Infaunal communities in Baltic infralittoral muddy sediment not dominated by bivalves

Summary

This habitat occurs in shallow areas in all the Baltic sub-basins. No pressures and threats specific to this habitat have been identified, nor any specific conservation management measures.

Synthesis

There have been a variety of trends for the different biotopes associated with this habitat. Where the infauna are dominated by various opportunistic polychaetes *Marenselleria*, and midge larvae the biotopes are either considered to have been stable or increased over the last 50 years, whilst those dominated by the mudshrimp and *Monoporeia affinis* have shown some decline in both extent and quality (but believed to be less than 25%).

The overall assessment for this EUNIS level 4 habitat has been based on the HELCOM (2013) assessments for the associated HELCOM HUB biotopes. Draft assessmentswere 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 all five associated biotopes as Least Concern (A1). With no additional data available the current expert opinion is that this habitat should be assessed as 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

Infaunal communities in Baltic infralittoral muddy sediment not dominated by bivalves

Description

No characteristic photograph of this habitat currently available.

Habitat description

This Baltic Sea benthic habitat occurs in the photic zone with at least 90% coverage of muddy sediment according to the HELCOM HUB classification. Macrovegetation and epibenthic macrofauna are typically absent and the biomass is dominated (at least 50%) by infaunal polychaetes, crustaceans, echinoderms or insect larvae. The associated biotopes occur over a range of depths, from 1m to over 100m, and different degrees of energy exposure.

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 overtime. 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. Diversity, abundance and biomass of fauna may be used as potential indicators of quality.

Characteristic species:

Monoporeia affinis, Saduria entomon, Pontoporeia femorata, Corophium volutator and *Apocorophium lacustre* where crustaceans dominate. Where polychaetes dominate *Polydora ciliata, Lagis koreni, Capitella capitata, Scoloplos (Scoloplos) armiger, Marenzelleria* spp*. (Marenzelleria arctia, Marenzelleria viridis, Marenzelleria neglecta)*; where insect larvae dominate, midge larvae (Chironomidae).

Classification

EUNIS:

The closest correspondence in EUNIS (2004) level 4 is A5.31 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 - 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.H3N: Baltic photic muddy sediment characterized by infaunal crustaceans

AA.H3M: Baltic photic muddy sediment characterized by infaunal polychaetes

AA.H3O: Baltic photic muddy sediment characterized by infaunal echinoderms

AA.H3P: Baltic photic muddy sediment characterized by infaunal insect larvae

HUB level 6;

'Baltic photic muddy sediment dominated by *Monoporeia affinis*' (AA.H3N1)

'Baltic photic muddy sediment dominated by mud shrimps (Corophiidae)' (AA.H3N2)

'Baltic photic muddy sediment dominated by *Marenzelleria* spp.' (AA.H3M3)

'Baltic photic muddy sediment dominated by various opportunistic polychaetes' (AA.H3M5)

'Baltic photic muddy sediment dominated by midge larvae (Chironomidae)' (AA.H3P1).

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

No

<u>Justification</u>
One of the associated biotopes dominated by various opportunistic polychaetes is typical of the Baltic however the dominant species *Marenzelleria* spp. is a non-native species. It has been recorded in the Baltic for at least the past century and is now considered to be an established part of various soft sediment communities.

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)
Baltic Sea	Baltic Proper: Present Belt Sea: Present Gulf of Bothnia: Present Gulf of Finland: Present Gulf of Riga: Present The Sound: Present	Unknown Km^2	Stable	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	Unknown	Unknown Km^2	This habitat is present in all the Baltic sub-basins.
EU 28+	>50,000 Km^2	Unknown	Unknown Km^2	This habitat is present in all the Baltic sub-basins

Distribution map
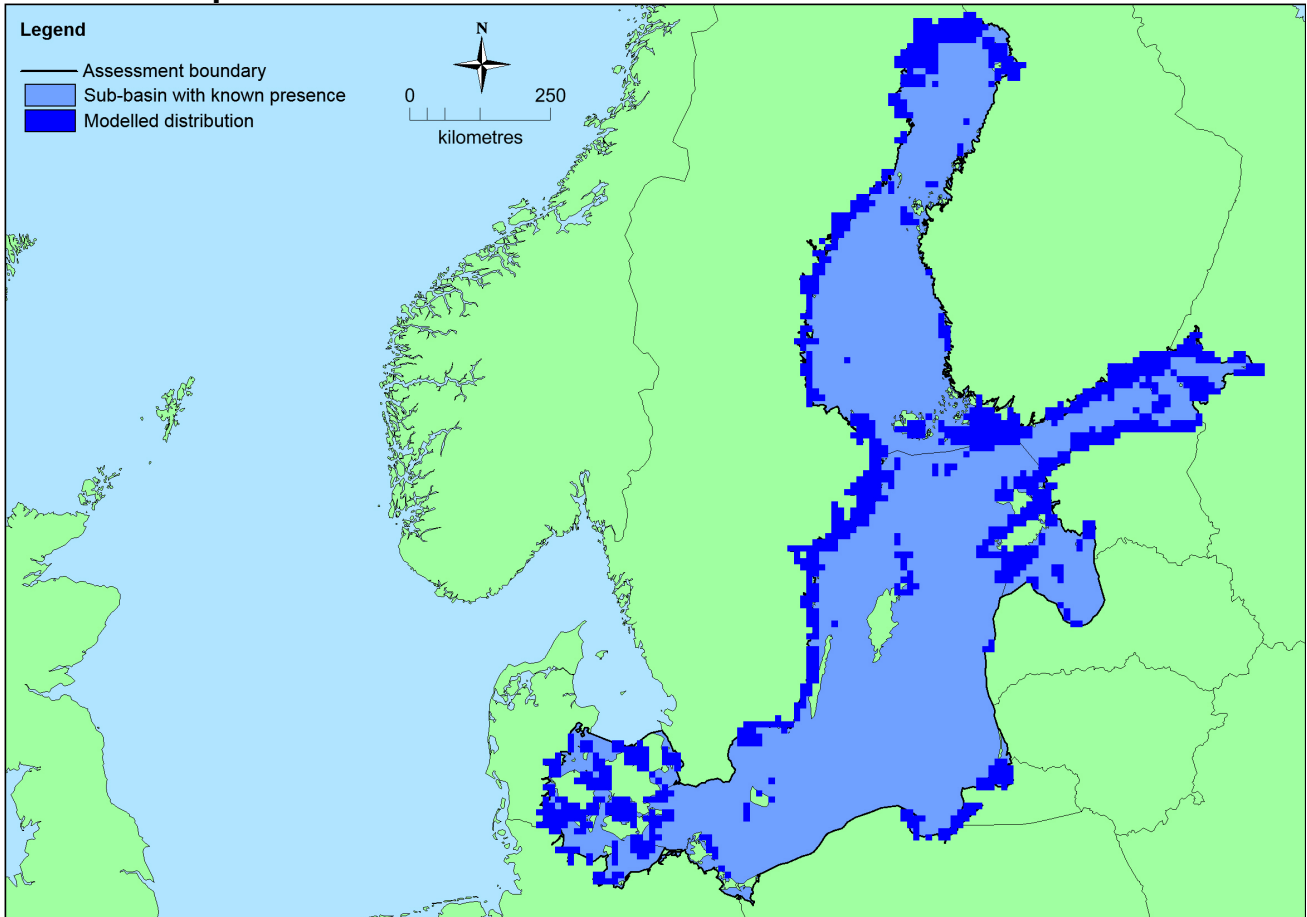
There are insufficient data to provide a comprehensive and accurate map of the distribution of this habitat. This map has therefore been generated using the modelled data available on EMODnet for EUNIS level 3 habitats in the Baltic Sea (EMODnet, 2010). This means it indicates potential areas in which 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 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.

Trends in quantity

There have been different trends in the different associated biotopes. Those dominated by *Monoporeia affinis* and by mud shrimps (Corophiidae) are believed to have decreased (but by less than 20% in the past 50 years); areas dominated by various opportunistic polychaetes and by *Marenzelleria* spp. are considered to have been stable, and areas where the infauna are dominated by midge larvae are considered to have increased. There are no detailed historic data and no estimates available on future trends in quantity. Expert opinion is that the overall condition of the habitat is most likely to be stable.

- Average current trend in quantity (extent)
  EU 28: Stable
  EU 28+: Stable
- 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

There is insufficient information available on which to make an assessment of the current status and trends in quality over the last 50 years. No future estimates of quality have been made.

- Average current trend in quality
  EU 28: Unknown
  EU 28+: Unknown

Pressures and threats

No pressures and threats have been identified specifically for this habitat at the present time.

List of pressures and threats
-

Conservation and management

No conservation and management measures have been identified specifically for this habitat type at the present time.

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) have assessed all six associated biotopes AA.H3M3, AA.H3M5, AA.H3N, AA.H3N2, and AA.H3Oand AA.H3P1 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 %

Two of the associated biotopes (dominated by *Monoporeia affinis* and by mud shrimps (Corophiidae) are believed to have decreased (but by less than 25% in the past 50 years).The other associated biotopes have either been stable or increased therefore expert opinion is that any overall decline in the quantity of the habitat is likely to have been less than 25%. It has been assessed as Least Concern 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	unknown	Unknown	Unknown	unknown	unknown
EU 28+	>50,000 Km^2	Unknown	Unknown	unknown	unknown	Unknown	Unknown	unknown	unknown

A lack of a comprehensive of quantitative data on the area covered by this habitat in the Baltic means that precise figures for EOO and AOO could not be calculated however as it is present in all Baltic Sea sub basins the EOO is likely to exceed 50,000km^2. This habitat has therefore been assessed as Data Deficient under criteria 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 considered 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+	
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
G. Saunders.

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References

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