



UK Biodiversity Action Plan Priority Habitat Descriptions

Subtidal Chalk

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Subtidal chalk

This habitat description has been adapted from the 1994 UK BAP Action Plan for Littoral and Sublittoral chalk (<https://webarchive.nationalarchives.gov.uk/20110303150007/http://www.ukbap.org.uk/UKPlans.aspx?ID=31>), and the 2005 NI Action plan for Littoral and Sublittoral chalk (<https://www.daera-ni.gov.uk/publications/northern-ireland-habitat-action-plan-littoral-and-sublittoral-chalk>), and would benefit from expert input.

Correspondence with existing habitats

Part of 1994 BAP habitat: Littoral and sublittoral chalk

No OSPAR equivalent

Habitats Directive Annex I: Reefs

Description

A characteristic of chalk coasts, in contrast to many harder rocky coasts of western and northern Britain is the geomorphological structure in which, because of subaerial and marine erosion, a vertical cliff face abuts an extensive foreshore (a wave eroded platform) often extending several hundreds of metres seawards. This is of significance in the formation of subtidal chalk sea caves and reefs habitats and the occurrence of the associated communities/biotopes (Tittley *et al*, 1998).

The most extensive areas of sublittoral chalk in Britain occur in Kent and Sussex. In south-east England shallow subtidal (up to 5m) communities are limited or absent due to the unusual friable and easily eroded nature of chalk and the prevailing harsh environment, characterised by extreme water temperatures, high levels of turbidity, siltation and scouring (UK BAP). In these conditions it is difficult to undertake subtidal surveys and hence the extent of this habitat and its associated communities are not well documented (Tittley *et al*, 1998). However less robust species (e.g. large seaweeds) which are more prone to scouring are replaced by more opportunistic species. As a result the shallow subtidal is dominated by animals and communities that are low in species richness reflecting the hostile environment.

At Flamborough, the Isle of Wight and Studland, shallow subtidal (up to 5m) communities are more diverse and extend into deeper waters where harder rock occurs but there are less unique algal species present.

In Northern Ireland, Upper Cretaceous chalk deposits belong to the Ulster White Limestone Formation with exposures on the County Antrim coast. The Northern Ireland chalk forms extremely hard, low porosity deposits with subsequent erosion forming cobble and boulder spreads with subtidal reefs. Faults on the seabed offshore have also exposed Cretaceous deposits. (UK BAP) and off Rathlin there are spectacular, deep subtidal cliffs affected by strong tidal currents (NI BAP).

Little is known of the extent or nature of chalk in the sublittoral zone in the Republic of Ireland. Rathlin has extensive underwater exposures of chalk, and sublittoral caves are known to be present in chalk down to at least 75m depth. These caves support rich populations of rare species. During the Northern Ireland Sublittoral Survey (NISS) (Erwin *et al*. 1986) up to three species of rare sponge were found from chalk habitats, one of which was known from only one other locality, on the west coast of Sweden. It is reported that chalk and limestone have a far higher biodiversity than any other rock types in the sublittoral zone on the island (B. Picton, pers. comm.) (NI BAP).

Relevant biotopes

IR.MIR.KR.HiaSw – *Hiatella arctica* and seaweeds on vertical limestone/chalk.

CR.MCR.SfR – Soft rock communities.

Current and potential threats

- *Coastal defence and other works*: This causes a heavier impact to littoral chalk communities; however, alteration of chalk has occurred at lower shore and subtidal levels (e.g. Thanet). Large ports have been developed at Dover and Ramsgate with harbour developments at Margate, Folkestone, Newhaven and Brighton Marina.
- *Pollution and eutrophication*: The deterioration of water quality by pollutants and nutrients has caused respectively the replacement of fucoid-dominated biotopes by mussel-dominated biotopes, and the occurrence of nuisance *Enteromorpha* spp blooms.
- *Small-scale fisheries and harvesting of piddocks*: Damage to subtidal reefs.
- *Non-natives*: Native species along the English Channel have been displaced by the incursion of non-native species, for example *Sargassum muticum*, *Polysiphonia harveyi* and *Undaria pinnatifida*.

References

Tittley, I., Spurrier, C.J.H., Chimonides, P.J., George, J.D., Morre, J.A., Evans N.J., & Muir, A.I. (1998) Survey of chalk cave, cliff, intertidal and subtidal reef biotopes in the Thanet coast cSAC. Natural History Museum Report.

Author: Nikki Chapman, JNCC