Unvegetated Baltic infralittoral mixed sediment (hard and soft) with sparse or no macrofaunal community

Summary

This habitat occurs in all the sub-basins of the Baltic Sea and the extent is considered to have been stable over the last 50 years. Future changes in sea level/land uplift may affect the natural extent and quality of this habitat. There is no specific information on pressures, threats, conservation and management measures for this habitat nor any quantitative data on possible future changes in distribution, extent and quality.

Synthesis

This habitat is known to have a widespread distribution in the Baltic Sea.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 three relevant Baltic biotopes (AA.M2W, AA.M2T and AA.M4U) as Least Concern (A1). Current expert opinion is that because of the widespread distribution of this habitat in the Baltic Sea and no significant decline over the last 50 years it can 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

Unvegetated Baltic infralittoral mixed sediment (hard and soft) with sparse or no macrofaunal community

Description

Bothnian Bay (Krunnit) (© Jussi-Tapio Roininen, Forest & Park Service, 2010).

Habitat description

This benthic Baltic Sea habitat occurs in the photic zone with a mix of more than 10%, but less than 90% coverage of either hard and soft substrata according to the HELCOM HUB classification. Typical examples include singular rocks or boulders/stones extending above the soft substrata as well as soft substrata aggregation between abundant rocks and stones/boulders. The amount of soft substrata is affected by energy, both in the lateral and horizontal dimension, leading to a typically continuous small-scale variation in substrate composition. Sessile/semi-sessile macroscopic epibenthic fauna and flora is present where there is a sparse macrofaunal community (less than 10% coverage). In these situations microphytobenthic organisms and grazing snails (e.g. Hydrobiidae, Theodoxus, Bithynia, Radix) dominate constituting 50% in biomass or volume. Elsewhere there may be no macrovegetation present and neither macroepifauna or macro infauna.

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:

Hydrobiidae, Theodoxus, Bithynia, Radix where there is sparse macrofauna. Meiofauna and bacteria where is there is macrofaunal community.

Classification

EUNIS:

The closest correspondence in EUNIS (2004) level 4 is A5.41 Sublittoral mixed sediment 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:

1110 Sandbanks slightly covered all the time

1160 Large shallow inlets and bays

1650 Boreal Baltic narrow inlets

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Shallow sublittoral rock & biogenic reef

Shallow sublittoral coarse sediment

Shallow sublittoral mixed sediment

Shallow sublittoral sand

Shallow sublittoral mud

EUSeaMap:

Shallow photic rock or biogenic reef

Shallow coarse or mixed sediments

Shallow sand

Shallow mud

IUCN:

9.2 Subtidal rock and rocky reefs

9.3 Subtidal loose rock/pebble/gravel

9.5 Subtidal sandy-mud

Other relationships:

Level 5 of the HELCOM HUB classification (2013):

AA.M2W Baltic photic mixed substrate characterized by microphytobenthic organisms and grazing snails.

AA.M2T Baltic photic mixed substrate characterized by sparse epibenthic macrocommunity.

AA.M4U Baltic photic mixed substrate characterized by no macrocommunity.

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

No

Justification

Overall, this habitat is not considered an outstanding example of Baltic habitat. However, the associated biotope AA.M2W Baltic photic mixed substrate characterised by microphytobenthic organisms and grazing snails is typical for the Baltic reflecting the combined effects of low salinity, mixed substrate and low energy exposure.

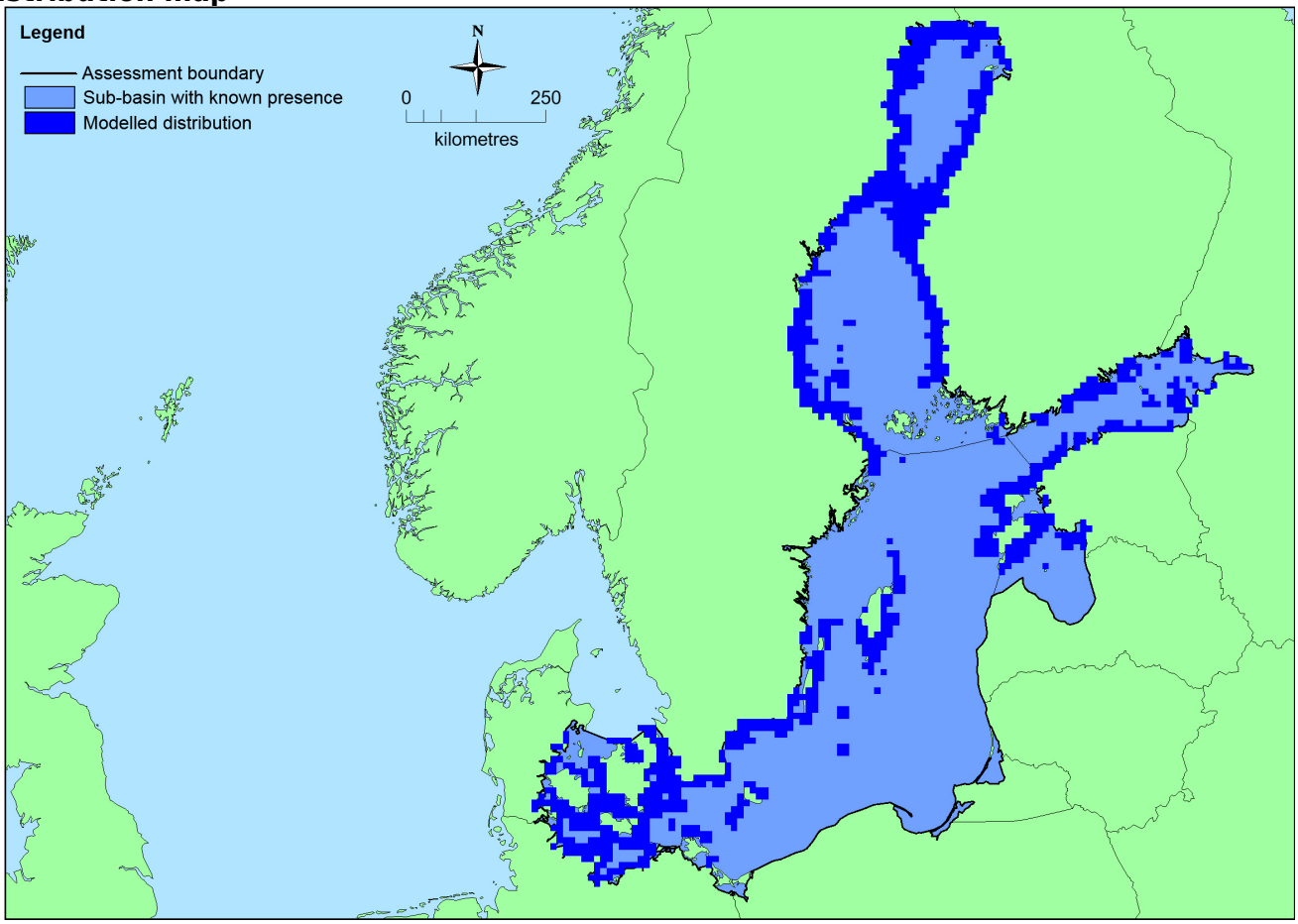
Geographic occurrence and trends

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	Stable

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

This habitat is common throughout the Baltic and the quantity is considered to have been stable over the last 50 years. There are no quantitative historic data and no estimates of future trends although future land uplift and turbidity changes/fluctuations can affect the distribution between this habitat and the corresponding circalittoral habitat.

- 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
  The trend is stable and the habitat has a large natural range in the Baltic Sea.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  This habitat has a large natural range in the Baltic Sea.

Trends in quality

From the limited information available, the current habitat condition is considered to be good. There is no information on trends in quality. In the future land uplift and turbidity changes/fluctuations may affect the distribution between this habitat and the corresponding circalittoral habitat.

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

Pressures and threats

No specific pressures and threats have been identified for this habitat type.

List of pressures and threats

-

Conservation and management

No specific conservation and management measures have been identified for this habitat type.

List of conservation and management needs

-

Conservation status

Annex 1:

1110: MBAL U1

1160: MBAL U2

1650: MBAL U2

HELCOM (2013) assessments:

1110 VU C1

1160 VU C1

1650 VU C1

HELCOM (2013) assessed all three associated biotopes (AA.M2W, AA.M2T and AA.M4U) 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 %

Expert opinion is that overall, the extent of this habitat has been stable over the last 50 years. It has therefore been assessed as Least Concern under criterion 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

This habitat is present in all Baltic Sea sub-basins therefore EOO exceeds 50,000km^2 however with no quantitative data on habitat extent or area, accurate calculation of EOO or AOO is not possible at the present time. This habitat is therefore 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	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
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Contributors
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Reviewers
M. Haldin.

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References

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