



UK Biodiversity Action Plan Priority Habitat Descriptions

Sabellaria spinulosa Reefs

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***Sabellaria spinulosa* Reefs**

This habitat description has been adapted from the 1994 UK BAP Action Plan for *Sabellaria spinulosa* reefs and therefore would benefit from an update: <https://webarchive.nationalarchives.gov.uk/20110303150139/http://www.ukbap.org.uk/UKPlans.aspx?ID=38>

Correspondence with existing habitats

OSPAR habitat: *Sabellaria spinulosa* reefs

Habitats Directive Annex I: Reefs

Description

Sabellaria spinulosa reefs comprise of dense subtidal aggregations of this small, tube-building polychaete worm. *Sabellaria spinulosa* can act to stabilise cobble, pebble and gravel habitats, providing a consolidated habitat for epibenthic species. They are solid (albeit fragile), massive structures at least several centimetres thick, raised above the surrounding seabed, and persisting for many years. As such, they provide a biogenic habitat that allows many other associated species to become established. The *S. spinulosa* reef habitats of greatest nature conservation significance are those which occur on predominantly sediment or mixed sediment areas. These enable a range of epibenthic species with their associated fauna and a specialised 'crevice' infauna, which would not otherwise be found in the area, to become established. Studies have compared an area of *S. spinulosa* with other macrofaunal communities in the Bristol Channel and found that the former had a higher faunal diversity (more than 88 species) and higher annual production (dominated by suspension-feeders) than other benthic communities in the area.

S. spinulosa requires only a few key environmental factors for survival in UK waters. Most important seems to be a good supply of sand grains for tube building, put into suspension by strong water movement (either tidal currents or wave action). *S. spinulosa* also appears to be very tolerant of polluted conditions. The worms need some form of hard substratum to which their tubes will initially be attached, whether bedrock, boulders, artificial substrata, pebbles or shell fragments. However, the presence of extensive reefs in predominantly sediment areas indicates that, once an initial concretion of tubes has formed, additional worms may settle onto the colony enabling it to grow to considerable size without the need for additional 'anchorage' points. Published work has noted that the planktonic larvae are strongly stimulated to settle onto living or old colonies of *S. spinulosa*, although they will eventually (after two or three months in the plankton) settle onto any suitable substratum in the absence of other individuals.

Given its few key requirements, and its tolerance of poor water quality, *S. spinulosa* is naturally common around the British Isles. It is found in the subtidal and lower intertidal/sublittoral fringe with a wide distribution throughout the north-east Atlantic, especially in areas of turbid seawater with a high sediment load. Recent research in the Wash using remote video, identified very extensive areas of reef rising up to 60cm above the seabed and almost continuously covering a linear extent of 300m. However, in most parts of its geographical range *S. spinulosa* does not form reefs, but is solitary or in small groups encrusting pebbles, shell, kelp holdfasts and bedrock. It is often cryptic and easily overlooked in these habitats. Where conditions are favourable, much more extensive thin crusts can be formed, sometimes covering extensive areas of seabed. However, these crusts may be only seasonal features, being broken up during winter storms and quickly reforming through new settlement the following spring. There are extensive examples of this form of colony on the west Wales coast, particularly off the Lleyn Peninsula and Sarnau candidate Special Area of Conservation (cSAC) and the Berwickshire and North Northumberland Coast cSAC. These crusts are not considered to constitute true *S. spinulosa* reef habitats because of their ephemeral nature, which does not provide a stable

biogenic habitat enabling associated species to become established in areas where they are otherwise absent.

The closely related *Sabellaria alveolata* has been recorded as living for up to nine years. It is possible that *S. spinulosa* is similarly long-lived. The examination of reefs in the Bristol Channel revealed that they possessed only a small number of young, derived from sources outside of the study area. The adults in the colony were not gravid during the study and grew very little. The age of a colony may greatly exceed the age of the oldest individuals present, as empty concretions of *S. spinulosa* sand tubes are frequently found and must be able to persist for some time in the marine environment. However, there have been no studies of the longevity of individual worms, or the longevity and stability of colonies or reefs.

Consideration of the present and historical status of this habitat in the Wadden Sea area is useful because it has been much better studied than in the UK. Large subtidal *S. spinulosa* reefs in the German Wadden Sea, which provided an important habitat for a wide range of associated species, have been completely lost since the 1920s. *S. spinulosa* now appears in the *Red List of Macrofaunal Benthic Invertebrates of the Wadden Sea*.

Relevant biotopes

SS.SBR.PoR.SspiMx – *Sabellaria spinulosa* on stable circalittoral mixed sediment

Current and potential threats

- Dredging for oysters and mussels, trawling for shrimp or fin fish, net fishing and potting can all cause physical damage to erect *S. spinulosa* reef communities. The impact of the mobile gear breaks the reefs down into small chunks which no longer provide a habitat for the rich infauna and epifauna associated with this biotope.
- Aggregate dredging often takes place in areas of mixed sediment where *S. spinulosa* reefs may occur. The impacts of this activity on their long-term survival is unknown, but suspension of fine material during adjacent dredging activity is not considered likely to have detrimental effects on the habitat.
- Pollution is listed as one of the major threats to *S. spinulosa* in the Wadden Sea. However, pollution was not identified as a significant problem (sludge dumping in Dublin Bay actually encouraged the establishment of *Sabellaria*) unless high sedimentation drastically changed the substratum. *S. spinulosa* reefs in the Wadden Sea, destroyed by fishing activities, have been replaced by beds of mussel *Mytilus edulis* and sand-dwelling amphipods *Bathyporeia* spp. This is partly attributed to an increase in coastal eutrophication, favouring *Mytilus*.

References

<https://webarchive.nationalarchives.gov.uk/20110303145223/http://www.ukbap.org.uk/Habitats.aspx>

Edited by Nikki Chapman, JNCC