

## BIOTOPE INFORMATION SHEET

English name: <b>Baltic aphotic muddy sediment dominated by meiofauna</b>		Code in HELCOM HUB: <b>AB.H4U1</b>	
Characteristic species: Oligochaeta, Ostracoda, Nematoda			
Past and Current Threats (Habitat directive article 17): Eutrophication (H01.05), Construction (sport and leisure structures G02, dredging J02.02)		Future Threats (Habitat directive article 17): Eutrophication (H01.05), Construction (sport and leisure structures G02, dredging J02.02)	
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: 2.7 Muddy bottoms 2.7.1 Muddy bottoms of the aphotic zone		BSEP 113 (HELCOM 2007):	
Greater concern stated by:			

### Habitat and Ecology

The biotope is formed by at least 90% coverage of muddy sediment in the aphotic zone. No macrocommunity is present and meiofauna constitutes at least 50% of the present biomass. Even though the biotope occurs in the aphotic zone, it can be found at relatively shallow depths. Light attenuation is often strong in areas where muddy bottoms are not covered by macrophytes.

The benthic meiofauna in the Baltic Sea is a diverse group of small animals. The group includes e.g. Ostracoda, Nematoda, Oligochaeta, Rotifera, Turbellaria and Copepoda living on and in the sediments (Voipio 1981, Rousi 2013). Generally meiofauna is defined to be smaller than 1 mm.

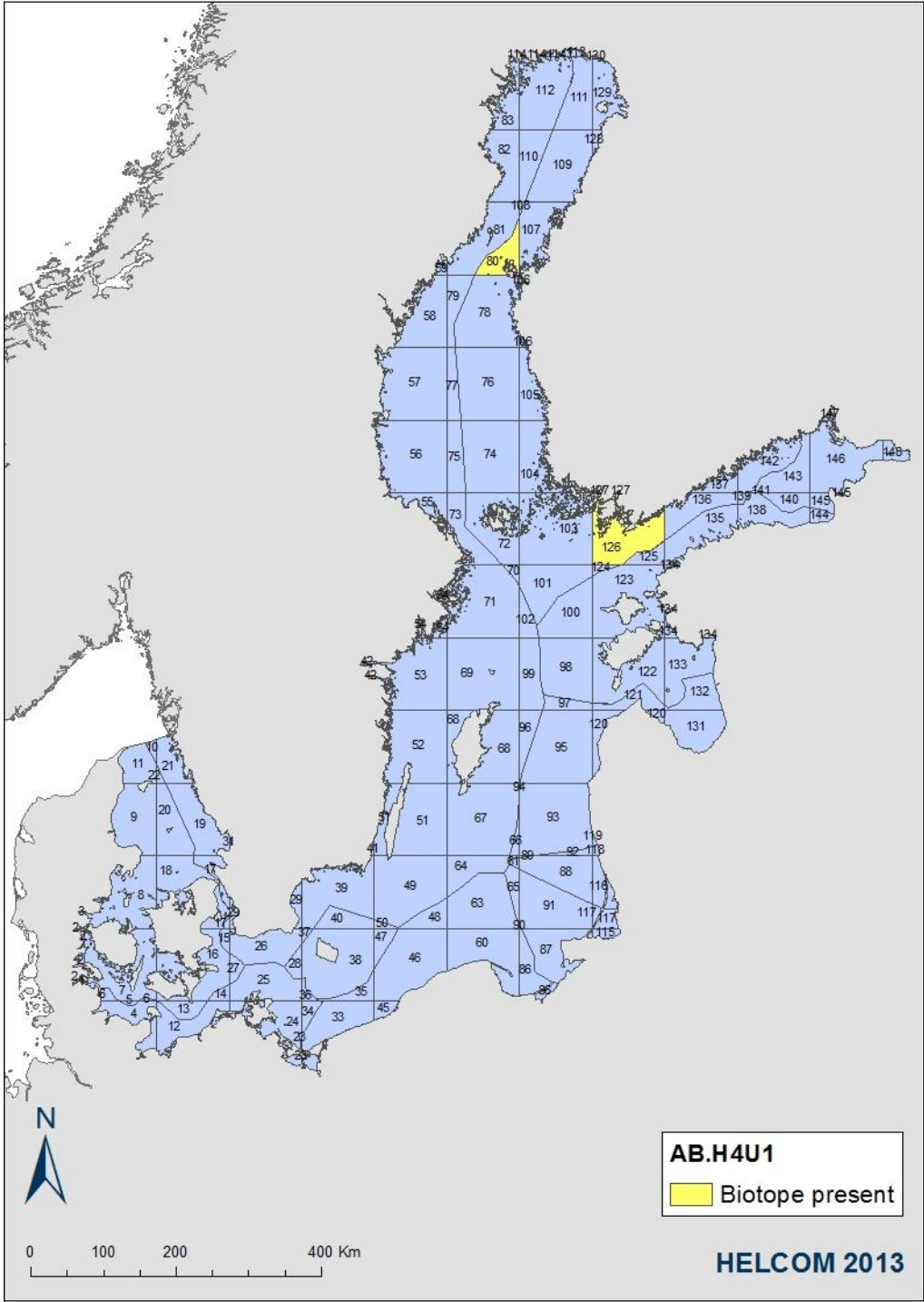
In the north-western Baltic Sea Proper, Nematoda are the most abundant group of benthic meiofauna, ranging between 67–91% of the species observed sediment (Olafsson & Elmgren 1997). Only nematodes are found to be common below 2 cm depth in the sediment (Olafsson & Elmgren 1997). Meiofauna can be split into surface feeders and subsurface feeders. Sedimentation of organic matter may have an effect on the meiofaunal community, as the increased rate of sedimentation can increase the abundance of surface feeder species (Olafsson & Elmgren 1997).

Generally the ecology of meiofaunal communities is less well understood than that of benthic macrofauna communities. Fewer studies have been carried out and in many studies meiofauna is only stated to be present in a certain abundance. Studies looking into the environmental requirements and species interactions are rare. It is also quite rare that meiofauna is taxonomically identified to species level which is the rule in macrofauna studies.

**BIOTOPE INFORMATION SHEET**

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

The biotope is assumed to occur throughout the Baltic Sea both in shallow coastal waters and in the deeper central parts of the sea. The distribution map indicates the area in the 100 x 100 km grid where biotope is reported to occur. The biotope may have a significantly wider distribution.



## BIOTOPE INFORMATION SHEET

---

### Description of Major threats

Eutrophication causing anoxia threatens the biotope. Meiofauna is considered to tolerate anoxia better than macrofauna, however prolonged anoxia will rapidly increase the mortality.

Construction of summer cottages and small marinas in sheltered bays along the coast threatens the biotope by alteration of the substrate and environmental conditions.

### Assessment justification

A1

Coastal areas with muddy substrates have been exploited heavily by construction and dredging activities along the Swedish coast. Construction activities have become more prevalent and invasive during the past few decades and have modified a significant proportion of the coastal muddy sediments. The biotope is believed to exist in abundance along the Finnish coast and no severe declines are believed to have occurred. However, due to the large inferred decline along the long Swedish coast, the total trend for the quantity on a Baltic Sea scale a decline  $\geq 25\%$  has taken place.

### Recommendations for actions to conserve the biotope

More information is needed on the distribution and the ecology of the biotope. Development and construction in the shallow muddy areas along the coast where the biotope occurs should be restricted to conserve the biotope.

### Common names

-

### References

- Olafsson, E., Elmgren, R. (1997). Seasonal Dynamics of Sublittoral Meiobenthos in Relation to Phytoplankton Sedimentation in the Baltic Sea. *Estuarine, Coastal and Shelf Science* 45(2): 149–164.
- Rousi, H. Meiofauna and other groups. In: *The Baltic Sea Portal*, Finnish Environment Institute SYKE. Accessed 3 Jun 2013.  
[http://www.itameriportaali.fi/en/tietoa/elama/elioryhmat/elaimet/pohjaelaimet/en\\_GB/meiofauna/](http://www.itameriportaali.fi/en/tietoa/elama/elioryhmat/elaimet/pohjaelaimet/en_GB/meiofauna/)
- Voipio, A. (1981). *The Baltic Sea*. Elsevier Oceanography Series, Vol. 30. Elsevier, Amsterdam. pp. 256–257.