

# Approach to providing information on marine Geological and Geomorphological features as part of the UK MPA Stocktake

## 1. Background

Defra and the Devolved Administrations have requested a review of the contribution that existing and proposed Marine Protected Areas (MPAs) in the UK make to their policy aspirations for an ecologically coherent network<sup>1</sup>. The UK MPA stocktake will catalogue all UK MPAs and their features – both listed features and UK MPA network features. This will include all marine features for which a site has been designated, including geological and geomorphological features (herein referred to as marine geo-features).

The proposed approach addresses three UK designation categories:

- Sites of Special Scientific Interest/Areas of Special Scientific Interest (SSSIs/ASSIs (Northern Ireland))
- Nature Conservation MPAs
- Marine Conservation Zones<sup>2</sup>

In JNCC's opinion, these are the only UK designation categories where marine geo-features can be formally listed based on the underpinning legislation. It may be the case that other designation types afford incidental protection to marine geo-features, e.g. Special Areas of Conservation and iceberg ploughmark zones as a sub-type of Annex I stony reef. However, JNCC propose this is addressed in the future as part of wider work on incidental protection.

## 2. Purpose

The purpose of this paper is to help decide on a process for listing features considered marine geo-features which contribute to the UK MPA network. This paper proposes an approach that SNCBs could follow for submitting information on listed marine geological/geomorphological features (herein referred to as marine geo-features) for the purposes of updating the UK MPA stocktake.

## 3. Proposed approach to providing information on marine geo-features by designation type

### SSSIs/ASSIs

When considering which geo-features are considered to constitute marine components of SSSIs, JNCC propose that those sites with an **active** geomorphological contribution to make to the marine setting, such as saltmarsh morphology and coastal cliff erosion (sediment supply) in coastal geomorphology are of importance. Broadly, the types of Geological Conservation Review categories for which geo-features of SSSIs with marine components may fit, are the active geomorphology themes of:

- Coastal Geomorphology;
- Fluvial Geomorphology; and,
- Mass Movements.

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<sup>1</sup> OSPAR Commission (2006). Guidance on developing an ecologically coherent network of OSPAR marine protected areas. No. 2006-03. Available at: [http://www.ospar.org/documents/dbase/decrecs/agreements/06-03e\\_guidance%20ecol%20coherence%20mpa%20network.doc](http://www.ospar.org/documents/dbase/decrecs/agreements/06-03e_guidance%20ecol%20coherence%20mpa%20network.doc)

<sup>2</sup> Geological features Marine Conservation Zone are designated under the Marine and Coastal Access Act and . Wales do **not proposed to use the MCZ powers to designate sites for geological features**

JNCC recommend that SNCBs review the notified geo-features of their SSSIs/ASSIs and submit to JNCC those sites and notified geo-features that could be classed as being represented under one of the categories above.

#### *MPAs designated under the UK Marine Acts*

Marine geo-features can be formally listed as a designated feature of Marine Conservation Zones and Nature Conservation MPAs under the UK Marine Acts. JNCC simply recommend that SNCBs submit a list of formally designated marine geo-features as they are written in site Designation Orders – as all examples should constitute a ‘marine’ example of geo-features.

#### **4. Potential future work**

For the purposes of future potential network assessments, it may be prudent to consider whether a marine geo-feature standardisation exercise needs to be undertaken along commonalities between features, e.g. Glacial process features, Active coastal geomorphological features etc. This is analogous to generating the UK MPA features list for biodiversity. If requested, this will require input from geo-specialists across the SNCBs Agencies as well as JNCC.

For information, Annex A includes a list of the marine geo-feature categories that were used for the purposes of the Marine Conservation Zones and Nature Conservation MPA designation projects respectively.

## Annex A

### *Marine Conservation Zones*

Data derived from the Defra contract MB0102<sup>3</sup>:

- Geomorphological Marine Process Features - Features created directly by marine processes such as waves, tides and currents
- Glacial Process Features - Features created as a direct result of physical processes associated with ice.
- Features indicating past change in relative sea level - These features are markers of historic sea levels which have fluctuated over time.
- Mass Movement Features - Features created from the movement of sediment or rock, for example a slump or a slide occurring on the seabed. Mass movements can cover large geographical areas and may involve large quantities of material moving at great speed.
- Geological Process Features - These features are formed by a variety of past and ongoing geological processes including volcanism, diapirism, fluid and gas seepage from the seabed and tectonism.

### *Nature Conservation MPAs*

Scottish Natural Heritage and the Joint Nature Conservation Committee commissioned a report to review and identify key geodiversity areas in Scotland's seas for the purposes of MPA selection (Brooks *et al.* 2014<sup>4</sup>). The review drew heavily on the GCR and the concept of 'blocks', as well as the data collated through the work of Brooks *et al.* (2009) to produce a series of principal 'blocks' with associated geo features.

- Quarternary of Scotland;
- Submarine Mass Movement;
- Marine Geomorphology of the Scottish Deep Ocean Seabed;
- Seabed Fluid and Gas Seep;
- Cenozoic Structures of the Atlantic Margin;
- Marine Geomorphology of the Scottish Shelf Ocean Seabed;
- Coastal Geomorphology of Scotland; and,
- Biogenic Structures of the Scottish Seabed.

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<sup>3</sup> MB0102 - Report No 8: Task 2A. Mapping of Geological and Geomorphological Features. Available online here: <http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16368>

<sup>4</sup> Available here: [http://www.snh.org.uk/pdfs/publications/commissioned\\_reports/432.pdf](http://www.snh.org.uk/pdfs/publications/commissioned_reports/432.pdf)