

## BIOTOPE INFORMATION SHEET

English name: <b>Baltic aphotic rock and boulders or mixed substrates dominated by sponges (Porifera)</b>		Code in HELCOM HUB: <b>AB.A1J, AB.M1J</b>	
Characteristic species: <i>Haliclona oculata</i> rarely other species such as <i>Halichondria panicea</i> , <i>Halisarca dujardini</i> , <i>Scypha ciliata</i> . In the northern Baltic Sea only <i>Ephydatia fluviatilis</i>			
Past and Current Threats (Habitat directive article 17): Eutrophication (H01.05), Fishing (bottom trawling F02.02.01)		Future Threats (Habitat directive article 17): Eutrophication (H01.05), Fishing (bottom trawling F02.02.01)	
Red List Criteria: <b>A1</b>	Confidence of threat assessment: <b>L</b>	<b>HELCOM Red List Category:</b>	<b>NT Near Threatened</b>
Previous HELCOM Red List threat assessments			
BSEP 75 (1998): "3" Endangered 2.1 Rocky bottoms 2.1.1.1 Soft rock bottoms of the aphotic zone 2.2 Stony bottoms 2.2.1 Stony bottoms of the aphotic zone 2.8. Mixed sediment bottoms 2.8.1. Mixed sediments of the aphotic zone		BSEP 113 (HELCOM 2007):	
Greater concern stated by:			

### Habitat and Ecology

Sponges are the dominating group on hard substrates of the aphotic zone if currents and siltation are considerably low. The biotope is usually found between 20–30 m in the Belt Sea, but might also occur at greater depths.

The biotope is formed by (mainly) erect growing, branched or un-branched sponges, which constitutes at least 50% in volume or biomass. It occurs on stony sublittoral bottoms and favours areas with bottom currents as the sponges are feeding on plankton, detritus and dissolved organic material. Accompanying epibenthic species are erect growing moss animals, sea squirts or hydroids.



Erect growing, branched sponge (*Haliclona oculata*) attached to a boulder (Photo: K. Fürhaupter, Marilim GmbH)

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Depending on the dominant species the biotope may arise up to 15–20 cm above the substrate *Halichondria panicea*, *Haliclona* (Syn: *Chalina*) *oculata*, but also crust-building forms such as *Halisarca dujardini* occur (Stresemann et al. 1992). Sponges are also common in the photic zone of the Western Baltic Sea, where they are growing on perennial red algae (Barthel 1988) or between the holdfasts of kelp. But in the photic zone the algae form the basis of the biotope. In the aphotic zone the sponges grow attached to the stony substrate and form the specific three-dimensional biotope by themselves. The vertical depth distribution of the biotope varies typically between 20 to 150 meters (Stresemann et al. 1992).



*Ephydatia fluviatilis* growing on boulders in the northern parts of the Baltic Sea (Photo: Essi Keskinen)

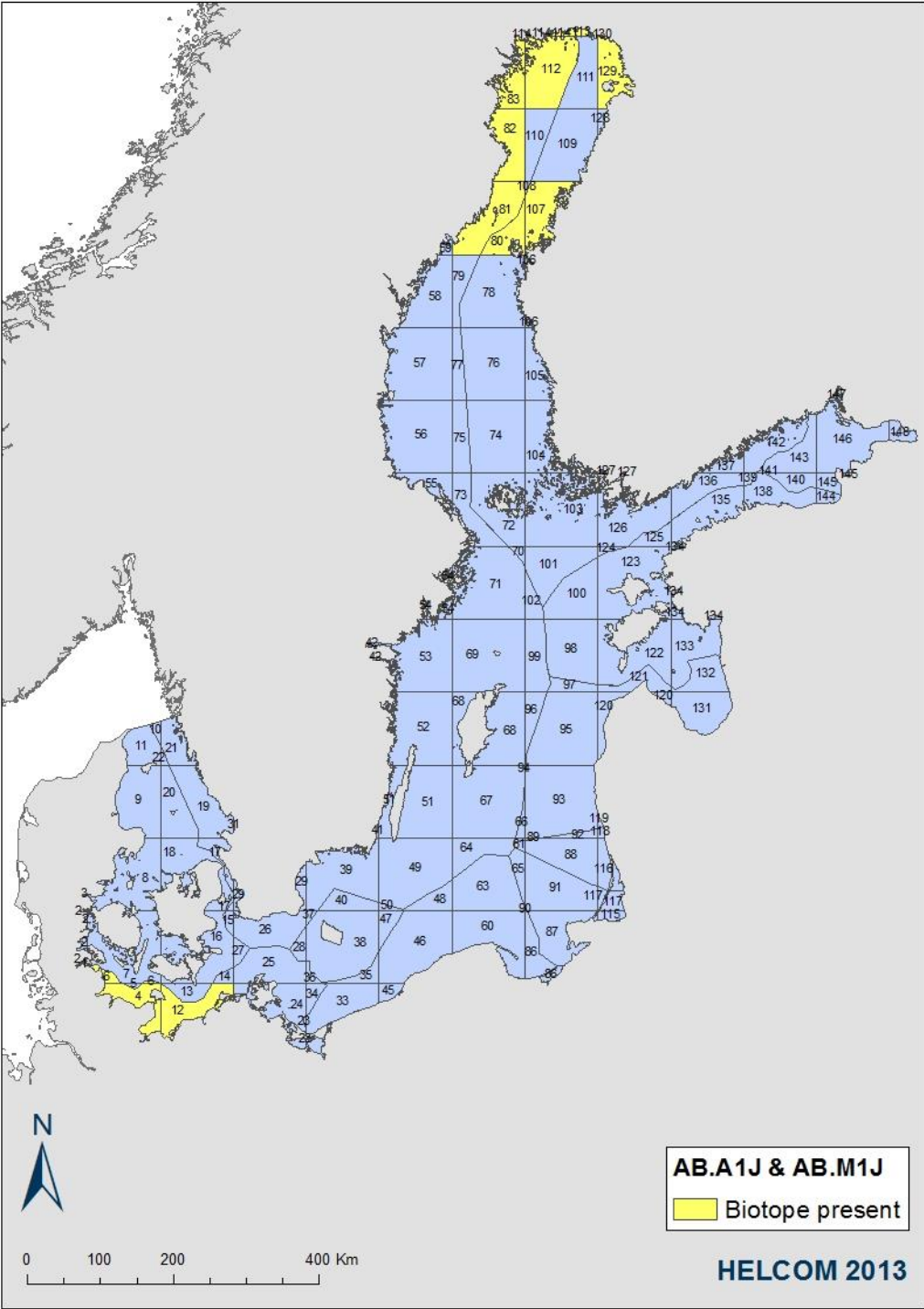
The biotope occurs from fully marine to freshwater conditions, but this is in line with an apparent change of the characteristic species biotope form. Most of the erect and large growing sponges are marine species reaching their distribution limit in the Western Baltic Sea (Stresemann et al. 1992). Freshwater sponges occur at lower salinities to a maximum of 6 psu (Stresemann et al. 1992) in the Northern Baltic Sea or in the lagoons of the Southern Baltic Sea. The freshwater sponges form a more crust-like biotope.

Especially the erect growing, large sponges offer living ground for tube-building polychaetes, echinoderms and hydrozoans. Scale worms, sea spiders or brittle stars crawl within the sponge openings or on their surface. But some sponges have developed specific mechanisms (calcareous spicules, specific bio-active substances or tissue sloughing) to prevent “fouling organisms” in or on top of their tissues (Barthel & Wolfrath 1989).

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**Distribution and status in the Baltic Sea region**

The sponge biotopes are distributed along the whole Baltic Sea coastline. But as aphotic stony bottoms are scarce in the South-western and Southern Baltic Sea the biotopes are distributed mainly along the Swedish, Danish, Estonian and Finnish coastline or at some offshore reefs. The higher the salinities, the higher the diversity of the sponges and due to the more erect growth also the diversity of the inhabiting invertebrate and fish communities. The distribution map indicates the area in the 100 x 100 km grid where biotope is known to occur



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### Description of Major threats

Due to the scarceness of aphotic hard substrates in many areas there exists only scarce information about the biotope in general and their major threats. On the one hand the reduction of the depth limit of macroalgae due to eutrophication may lead to an increasing depth range for the sponge biotopes, but otherwise increased siltation due to eutrophication may have negative effects on the species filtering and settlement of larvae could be reduced. Like many epibenthic communities physical disturbance by bottom trawling or construction work is one of the major threats.

### Assessment justification

A1

The biotope is assumed to be rather rare and to be restricted to small patches where it occurs. It is assumed to have been reduced in distribution mainly due to increased siltation and bottom trawling.

### Recommendations for actions to conserve the biotope

All actions to reduce physical disturbance of aphotic stony bottoms in the Baltic Sea are important for the conservation of the epibenthic biotopes dominated by sponges.

Appointing areas where the biotope is known to occur as protected sites where bottom trawling, offshore construction work and exploitation of soil resources is prohibited, would constitute an effective conservation measure. Further mapping activities should be carried out to better delineate the area of occurrence.

### Common names

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### References

- Barthel D., Wolfrath B. 1989. Tissue sloughing in the sponge *Halichondria panacea*: a fouling organism prevent being fouled. *Oecologia* 78: 357-360.
- OCEANA (2011). Conservation proposals for ecologically important areas in the Baltic Sea. [http://oceana.org/sites/default/files/reports/OCEANA\\_Baltic\\_report\\_2011\\_ENG.pdf](http://oceana.org/sites/default/files/reports/OCEANA_Baltic_report_2011_ENG.pdf)
- OSPAR 2008. OSPAR List of Threatened and/or Declining Species and Habitats.
- Stresemann E., Hannemann H.-J., Klausnitzer B. Senglaub K. 1992. *Exkursionsfauna von Deutschland. Band 1, Wirbellose (ohne Insekten)*. Volk und Wissen Verlag gmbH Berlin.