eddd22f>

As indicated in Section 2.5, JNCC and Natural England considered the third-party proposals using the same scoring and evidence standards that we applied to our own shortlisted AElS.

As part of the work to process the third-party proposals, any falling wholly within Northern Irish offshore waters were not considered further as the scope for pilot HPMA was for identification within English waters only. Moreover, to be consistent with JNCC and Natural England's own process, any third-party proposals overlapping wholly with activities not considered to be compatible with the definition of a pilot HPMA were also not considered further.

Any third-party proposal which partly overlapped with Northern Irish offshore waters or activities not considered compatible with the definition of a pilot HPMA were processed to remove the overlapping component(s) and the resulting area(s) screened to ensure they were larger than 5km in diameter. Those less than 5km in diameter were not considered further.

Once processing work had been undertaken, whole and third-party proposals still in scope were scored and ranked alongside JNCC and Natural England's own shortlisted AElS. Where third-party proposals overlapped with JNCC and Natural England's AElS the evidence was considered in combination.

4. Quality Assurance Process

The Evidence Quality Assurance (EQA) process to identify Areas of Ecological Interest (AElS) as a pilot HPMA in English waters complies with the Government Chief Scientific Adviser's guidelines for preparing scientific advice, the recommendations of the Benyon review report¹⁴ for selecting pilot HPMA and the Government's subsequent response¹⁵ to the Benyon review.

JNCC applied its internal Evidence Quality Assurance (EQA) Policy¹⁶ to ensure our advice was scientifically robust. JNCC's decision-making at each step in the process has been recorded with audit documents. Assigned project managers, the responsible team leader and marine director of JNCC have been involved at key stages in the process to quality assure deliverables prior to moving onto the next stages in the process and prior to submission to Defra.

Natural England's decisions have been documented at each step of the process. Natural England's marine Principal Advisers with responsibility for overseeing the project have been involved throughout the development of the guidance on the

¹⁴ Benyon review Into Highly Protected Marine Areas: Final report
<https://www.gov.uk/government/publications/highly-protected-marine-areas-hpmas-review-2019/benyon-review-into-highly-protected-marine-areas-final-report-executive-summary>

¹⁵ Government response to the Highly Protected Marine Areas review:
<https://www.gov.uk/government/publications/government-response-to-the-highly-protected-marine-areas-hpmas-review/government-response-to-the-highly-protected-marine-areas-hpmas-review>

¹⁶ JNCC Evidence Quality Policy: <https://jncc.gov.uk/about-jncc/corporate-information/evidence-quality-assurance/>

identification of HPMA's and the ecological process to identify Areas of Ecological Interest, and have quality assured all deliverables prior to submission to Defra. In addition, Natural England's formal ecological advice (submitted to Defra on 30/09/2021) received sign off at both Director and CEO level.

Meetings between Natural England, JNCC and Cefas were held on a weekly basis between July and September 2021 to agree on the ecological process to select AEIs; meeting notes were recorded on the decisions agreed.

As part of the governance of the HPMA project, Defra established and chair a HPMA Steering Group (SG) and Delivery Group (DG). The SG is chaired by the Defra Deputy Director with attendance from senior and experienced staff across all responsible Arms-Length Bodies (ALBs). The DG group comprises a wider group of Defra and ALB staff working on the HPMA project. The key role of the Steering Group in particular was to collectively make decisions on the direction of the work and to scrutinise deliverables. For the purposes of the work of Natural England and JNCC, scrutiny from the Steering Group was focussed on the ecological guidance for identifying HPMA's¹⁷, the narratives for the candidate HPMA's which form a key component of this consultation and general steer on direction on key stages in the selection process.

¹⁷ <https://hub.jncc.gov.uk/assets/47bafb41-05d8-4929-b236-162f4eddd22f>

Annex 1. Summary of the assessment of third-party proposals

CP2 Region/s	Inshore/ offshore/ both	Suggested name	Excluded for further consideration due to one or more of the following reasons: – Outside geographical range – Overlap with activities filter – Failure to meet minimum size guidelines – Lower ecological scoring	Proposal overlaps (in part or in full) with one of the 30 Areas of Ecological Interest submitted to Defra	Overlaps with candidate HPMA for consultation
Western Channel and Celtic Sea	Inshore	Bideford and Foreland Point	Yes		No
Western Channel and Celtic Sea	Inshore	Carrick Roads	Yes		No
Western Channel and Celtic Sea	Inshore	Salcombe-Kingsbridge Estuary	Yes		No
Western Channel and Celtic Sea	Both	South West Approaches to the Bristol Channel		Yes	No
Western Channel and Celtic Sea	Inshore	The Bizzies	Yes		No
Western Channel and Celtic Sea	Inshore	Whitsand and Looe Bay		Yes	No
Western Channel and Celtic Sea	Inshore	Eastern Isles of Scilly		Yes	No

CP2 Region/s	Inshore/ offshore/ both	Suggested name	Excluded for further consideration due to one or more of the following reasons: – Outside geographical range – Overlap with activities filter – Failure to meet minimum size guidelines – Lower ecological scoring	Proposal overlaps (in part or in full) with one of the 30 Areas of Ecological Interest submitted to Defra	Overlaps with candidate HPMA for consultation
Western Channel and Celtic Sea	Inshore	Plymouth Sound Entrance to the Wembury area		Yes	No
Western Channel and Celtic Sea	Inshore	Wembury Bay and Estuary		Yes	No
Western Channel and Celtic Sea	Inshore	Wembury		Yes	No
Western Channel and Celtic Sea	Inshore	Whitsand Bay and Looe Bay		Yes	No
Eastern Channel and Western Channel and Celtic Sea	Inshore	Start, Skerries and Salcombe		Yes	No
Eastern Channel	Offshore	Dolphin Head		Yes	Yes
Eastern Channel	Inshore	Sussex Bay		Yes	No

CP2 Region/s	Inshore/ offshore/ both	Suggested name	Excluded for further consideration due to one or more of the following reasons: – Outside geographical range – Overlap with activities filter – Failure to meet minimum size guidelines – Lower ecological scoring	Proposal overlaps (in part or in full) with one of the 30 Areas of Ecological Interest submitted to Defra	Overlaps with candidate HPMA for consultation
Northern North Sea	Inshore and Offshore (crosses 12nm boundary)	East of Farnes East		Yes	No
Northern North Sea and Southern North Sea	Inshore	Flamborough	Yes		No
Southern North Sea	Offshore	Inner Silver Pit		Yes	Yes
Southern North Sea	Offshore	Silver Pit		Yes	Yes
Southern North Sea	Inshore and Offshore (crosses 12nm boundary)	Kentish Knock East		Yes	Yes
Southern North Sea	Inshore	Holderness Offshore MCZ Extension	Yes		No
Southern North Sea	Inshore	North Norfolk Reef Conservation Zone		Yes	No

CP2 Region/s	Inshore/ offshore/ both	Suggested name	Excluded for further consideration due to one or more of the following reasons: – Outside geographical range – Overlap with activities filter – Failure to meet minimum size guidelines – Lower ecological scoring	Proposal overlaps (in part or in full) with one of the 30 Areas of Ecological Interest submitted to Defra	Overlaps with candidate HPMA for consultation
Irish Sea	Inshore	Allonby Bay		Yes	Yes
Irish Sea	Inshore and Offshore (crosses 12nm boundary)	Mud Hole		Yes	No
Irish Sea	Offshore	Slieve na Griddle	Yes		No
Irish Sea	Offshore	South Rigg	Yes		No
Irish Sea	Offshore	South Rigg	Yes		No