

Sparse or no macrofaunal communities on Baltic infralittoral muddy sediment

Summary

This is a benthic habitat in the photic zone where the predominant substrate is muddy sediment. It is present in the Baltic Proper, the Gulf of Riga, the Gulf of Finland, and the Gulf of Bothnia but not reported from the more exposed conditions of the Sound and the Belt Sea. Macrovegetation, epifauna and infauna are generally sparse or absent however there may be a large representation of meiofauna. No specific threats, pressures, conservation or management measures have been identified for this habitat.

Synthesis

This habitat is considered to have expanded its extent over the last 50 years due to nutrient enrichment, however, this has not been quantified. The overall assessment for this EUNIS level 4 habitat has been based on the HELCOM (2013) assessments for the associated HELCOM HUB biotopes. Draft assessments were derived using a weighted approach whereby the HELCOM assessment outcomes were assigned a score. This was averaged across the relevant biotopes. The outcomes were reviewed by Baltic experts to reach a final conclusion. HELCOM (2013) assessed this habitat as Least Concern (A1) due to the increase in extent in the last 50 years with nutrient enrichment. The current expert opinion is an assessment of Least Concern for both the EU 28 and EU 28+.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Least Concern	-	Least Concern	-

Sub-habitat types that may require further examination

None.

Habitat Type

Code and name

Sparse or no macrofaunal communities on Baltic infralittoral muddy sediment

Description

No characteristic photographs of this habitat are currently available.

Habitat description

This is a Baltic Sea benthic habitat in the photic zone where at least 90% of the substrate is muddy sediment according to the HELCOM HUB classification. It occurs in areas where there is low to medium exposure to wave action. Macrovegetation, epifauna and infauna are generally sparse or absent however the one associated biotope described has a large representation (more than 50% of biomass) of meiofauna. This is 'Baltic photic muddy sediment dominated by meiofauna (Oligochaeta, Ostracoda, Nematoda)' (AA.H4U1).

The benthic meiofauna in the Baltic Sea is a diverse group of small animals including Ostracoda, Nematoda, Oligochaeta, Rotifera, Turbellaria and Copepoda living on and in the sediments. In the north-western Baltic Sea Proper, Nematoda are the most abundant group of benthic meiofauna, making up between 67-91% of the species observed in the sediment. Only nematodes are found to be common below 2 cm depth in the sediment. 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 feeding species.

Indicators of quality:

Quality indicators have not been described for this habitat. 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.

Characteristic species:

Oligochaeta, Ostracoda, Nematoda

Classification

EUNIS:

The closest correspondence in EUNIS (2004) level 4 is to 'Sublittoral mud in low or reduced salinity' (A5.31).

Annex 1:

The relationship between HUB biotopes and Annex 1 habitats has not yet been mapped by HELCOM however this habitat may occur in the following Annex 1 habitats:

1130 Estuaries

1160 Large shallow inlets and bays

1650 Boreal Baltic narrow inlets

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Shallow sublittoral mud

EUSeaMap:

Shallow muds

IUCN:

9.6 Subtidal muddy

Other relationships:

Level 5 of the HELCOM HUB classification (2013):

AA.H4U: Baltic photic muddy sediment characterised by no macrocommunity This habitat has one sub-habitat on HUB level 6; 'Baltic photic muddy sediment dominated by meiofauna (Oligochaeta, Ostracoda, Nematoda)'(AA.H4U1).

Does the habitat type present an outstanding example of typical characteristics of one or more biogeographic regions?

Unknown

Justification

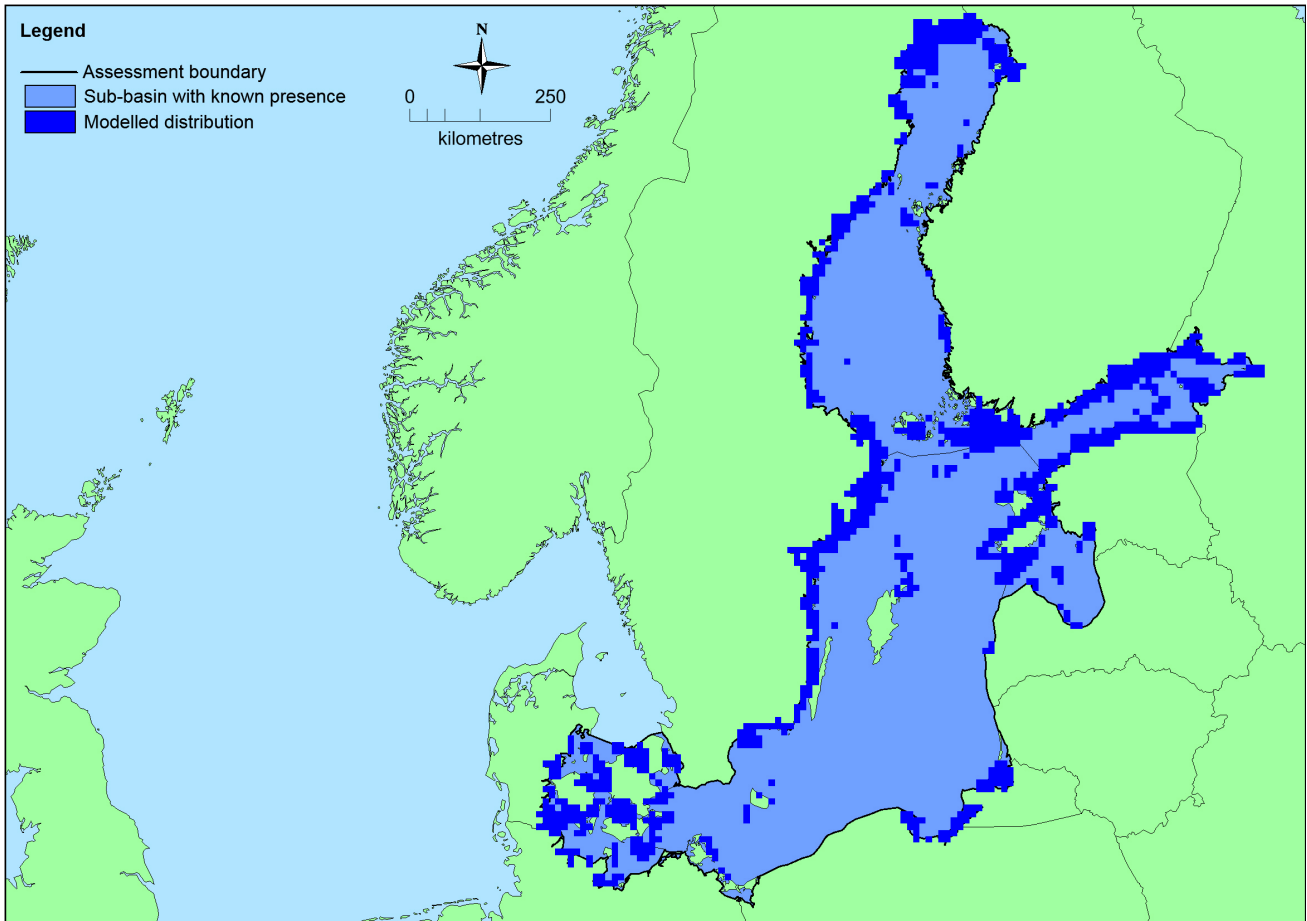
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Baltic Sea</i>	Baltic Proper: Present Gulf of Bothnia: Present Gulf of Finland: Present Gulf of Riga: Present	unknown Km ²	Increasing	Unknown

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
<i>EU 28</i>	unknown Km ²	unknown	unknown Km ²	
<i>EU 28+</i>	unknown Km ²	unknown	unknown Km ²	

Distribution map



There are insufficient data to provide a comprehensive and accurate map of the distribution of this habitat. This map has therefore been generated using the modelled data available on EMODnet for EUNIS level 3 habitats in the Baltic Sea (EMODnet, 2010). This means it indicates potential areas in which this habitat may occur, not the actual distribution of this EUNIS level 4 habitat. EOO and AOO cannot be calculated at the present time.

How much of the current distribution of the habitat type lies within the EU 28?

Unknown. Similar habitats may occur in other European Regional Seas.

Trends in quantity

This habitat is present in the Baltic Proper, Gulf of Bothnia, Gulf of Finland, Gulf of Riga. It is believed to have increased in extent over the last 50 years due to anthropogenic eutrophication. There is a lack of historical data on which to make a quantitative assessment and no estimates of future change.

- Average current trend in quantity (extent)
 EU 28: Increasing
 EU 28+: Increasing
- Does the habitat type have a small natural range following regression?
 No
Justification
 This habitat has a large range.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
 No
Justification
 This habitat has a large range.

Trends in quality

Unknown

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

No pressures or threats have been identified specifically for this habitat. Whereas eutrophication is a pressure for many habitats, nutrient enrichment is beneficial in this case and is contributing to an expansion in its range.

List of pressures and threats

-

Conservation and management

No conservation or management measures have been identified specifically for this habitat.

List of conservation and management needs

No measures

No measures needed for the conservation of the habitat/species

Conservation status

Annex 1:

1130: MBAL U2

1160: MBAL U2

1650: MBAL U2

HELCOM (2013) assessments:

1130 CR C1

1160 VU C1

1650 VU C1

HELCOM (2013) assessed this habitat as LC (A1).

When severely damaged, does the habitat retain the capacity to recover its typical character and functionality?

Unknown

Effort required

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	0 %	unknown %	unknown %	unknown %
EU 28+	0 %	unknown %	unknown %	unknown %

There is a lack of quantitative data on the extent and trends in quantity of this habitat but expert opinion is that it has increased in extent over the last 50 years. This habitat has therefore been assessed as Least

Concern under criterion A.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	unknown Km ²	Unknown	Unknown	unknown	unknown	Unknown	Unknown	unknown	unknown
EU 28+	unknown Km ²	Unknown	Unknown	unknown	unknown	Unknown	Unknown	unknown	unknown

Experts consider there to be insufficient data on which to calculate EOO or AOO. This habitat has therefore been assessed as Data Deficient under criterion B.

Criterion C and D: Reduction in abiotic and/or biotic quality

Criteria C/D	C/D1		C/D2		C/D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %
EU 28+	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %

Criterion C	C1		C2		C3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %
EU 28+	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %

Criterion D	D1		D2		D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %
EU 28+	unknown %	unknown %	unknown %	unknown %	unknown %	unknown %

Experts consider there to be insufficient data on which to assess Criteria C/D.

Criterion E: Quantitative analysis to evaluate risk of habitat collapse

Criterion E	Probability of collapse
EU 28	unknown
EU 28+	unknown

There is no quantitative analysis available that estimates the probability of collapse of this habitat type.

Overall assessment "Balance sheet" for EU 28 and EU 28+

	A1	A2a	A2b	A3	B1	B2	B3	C/D1	C/D2	C/D3	C1	C2	C3	D1	D2	D3	E
EU28	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD

Overall Category & Criteria	
EU 28	EU 28+

Overall Category & Criteria			
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Least Concern	-	Least Concern	-

Confidence in the assessment

Low (mainly based on uncertain or indirect information, inferred and suspected data values, and/or limited expert knowledge)

Assessors

S. Gubbay and N. Sanders.

Contributors

HELCOM RED LIST Biotope Expert Team 2013 and Baltic Sea Working Group for the European Red List of Habitats 2014 and 2015.

Reviewers

T.A. Haynes.

Date of assessment

08/07/2015

Date of review

05/02/2016

References

HELCOM, 2013. *Red List of Baltic Sea underwater biotopes, habitats and biotope complexes*. Avellan, L. (Ed). Helsinki, Finland.