

Sparse or no macrocommunities of Baltic upper circalittoral muddy sediment

Summary

This habitat occurs in all Baltic sub-basins in areas of muddy sediments under aphotic conditions. It is dominated by meiofauna although when degraded may be represented by anerobic organisms. The balance between the two depends on whether conditions are aerobic or anerobic. Eutrophication is a significant pressure on this habitat as is the construction of summer cottages and small marinas in sheltered bays. Such developments threaten the habitat by altering the substrate and environmental conditions. Beneficial conservation measures include restrictions on development and construction in the shallow muddy areas along the coast where the habitat occurs in order to maintain the aerobic conditions and also the control of discharges to the marine environment that result in eutrophication.

Synthesis

In the coastal zone there has been some deterioration in the extent and quality of this habitat due to increased sedimentation and eutrophication as a result of coastal development and increased levels of N, P and organic matter. Further offshore where anoxic conditions are more naturally prevalent, there has been some increase in the habitat extent. Overall there is a lack of quantitative information in changes in distribution, extent and quality of this habitat but expert opinion considers there to have been a decline in extent in the range of 25-35% of aphotic sediment dominated by meiofauna over the last 50 years .

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 the associated Baltic biotopes (AB.H4U1) as Near Threatened (A1). With no additional information on changes in extent or quality of this habitat, and due to the overall decline in quantity of this habitat current expert opinion is that this habitat should be assessed as Near Threatened 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
Near Threatened	A1	Near Threatened	A1

Sub-habitat types that may require further examination

AB.H4U1: Baltic aphotic muddy sediment dominated by meiofauna.

Habitat Type

Code and name

Sparse or no macrocommunities of Baltic upper circalittoral muddy sediment

No characteristic photograph of this habitat currently available.

Habitat description

This Baltic Sea benthic habitat occurs in the aphotic zone in areas with at least 90% coverage of muddy sediment. The sediment must contain at least 20% of mud, silt or clay (grain size less than 63 µm). The associated biotope is : 'Baltic aphotic muddy sediment dominated by meiofauna (AB.H4U1) although when degraded this may be represented by 'Baltic aphotic muddy sediment dominated by anerobic organisms (AB.H4U2). The balance between the two depends on whether conditions are aerobic or anerobic and deterioration in the former biotope may result in the habitat being dominated by the latter (anerobic) biotope more typical of degraded conditions.

Indicators of quality:

Both biotic and abiotic indicators have been used to describe marine habitat quality. These include: the presence of characteristic species as well as those which are sensitive to the pressures the habitat may face; water quality parameters; levels of exposure to particular pressure, and more integrated indices which describe habitat structure and function, such as trophic index, or successional stages of development in habitats that have a natural cycle of change over time. There are no commonly agreed indicators of quality for this habitat, although particular parameters may have been set in certain situations e.g. protected features within Natura 2000 sites, where reference values have been determined and applied on a location-specific basis.

Characteristic species:

Unknown

Classification

ENUIS:

The closest correspondence in EUNIS (2004) level 4 is A5.41 Sublittoral mud in low or reduced salinity

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 - Coastal

MSFD:

Shallow sublittoral mud

EUSeaMap:

Shallow muds

IUCN:

9.6 Subtidal Muddy

Other relationships:

Level 6 of the HELCOM HUB classification (2013). Baltic aphotic muddy sediment dominated by meiofauna (AB.H4U1).

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

Yes

Regions

Baltic

Justification

Sparse or no macrocommunities are a naturally occurring distinct feature of large areas of the central Baltic Sea.

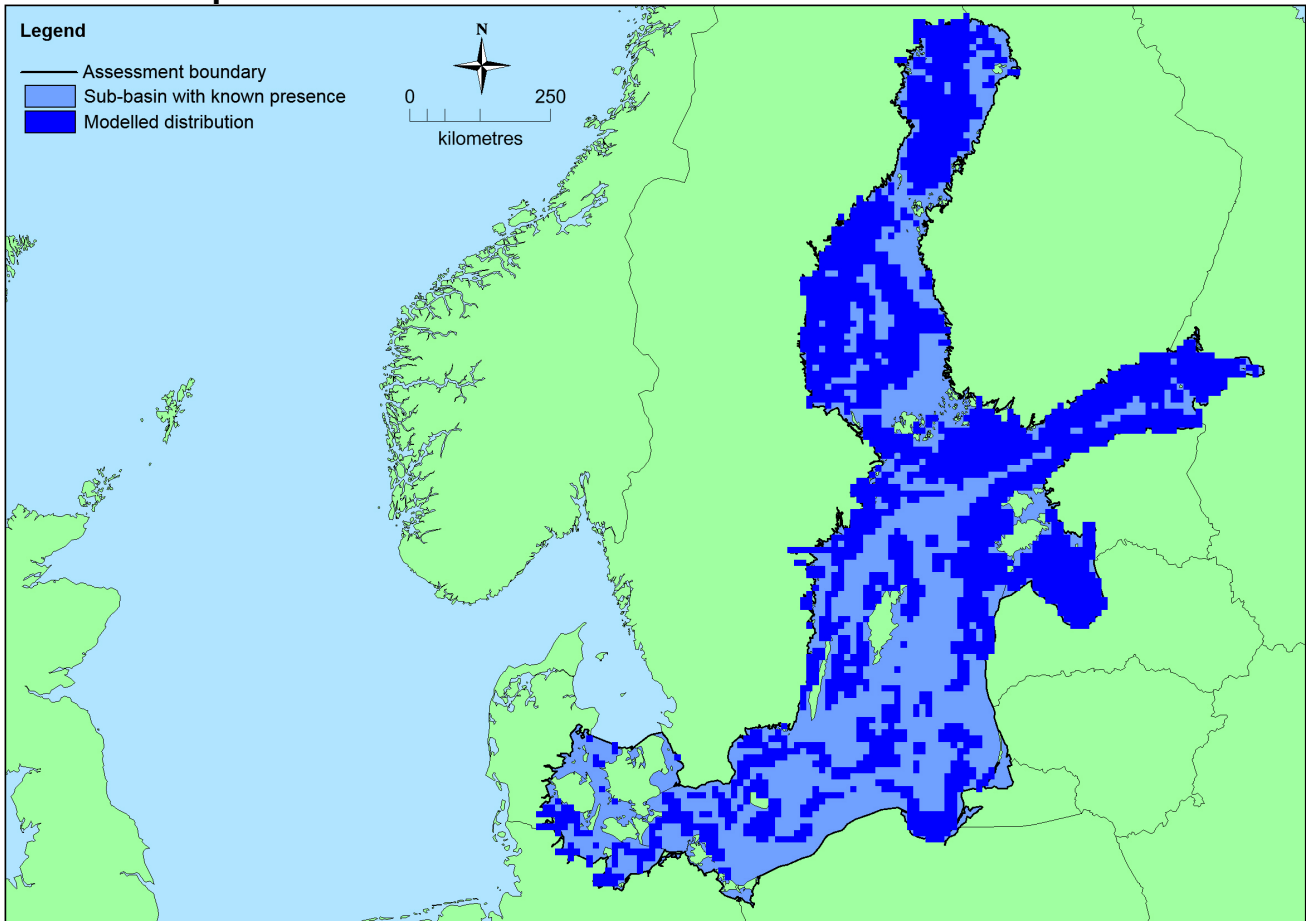
Geographic occurrence and trends

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 Belt Sea: Present Gulf of Bothnia: Present Gulf of Finland: Present Gulf of Riga: Present The Sound: Present	Unknown Km ²	Unknown	Unknown

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28	>50,000 Km ²	>50	Unknown Km ²	This habitat is present in all the Baltic Sea sub-basins.
EU 28+	>50,000 Km ²	>50	Unknown Km ²	This habitat is present in all Baltic sub-basins.

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.

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

This habitat probably occurs in the EU 28+ (Russia). The percentage hosted by EU 28 is therefore less than 100% but there is insufficient information to establish the proportion. Similar habitats do occur in other European regional seas.

Trends in quantity

This habitat occurs throughout the Baltic in both shallow coastal waters and the deeper central parts. Coastal areas with muddy substrate have been exploited heavily by construction and dredging activities along the Swedish coast. Construction activities have become more prevalent and invasive in the past few decades and have modified a significant proportion of the coastal muddy sediments. In contrast, no severe declines are believed to have occurred along the Finnish coast. Further offshore there has been an increase, particularly in the area dominated by anaerobic organisms in the last 50 years due to anthropogenic eutrophication.

- Average current trend in quantity (extent)

EU 28: Unknown

EU 28+: Unknown

- Does the habitat type have a small natural range following regression?

No

Justification

This habitat occurs in all the Baltic Sea sub-basins so does not have a small natural range.

- Does the habitat have a small natural range by reason of its intrinsically restricted area?

No

Justification

This habitat occurs in all the Baltic Sea sub-basins so does not have a small natural range.

Trends in quality

No information is available for trends in quality

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

This habitat is affected by anoxia caused by eutrophication. Meiofauna are considered to tolerate anoxia better than macrofauna. However prolonged anoxia will rapidly increase mortality of meiofauna. Construction of summer cottages and small marinas in sheltered bays threatens the habitat by altering the substrate and environmental conditions.

List of pressures and threats

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Other patterns of habitation

Human intrusions and disturbances

Sport and leisure structures

Other sport / Leisure complexes

Pollution

Pollution to surface waters (limnic, terrestrial, marine & brackish)

Nutrient enrichment (N, P, organic matter)

Natural System modifications

Human induced changes in hydraulic conditions

Removal of sediments (mud...)

Estuarine and coastal dredging

Siltation rate changes, dumping, depositing of dredged deposits

Dumping, depositing of dredged deposits

Other siltation rate changes

Conservation and management

More information is needed on the distribution and ecology of this habitat. Development and construction in the shallow muddy areas along the coast where it occurs should be restricted to maintain the aerobic conditions.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

Restoring/Improving water quality

Measures related to spatial planning

Other spatial measures

Establish protected areas/sites

Measures related to special resource use

Regulating/Managing exploitation of natural resources on sea

Conservation status

Annex 1:

1110: MBAL U1

1130: MBAL U2

1160: MBAL U2

1650: MBAL U2

HELCOM (2013) assessments:

1110 VU C1

1130 CR C1

1160 VU C1

1650 VU C1

HELCOM (2013) assessed two biotopes AB.H4U1 (NT, A1) and AB.H4U2 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	>25 %	Unknown %	Unknown %	Unknown %
EU 28+	>25 %	Unknown %	Unknown %	Unknown %

Based on expert opinion, this habitat is believed to have declined by more than 25% over the last 50 years. It has therefore been assessed as Near Threatened under Criteria A for both the EU 28 and EU 28+.

Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50,000 Km ²	Unknown	Unknown	Unknown	>50	Unknown	Unknown	Unknown	Unknown
EU 28+	>50,000 Km ²	Unknown	Unknown	Unknown	>50	Unknown	Unknown	Unknown	unknown

This habitat is common and has a large natural range in the Baltic Sea. Precise figures cannot be calculated for EOO and AOO but they are believed to have exceeded the threshold for threatened status. Future trends are unknown. 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 to estimate 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	NT	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	NT	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD

Overall Category & Criteria			
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Near Threatened	A1	Near Threatened	A1

Confidence in the assessment

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

Assessors

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Contributors

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Reviewers

G. Saunders.

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09/07/2015

Date of review

08/01/2016

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