



UK Biodiversity Action Plan Priority Habitat Descriptions

Seamount Communities

From:

UK Biodiversity Action Plan; Priority Habitat Descriptions. BRIG (ed. Ant Maddock) 2008.

This document is available from:

<http://jncc.defra.gov.uk/page-5706>

For more information about the UK Biodiversity Action Plan (UK BAP) visit

<http://www.jncc.defra.gov.uk/page-5155>

Please note: this document was uploaded in November 2016, and replaces an earlier version, in order to correct a broken web-link. No other changes have been made. The earlier version can be viewed and downloaded from The National Archives:
<http://webarchive.nationalarchives.gov.uk/20150302161254/http://jncc.defra.gov.uk/page-5706>

Seamount Communities

This habitat description has been adapted from the OSPAR habitat description (2005) (<http://www.ospar.org/work-areas/bdc/species-habitats>; definition available through 'case reports').

Correspondence with existing OSPAR habitat:

OSPAR habitat: Seamounts

Description

Seamounts are defined as undersea mountains, with a crest that rises more than 1,000m above the surrounding sea floor (Menard, 1964 in Rogers, 1994). Seamounts can be a variety of shapes, but are generally conical with a circular, elliptical or more elongate base. Seamounts are volcanic in origin, and are often associated with seafloor 'hot-spots' (thinner areas of the earth's crust where magma can escape). Seamounts, often with a slope inclination of up to 60°, provide a striking contrast to the surrounding 'flat' abyssal plain. Their relief has profound effects on the surrounding oceanic circulation, with the formation of trapped waves, jets, eddies and closed circulations known as Taylor columns (Taylor, 1917 in Rogers, 1994). Seamounts occur frequently within the OSPAR Maritime Area. Analysis of narrow beam bathymetric data by the US Naval Oceanographic office from 1967-1989 identified more than 810 seamounts within the North Atlantic. The majority occur along the Mid-Atlantic ridge between Iceland and the Hayes fracture zone (Gubbay, 2002).

The enhanced currents that occur around seamounts provide ideal conditions for suspension feeders. Gorgonian, scleratinian and antipatharian corals may be particularly abundant, and other suspension feeders such as sponges, hydroids and ascidians are also present. Concentrations of commercially important fish species, such as orange roughy, aggregate around seamounts and live in close association with the benthic communities (Gubbay, 2002).

Seamounts are a distinct and different environment from much of the deep sea. They act as 'islands' for epibenthic and pelagic faunas, have a high rate of endemic species, are used as 'stepping stones' for the transoceanic dispersion of shell species and as reproduction/feeding grounds for migratory species (e.g. Richer de Forges, 2000).

Studies of the pelagic communities above seamounts reveal both qualitative and quantitative differences when compared to the surrounding water. The biomass of planktonic organisms over seamounts is often higher than surrounding areas, which, in turn, become an important component of the diet of fish and top predators such as sharks, rays, tuna and swordfish. The ecological importance of seamounts for top predators is emphasised by the fact that some far-ranging pelagic species concentrate their mating and spawning in such places. Two examples are the pelagic armorhead (*Pentaceros wheeleri*) and the scalloped hammerhead (*Sphyrna lewini*) (Boehlert & Sasaki, 1988). Some seamounts are believed to act as a feeding ground, fish spawning or possibly nursery areas for many species since groups of small cetaceans such as bottlenose dolphin, common dolphin, spotted dolphin and pilot whales as well as captures of loggerhead turtles have been recorded in the area.

The benthic fauna are dominated by suspension feeders some of which are typically restricted to the seamount environment. They are characterised by high levels of endemism, which suggests limited reproductive dispersal. Sampling of the benthic seamount fauna in the SW Pacific, for example, suggests that some of these species are notably localised. Somewhere between 29–34% of the species collected during 23 cruises to the region are believed to be new to science and potentially endemic to these seamounts (Richer de

Forges *et al.* 2000). Less is known about the level of endemism on seamounts in the North East Atlantic.

The concentration of commercially valuable fish species around seamounts is well documented. Fish such as the orange roughy and some deepwater oreos appear to be adapted to life in this environment, their substantial aggregations supported in the otherwise food-poor deep sea by the enhanced flow of prey organisms past the seamounts (Koslow & Gowlett-Holmes, 1998).

Apart from these general characteristics of seamounts that make them ecologically significant there are also unique situations which make some even more significant. They may have an important role as a 'stepping stone' for species colonising islands.

Relevant biotopes

- Marine Habitats Classification scheme v4.05 – not covered
- EUNIS: A6.72, Seamounts, knolls and banks

Current and potential threats

- *Fisheries*: Seamounts support commercially valuable fish, shellfish and corals. The result has been over-exploitation and major crashes in various stocks (e.g. Koslow & Gowlett-Holmes, 1998; Koslow *et al.* 2001; Lutjeharms & Heydorn, 1981). The abundance and species richness of the benthic fauna on heavily fished seamounts was also markedly reduced.
- *Deep sea mining*: some areas may be targeted by deep sea mining.

References

OSPAR Commission, 2008: Case Reports for the OSPAR List of Threatened and/or Declining Species and Habitats

Edited by Nikki Chapman