

## BIOTOPE INFORMATION SHEET

English name: <b>Baltic aphotic muddy sediment dominated by <i>Haploops</i> spp.</b>		Code in HELCOM HUB: <b>AB.H112</b>	
Characteristic species: <i>Haploops</i> spp. The Ostracod <i>Philomedes brenda</i> and the brittle star <i>Ophiura robusta</i> often co-occur			
Past and Current Threats (Habitat directive article 17):  Eutrophication (H01.05), Contaminant pollution (H03), Fishing (bottom trawling F02.02.01)		Future Threats (Habitat directive article 17):  Eutrophication (H01.05), Contaminant pollution (H03), Fishing (bottom trawling F02.02.01)	
Red List Criteria: <b>A1</b>	Confidence of threat assessment: <b>M</b>	<b>HELCOM Red List Category:</b>	<b>EN Endangered</b>
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

Haploops are small crustacean amphipods living in the deep bottom sediments in tubes of mud and clay that are a few centimetres high. The two *Haploops* spp. species populating the habitat in the Baltic Sea are *Haploops tenuis* (EN; B1ab(i,ii),B2ab(ii,iii)) and *Haploops tubicola* (VU; B1ab(i,iii), B2ab(ii,iii)).

*Haploops* spp require high salinities (22–34 psu) restricting their Baltic Sea distribution to the very western most parts (Göransson et al. 2010). In the Kattegat the biotope regularly occurs below the halocline, often encountered at a depth of 15 meters. In the HELCOM area the depth range of the biotope is 20–130 m (HELCOM SIS invertebrates). Water movement is relatively limited at the deep soft substrate bottoms, which is thought to be a favourable environment for the small tube-building amphipods (Göransson et al. 2010). The soft sediment biotope dominated by *Haploops* spp. looks like a dense mat of small tubes. The *Haploops* spp. amphipods live inside the tube and catch food particles by sticking out their antennae and legs from the tube, they mainly feed on plankton. The biotope and the *Haploops* amphipods are in turn important feeding grounds for s for many species of fish such as cod and several species of flatfish. Tube worms, sea urchins and brittle stars also occur in the biotope.

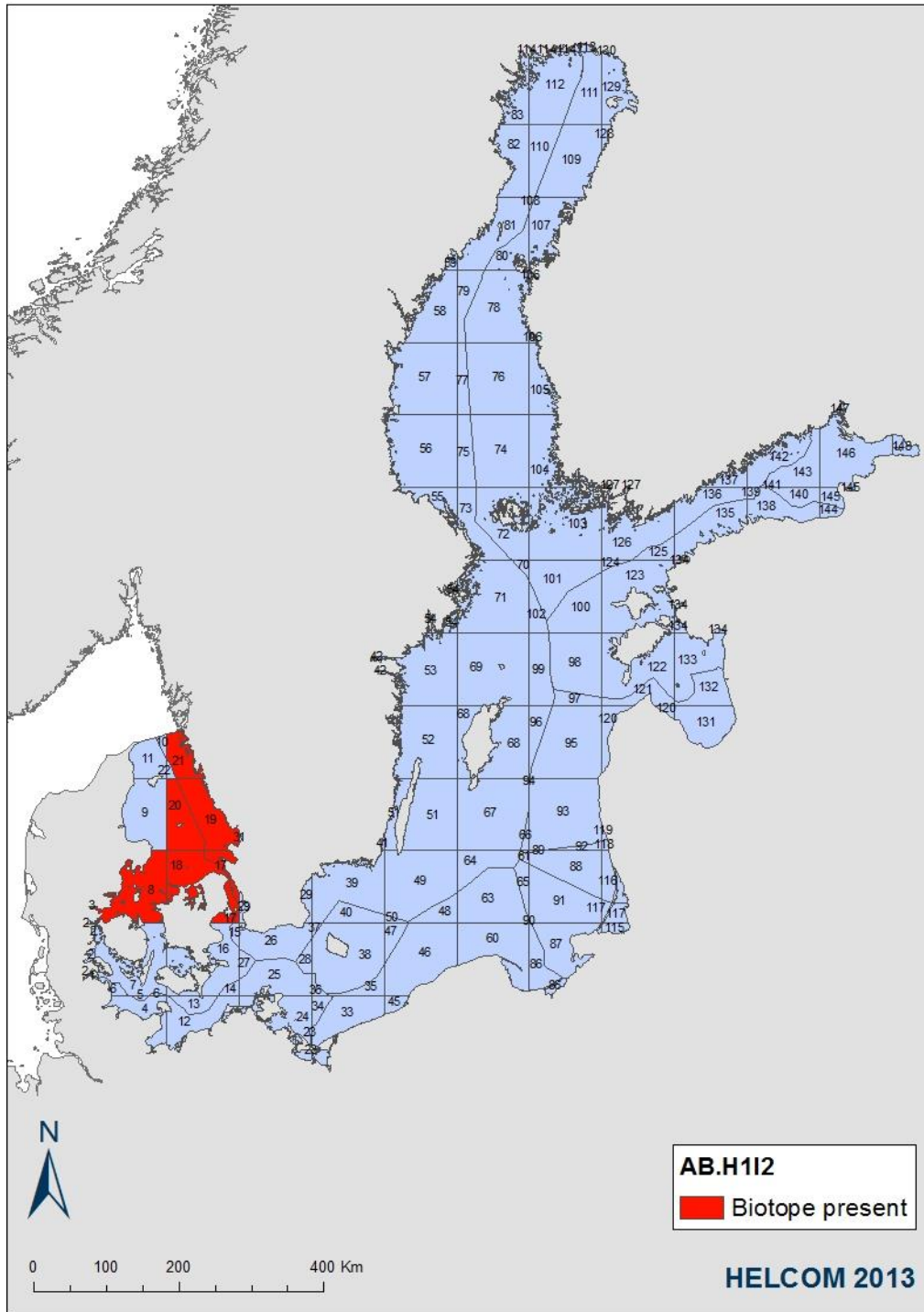


*Haploops tubicola* (left) and *Haploops tenuis* (right). Photos by Peter Göransson.

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### Distribution and status in the Baltic Sea region

The biotope dominated by *Haploops* spp. occur in the Kattegat, the Great Belt and, particularly, the Sound (OCEANA 2011). 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

Bottom trawling has a direct impact on the substrate and is believed to have caused the decline of the *Haploops* spp. communities to some extent in the Belt Sea and Kattegat area (Göransson et al. 2010). Bottom trawling activities have been on-going for a long period of time in the areas where the *Haploops* spp. community has been replaced by a brittle star community (Göransson et al. 2010). Bottom trawling is however not likely to be the only cause for the past decline as the practice is currently forbidden in the area.

Periodic anoxia occurs in the areas where the muddy *Haploops* spp. dominated biotope occurs. The anoxia in the region is believed to occur due to restricted water movement and unusual water stratification, possibly due to changing climatic conditions (Göransson et al. 2010). Increasing temperatures have been noted in the area (Göransson et al. 2010).

Pollution by various hazardous substances can affect the deep muddy biotopes dominated by *Haploops* spp. biotopes. Accumulation bottoms, where hazardous substances accumulate, are rare in the generally shallow Belt Sea area. Accumulation bottoms are typically muddy, so they may coincide with the muddy *Haploops* spp. biotope.

### Assessment justification

A1

The biotope abundance has decreased significantly since the 1960's when the biotope is believed to have occurred abundantly at depths greater than 15 meters in the south eastern Kattegat, from Landskrona to Helginborg and the northernmost Öresund (Göransson et al. 2010). In recent years the biotope has declined drastically, and is now encountered north of the Ven island in Öresund (Göransson et al. 2010).

Recent studies in the Sound have shown that *Haploops* spp. dominated communities are being replaced by brittle star communities (Amphiura). This development may already have taken place in the south-eastern Kattegat where Amphiura communities are currently found where *Haploops* spp. communities used to dominate (Göransson et al. 2010). The reproductive capacity of the *Haploops* community appears to be low, giving cause for concern as to the future development of the community (Göransson et al. 2010).

The actual reason for the decline in abundance is yet unknown. A significant decline has, however, also been reported from Skagerrak.

### Recommendations for actions to conserve the biotope

Bottom trawling restrictions in Öresund and Kattegat need to be enforced, so that also sporadic illegal trawling activities are stopped (Göransson et al. 2010). AIS should become mandatory for all trawling fishing vessels to facilitate monitoring. Bottom areas deeper than 20 meters in Öresund should be protected from invasive fishing and other similar activities.

Including the small area in Öresund where the *Haploops* spp. biotope occurs, in the Knähaken marine protected area south to the Helsingborg municipality border would benefit the biotope. Furthermore, the bottom areas around Ven island should be mapped and potentially protected.

### Common names

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### References

Göransson P, Bert ilsson-Vuksan, S., Karlfelt, J., Börjesson L. (2010). Haploops-samhället och Modiolus-samhället utanför Helsingborg 2000- 2009. Miljönämnden i Helsingborg.

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)