



Ecological Network Guidance Summary

Drafted by Finding Sanctuary - March 2010 (updated July 2010)

This document is a summary of the Marine Conservation Zone Ecological Network Guidance, written by Natural England and the Joint Nature Conservation Committee (JNCC), and published in June 2010. The Ecological Network Guidance is Natural England and the JNCC's statutory advice to Government on how to meet the requirements of the Marine and Coastal Access Act and Defra policy. It will provide the basis on which Government expects the regional Marine Conservation Zone project stakeholder groups to develop their MCZ recommendations. Our summary is intended to be used as a quick reference guide, and not in place of the full guidance document. The full Ecological Network Guidance document can be downloaded from the [Natural England](#)¹ and [JNCC](#)² websites.

Best available evidence

- **MCZ identification should be based on the best available scientific evidence. Lack of full scientific certainty should not be a reason for delaying decisions on site recommendations.**
- **MCZ identification should take account of local and lay knowledge.**

*Species and habitats of conservation importance (FOCI) and broad-scale habitats to be protected within MPAs*³:

- **At least 2 separate examples of each of 23 broad-scale habitats, and 3-5 examples of each of 22 habitats of conservation importance and 29 low or limited mobility species of conservation importance should be protected**, within each regional MCZ project area, where their distribution allows. They are listed in tables 1-3, with figures for how much (and how many examples) of each feature⁴ should be represented.
- **Three highly mobile species should be protected within each regional MCZ project area, where appropriate spawning, nursery or foraging grounds occur.** These are listed in table 4. No target amounts of area are given.

Geological features to consider for protection in MCZs:

- There are three geological features of importance in the southwest (table 5), and 10 coastal Geological Conservation Review sites that have a significant intertidal or subtidal portion which is currently not protected (table 6). These should be considered for MCZs, but no formal targets have been set.

Guidelines on the size of MCZs:

- **MCZs for broad-scale habitats should have a minimum diameter of 5km with the average size being between 10 and 20km in diameter.** These size guidelines apply especially for offshore MCZs.
- MCZs for features of conservation importance (FOCI)⁵ should be a minimum size as specified in tables 2 and 3. MCZs for FOCI will be identified mainly inshore.

Guidelines on the distance between MPAs:

- **MPAs of similar habitat**⁶ **should be separated, where possible, by no more than 40-80km.** This is a rule of thumb, and should carry a lower weight than meeting the other guidelines. Connectivity may be approximated by ensuring that MPAs are well distributed across regional MCZ project areas.
- **Where species-specific dispersal distances are known, these should be considered in determining the spacing between MPAs (in reality, this level of information is limited).**

¹ http://www.naturalengland.org.uk/Images/100608_ENG_v10_tcm6-17607.pdf

² http://www.jncc.gov.uk/pdf/100608_ENG_v10.pdf

³ "MPAs" (marine protected areas) means MCZs plus other types of protected areas, e.g. SACs and SPAs. Where targets are already met with existing MPAs, no further MCZs are needed for those targets.

⁴ The term "feature" refers collectively to species, habitats, broad-scale habitats, geological features – i.e. anything mentioned in this guidance as a feature of the marine environment that can or should be protected within MCZs.

⁵ The term "feature of conservation importance" (FOCI) refers exclusively to the species and habitats listed in tables 2, 3, and 4.

⁶ "Similar habitat" means EUNIS level 2: Subtidal rock, intertidal rock, subtidal sediment, intertidal sediment, and deep sea.

Protection levels and Reference Areas

- **For each broad-scale habitat and FOCI, there should be at least one viable⁷ reference area within each of the four MCZ project areas in which all extraction (of living or non-living resources), deposition or human-derived disturbance has been removed/prevented.**
- **For MCZs that are not reference areas, the level of protection will be determined by conservation objectives for the site**, which in turn need to be based on what features the site is meant to protect, and what state those features are in. Conservation objectives for MCZs should be determined by i) the current condition of features and/or ii) best available evidence on pressures to which they are sensitive. Further guidance will be available.

Additional areas of ecological importance

- **When selecting MCZs, particular attention should be given to including important areas for key life stages of species, such as spawning, nursery or juvenile areas.** When selecting MCZs for mobile species, prioritise areas important for foraging, breeding, moulting, loafing, wintering or resting. These considerations are not limited to the species listed in tables 3 and 4, but no specific further guidelines are given.
- **When selecting MCZs prioritise areas of high natural biodiversity and high natural pelagic productivity.**

Level of current impact

- **A feature which has been less impacted human activities should generally be considered a higher priority** for MCZ identification than a more degraded example of the same feature. However, **this should not prevent the selection of areas that have been impacted, if they best contribute to the ecological objectives of the network** (Levels of impact can be determined from maps of human activities in sections C and D of the regional profile; further maps on cumulative seafloor impacts are to follow).

Scientific Value

- **When identifying possible MCZs, consider their value for scientific research.** Suitable locations may include areas that have already been subject to long-term research and monitoring as the conditions before designation will be well-known and change can be measured; and areas located close to research centres or access points that can facilitate regular research and monitoring.

Practical guidelines for drawing MCZ boundaries

- MCZ boundaries should follow feature extent (where appropriate), whilst using a minimum number of straight lines, **ensuring as compact and simple a shape as possible and incorporating a margin** to ensure appropriate protection of features.
- Where a feature is present in a number of separate but nearby locations, effort should be made to include all discrete occurrences within site boundaries.
- For spatially dynamic habitats, boundaries should, where possible, encompass predicted changes in the feature distribution to ensure their long-term sustainability (e.g. allowing migration features in the medium term).
- MCZs for species should be drawn around areas of regular/predictable species concentration, using best available data. Where species are known to occur within a defined habitat, the habitat can be used as a basis for site delineation.

⁷ "Viable" means following the minimum size guidelines for broad scale habitats (5km minimum dimension), and the figures in tables 2 and 3 for FOCI. Beyond that, there are no targets for the amount / percentage of sea area, or of broad-scale habitats, that must be within reference sites.

Table 1: Indicative percentage ranges for the proportion of the total extent of each broad-scale habitat that should be protected by MPAs within each of the regional MCZ project areas. At least two separate examples of each of these broad-scale habitats should be protected within each project area.

EUNIS Level 3 broad-scale habitat types (habitat code)	Target range
High energy ⁸ intertidal rock (A1.1)	21-38%
Moderate energy intertidal rock (A1.2)	21-38%
Low energy intertidal rock (A1.3)	22-39%
Intertidal coarse sediment (A2.1)	25-42%
Intertidal sand and muddy sand (A2.2)	25-42%
Intertidal mud (A2.3)	25-42%
Intertidal mixed sediments (A2.4)	25-42%
Coastal saltmarshes and saline reedbeds (A2.5)	*
Intertidal sediments dominated by aquatic angiosperms ⁹ (A2.6)	*
Intertidal biogenic reefs ¹⁰ (A2.7)	*
High energy infralittoral rock (A3.1)	15-31%
Moderate energy infralittoral rock (A3.2)	17-32%
Low energy infralittoral rock ¹¹ (A3.3)	16-32%
High energy circalittoral rock ¹² (A4.1)	11-25%
Moderate energy circalittoral rock (A4.2)	13-28%
Low energy circalittoral rock (A4.3)	16-32%
Subtidal coarse sediment (A5.1)	17-32%
Subtidal sand (A5.2)	15-30%
Subtidal mud (A5.3)	15-30%
Subtidal mixed sediments (A5.4)	16-32%
Subtidal macrophyte ¹³ -dominated sediment (A5.5)	*
Subtidal biogenic reefs (A5.6)	*
Deep-sea bed (A6) **	**

* These habitats overlap significantly with some of the habitats of conservation concern listed in table 2, and they will therefore be covered adequately as long as the targets in table 2 are met.

** No percentage target is given. The broad-scale deep-sea bed habitat is only found in the south west of the (national) MCZ project area. MCZs identified for this habitat need to protect the variety of sub-habitats found within the SW.

⁸ "Energy" refers to how much the water moves, so areas with strong currents or high wave exposure are "high energy", calm and sheltered areas are "low energy".

⁹ Aquatic angiosperms are flowering plants that live in water – like eelgrass.

¹⁰ Biogenic reefs are structures built up by animals or plants, e.g. cold-water coral reefs, mussel beds, and reef structures built by some species of worm.

¹¹ Infralittoral rock includes habitats of bedrock, boulders and cobbles which occur in the shallow subtidal zone and typically support seaweed communities. The upper limit is marked by the top of the kelp zone whilst the lower limit is marked by the lower limit of kelp growth or the lower limit of dense seaweed growth – which means the infralittoral zone coincides with depths that have sufficient light penetration to support dense plant growth. Depending on how clear or turbid the water is, the infralittoral zone can extend to very different depths.

¹² Circalittoral rock is characterised by animal dominated communities (a departure from the algae dominated communities in the infralittoral zone). The depth at which the circalittoral zone begins is directly dependent on the intensity of light reaching the seabed; in highly turbid conditions, the circalittoral zone may begin just below water level.

¹³ Macrophytes are macroscopic plants - i.e. seaweeds and vascular plants big enough to see without a microscope.

Table 2: Minimum viable MCZ diameter for habitats of conservation importance. At least 3-5 examples of each of these habitats need to be protected within each MCZ project area, where the distribution of the feature allows.

Habitats of conservation importance	Minimum viable patch diameter (km)				
	0.5	1	5	>10	Whole feature
Blue mussel beds	x				
Cold-water coral reefs					x
Coral gardens	None given**				
Deep-sea sponge aggregations			x		
Estuarine rocky habitats	x				
File shell beds	x				
Fragile sponge & anthozoan ¹⁴ communities ¹⁵ on subtidal rocky habitats	x				
Intertidal boulder communities	x				
Littoral chalk communities		x			
Maërl beds	x				
<i>Modiolus modiolus</i> ¹⁶ beds	x				
Mud habitats in deep water		x			
Sea-pen ¹⁷ and burrowing megafauna ¹⁸ communities		x			
<i>Ostrea edulis</i> ¹⁹ beds	x				
Peat and clay exposures	x				
<i>Sabellaria alveolata</i> ²⁰ reefs	x				
<i>Sabellaria spinulosa</i> ²¹ reefs	x				
Seagrass beds	x				
Sheltered muddy gravels	x				
Subtidal chalk	x				
Subtidal sands and gravels *	x			x	
Tide-swept channels	x				

* The minimum viable size will depend on the specific substrate type. Gravels may have a smaller viable patch size (0.5 or 1km diameter) whereas sands require larger patch sizes (10km or greater).

** There are currently no records of this habitat within the MCZ project area.

¹⁴ Comes from the Greek for “flower animals”. Anthozoans are a class of animals which include sea anemones and corals. Together with jellyfish they belong to the phylum (broad group) of the cnidarians.

¹⁵ “Communities” is an ecological term meaning an assemblage of species in a given place.

¹⁶ *Modiolus modiolus* is the latin name for the horse mussel

¹⁷ Sea pens are types of cnidarians (the phylum – or large group - of animals that also includes jellyfish, corals and sea anemones). Sea pens grow in colonies, in the shape of a quill, part-burrowed in sediment. They tend to be quite fragile.

¹⁸ Megafauna = big animals

¹⁹ *Ostrea edulis* is the latin name for the native oyster, also known as flat oyster

²⁰ *Sabellaria alveolata* is the honeycomb worm, a worm that builds hummocks of honeycomb-shaped tubes on the low shore and shallow subtidal usually on mixed sediment / bouldery / rocky shores with plenty of sand churned up by waves.

²¹ *Sabellaria spinulosa* is the ross worm, another type of worm that builds small reefs and hummocks out of the tubes that it lives in. It lives on subtidal coarse sediment and cobbly areas.

Table 3: Minimum viable MCZ diameter for species of conservation importance (low or limited mobility species FOCI to be protected within each regional MCZ project area where they occur). At least 3-5 examples of each of these species need to be protected within each MCZ project area, where the distribution of the feature allows.

Scientific and common name	Minimum viable patch diameter (km)				
	0.5	1	5	>10	Whole feature
<i>Alkmaria romijni</i> - Tentacled lagoon-worm	x				
<i>Amphianthus dohrnii</i> - Sea-fan Anemone	x				
<i>Arctica islandica</i> - Ocean quahog	x				
<i>Armandia cirrhosa</i> - Lagoon Sandworm					x ²²
<i>Atrina pectinata</i> (formerly <i>Atrina fragilis</i> ²³) - Fan Mussel	x				
<i>Caecum armoricum</i> - Defolin's lagoon snail		x			
<i>Cruoria cruoriaeformis</i> - a red seaweed		x			
<i>Eunicella verrucosa</i> - Pink Sea-fan			x		
<i>Gammarus insensibilis</i> - Lagoon sand shrimp	x				
<i>Gitanopsis bispinosa</i> - an Amphipod shrimp		x			
<i>Gobius cobitis</i> - Giant Goby		x			
<i>Gobius couchi</i> - Couch's Goby		x			
<i>Grateloupia montagnei</i> (formerly <i>Dermocorynus montagnei</i> ²⁴) - a red seaweed		x			
<i>Haliclystus auricula</i> - a stalked jellyfish	x				
<i>Hippocampus guttulatus</i> - Long snouted seahorse	x				
<i>Hippocampus hippocampus</i> - Short snouted seahorse	x				
<i>Leptopsammia pruvoti</i> - Sunset Cup Coral	x				
<i>Lithothamnion corallioides</i> - Coral Maërl	x				
<i>Lucernariopsis campanulata</i> - a stalked jellyfish		x			
<i>Lucernariopsis cruxmelitensis</i> - a stalked jellyfish		x			
<i>Nematostella vectensis</i> - Starlet sea anemone	x				
<i>Ostrea edulis</i> - Native Oyster	x				
<i>Padina pavonica</i> - Peacock's tail (a seaweed)	x				
<i>Palinurus elephas</i> - Crayfish			x		
<i>Paludinella littorina</i> - Sea snail		x			
<i>Phymatolithon calcareum</i> - Common Maërl	x				
<i>Pollicipes pollicipes</i> (formerly <i>Mitella pollicipes</i>) ²⁵ - Gooseneck Barnacle	x				
<i>Tenellia adpersa</i> - Lagoon sea slug					x ²⁶
<i>Victorella pavida</i> - Trembling sea mat (a bryozoan)					x ²⁷

²² This species occurs in lagoons – “whole feature” refers to the whole lagoon.

²³ Name now changed to *Atrina pectinata*, but this may still be referred to as *Atrina fragilis* on maps and in literature.

²⁴ Name now changed to *Grateloupia montagnei*, but may still be referred to as *Dermocorynus montagnei* on maps and in literature.

²⁵ Name now changed to *Pollicipes pollicipes*, but may still be referred to as *Mitella pollicipes* on maps and in literature.

²⁶ This species occurs in lagoons – “whole feature” refers to the whole lagoon.

²⁷ This species only occurs in one single lagoon in the national MCZ project area (in the SW region), and the whole lagoon should be protected.

Table 4: Highly mobile species FOCI to be protected within each regional MCZ project area where appropriate spawning, nursery or foraging habitats occur. At least 3-5 examples of each of these species need to be protected across all four regional project areas combined, where the distribution allows.

Scientific and common name
<i>Osmerus eperlanus</i> - Smelt
<i>Anguilla anguilla</i> - European eel
<i>Raja undulata</i> - Undulate ray

Table 5: Geological and geomorphological features of importance within the Finding Sanctuary project area.

Feature name
Haig Fras rock complex
Celtic Sea relict sand banks
Portland deep

Table 6: Coastal Geological Conservation Review (GCR) sites within the Finding Sanctuary project area that have a significant intertidal or subtidal portion not currently protected by existing SSSIs.

GCR name	Related SSSIs
Axmouth-Lyme Regis	Axmouth-Lyme Regis Undercliffs
Black Ven	West Dorset Coast
Budleigh Salterton	Budleigh Salterton Cliffs
Dawlish Warren	Dawlish Warren
Hallsands	Hallsands-Beesands
Isles of Scilly	Tean
Isles of Scilly	Eastern Isles
Slapton Ley	Slapton Ley
Westward Ho!	Northam Burrows
Whitsand Bay	Rame Head & Whitsand Bay

To find out more about the habitats and species listed in the Ecological Network Guidance please visit [Natural England's features catalogue](#)

Habitats and species distribution maps are available on the [Interactive Map](#).