

BIOTOPE INFORMATION SHEET

English name: Baltic aphotic muddy sediment dominated by <i>Astarte</i> spp		Code in HELCOM HUB: AB.H3L5	
Characteristic species: <i>Astarte</i> spp.			
Past and Current Threats (Habitat directive article 17): Eutrophication (H01.05)		Future Threats (Habitat directive article 17): Eutrophication (H01.05), Climate change (M)	
Red List Criteria: A1	Confidence of threat assessment: M	HELCOM Red List Category:	EN Endangered
Previous HELCOM Red List threat assessments			
BSEP 75 (HELCOM 1998): "3" Endangered 2.7.1 Muddy bottoms of the aphotic zone		BSEP 113 (HELCOM 2007):	
Greater concern stated by:			

Habitat and Ecology

The biotope consists of Baltic aphotic zone bottoms with at least 90% coverage of muddy sediment. *Astarte* spp. constitutes at least 50% of the biomass. The biotope is characterized by *Astarte* spp. These bivalve species prefer cold and saline water and therefore the biotope is only found in areas where the near bottom water exhibits a salinity range between 10 and 15 psu, a temperature between 3 and 8 °C and relatively good oxygen conditions.

Astarte borealis is resistant to anoxic conditions, however recurring and long lasting anoxia is fatal. Ideal depth for *Astarte borealis* is around 20 meters, but in the easternmost occurrences in the Baltic Sea outside Poland the bivalve occurs only at depths of 60–70 meters where the salinity is high enough. As an arctic-boreal species, *Astarte borealis* appears in these Baltic biotopes at its southern limit (Zettler 2002).

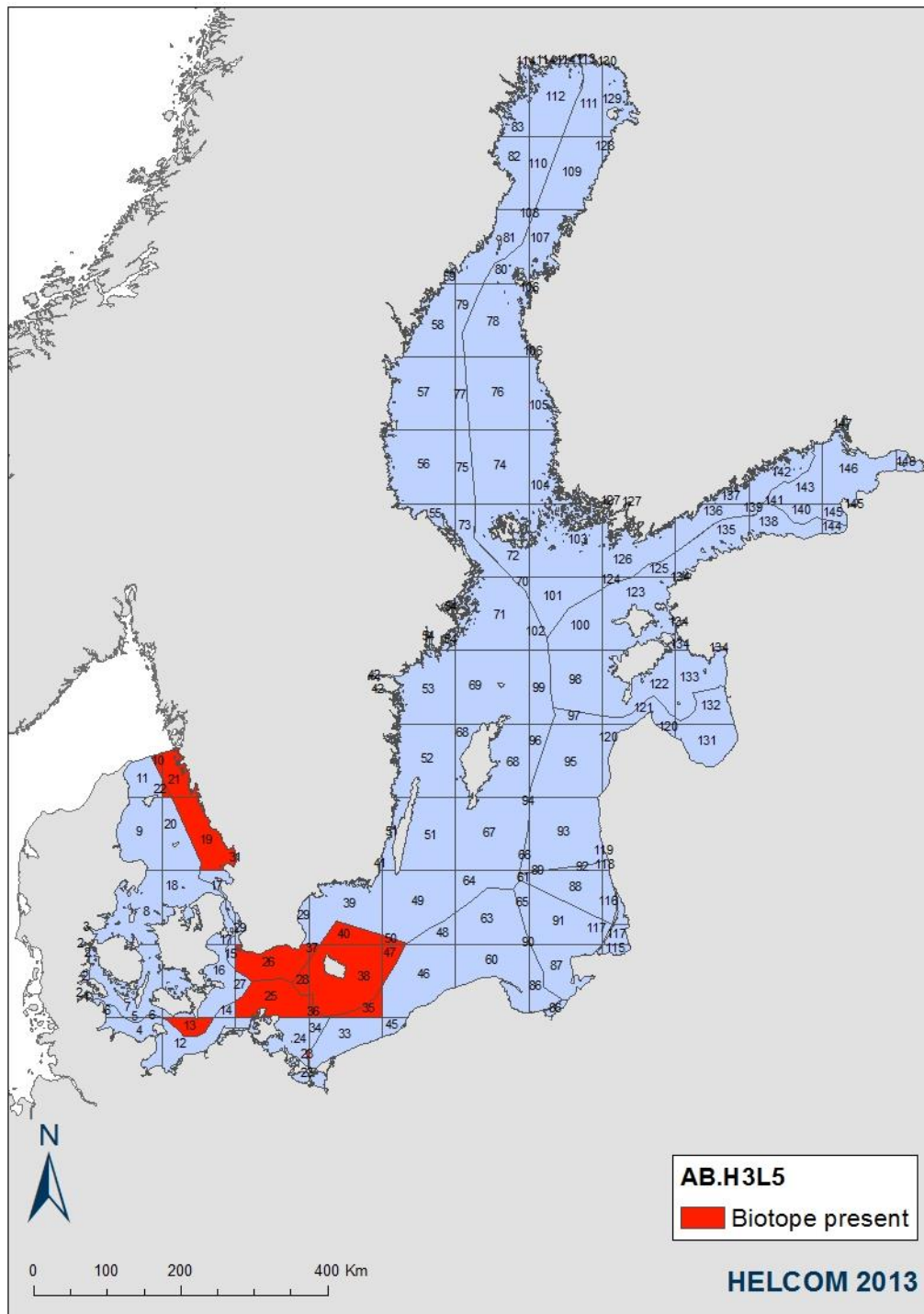


Astarte spp. on mixed sediments (Photo Karin Fürhaupter, MariLim GmbH)

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Distribution and status in the Baltic Sea region

The *Astarte borealis* is found in the Western parts of the Baltic Sea, it's most eastern populations appearing in the Bornholm Basin. Dense populations of the *Astarte elliptica* were common on the muddy sediments of the Kiel Bay at depths greater than 15 meters (Trutschler & Samtleben 1988). The distribution map indicates the area in the 100 x 100 km grid where environmental conditions required by the biotope are known to occur and the biotope is estimated to occur in the grid cells.



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Description of Major threats

The main anthropogenic threat of the habitat is eutrophication and the anoxia of the bottoms that follows. Even though resistant to anoxic conditions, longer and repetitive periods can kill or diminish the species (*Astarte borealis*) (Zettler 2002).

Assessment justification

A1

Oxygen depletion is inferred to have decreased the available muddy deep bottoms inhabited by *Astarte* spp. by more than half.

Recommendations for actions to conserve the biotope

All actions to reduce eutrophication of the Baltic Sea are important for the conservation of the habitat.

Common names

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References

- Trutschelt, K., Samtleben, C. (1988). Shell growth of *Astarte elliptica* (Bivalvia) from Kiel Bay (Western Baltic Sea). *Marine Ecology progress Series* 42: 155-162.
- Zettler, M. (2002). Ecological and morphological features of the bivalve *Astarte borealis* (Schumacher 1817) in the Baltic Sea near its geographical range. *Journal of Shellfish Research* 21: 33-40.