Sparse or absent epifaunal communities on Baltic infralittoral rock and mixed substrata (predominantly hard)

Summary

This habitat is characterized by sparse or absent epifaunal communities. It is quite common along large parts of the Finnish, Swedish and Estonian shorelines (at least), and typical for areas with hard bottom where algae growth is limited by either overall turbidity and/or salinity, or by their fluctuations. It is found in all Baltic sub-basins, although some sub-habitats have a more limited distribution. Pressures, threats, and conservation and management measures have not been identified specifically for this habitat type.

Synthesis

There are no quantitative data on extent and area of the habitat but it is widespread and common. Expert opinion is that the extent is believed to have changed by less than 25% over the past 50 years but the lack of quantitative data on extent, quality and trends over time means that accurate calculations of EOO and AOO are not possible at the present time. This Red List assessment has therefore been based on expert opinion.

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 six relevant Baltic sub-habitats (AA.A2T, AA.A2W, AA.A4U, AA.M2T, AA.M2W, AA.M4U) as Least Concern (A1). With no additional information on changes in extent or quality of this habitat, a known occurrence in all the Baltic Sea sub-basins, and less than a 25% decline in quantity over the last 50 years, current expert opinion is that this habitat should be assessed as Least Concern for 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 absent epifaunal communities on Baltic infralittoral rock and mixed substrata (predominantly hard)

Description

Korpo in the Archipelago Sea. (© Forest & Park Service, 2005).

Description

Karven (Ronnskar). (© A.Riihimaki, Forest & Park Service, 2011).

Habitat description

This habitat is distributed on Baltic bottoms in the photic zone with at least 90% coverage of rock, boulders or stones of more than 63 mm in diameter but this habitat type also occurs on mixed (predominantly hard) substrates where the percentage of rock is lower than 90% according to the HELCOM Hub classification. Less than 10% of the seabed is covered by perennial vegetation or attached epifauna. In some cases no epibenthic vegetation or macrofauna are present. Six associated biotopes have been identified. These are on rock and mixed (predominantly hard substrates) variously dominated (at least 50% of the biomass) by epibenthic macrocommunity and microphytobenthic organisms and grazing snails or with no macrocommunity The sub-biotope Baltic photic rock and boulders characterized by sparse epibenthic macrocommunity (AA.A2T) only occurs in the Gulf of Bothnia, Gulf of Finland and Gulf of Riga and the sub-biotope Baltic photic rock and boulders characterized by microphytobenthic organisms and grazing snails (AA.A2W) only occurs in the Gulf of Bothnia and Gulf of Finland.

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. Diversity, abundance and biomass of associated fauna may be indicators of quality.

Characteristic species:

For sparse epibenthic communities *Mytilus* spp., *Bryozoa, Balanidae, Bryozoa, Porifera, Hydrozoa;* for communities characterized by microphytobenthic organisms and grazing snails Snails, *e.g. Hydrobia* spp., *Potamopyrgus antipodarum, Theodoxus fluviatilis, Bithynia* spp., *Radix* spp. Where there are no macrocommunities, by meiofauna and bacteria.

Classification

EUNIS:

The closest correspondence in EUNIS (2004) level 4 is A3.4 Baltic exposed infralittoral rock, A3.5 Baltic moderately exposed infralittoral rock, A3.6 Baltic sheltered infralittoral rock.

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:

1160 Large shallow inlets and bays

1170 Reefs

1650 Boreal Baltic narrow inlets

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Shallow sublittoral rock & biogenic reef

Shallow sublittoral mixed sediment

EUSeaMap:

Shallow photic rock or biogenic reef

Shallow coarse or mixed sediments

IUCN:

9.2 Subtidal rock and rocky reefs

9.3. Subtidal Loose Rock/Pebble/Gravel

Other relationships:

Level 5 of the HELCOM HUB classification (2013):

AA.A2T Baltic photic rock and boulders characterized by sparse epibenthic macrocommunity

AA.A2W Baltic photic rock and boulders characterized by microphytobenthic organisms and grazing snails

AA.A4U Baltic photic rock and boulders characterized by no macrocommunity

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

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

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?
Yes

Regions
Baltic

Justification
This habitat is typical of Baltic Sea areas of low salinity areas where the seabed is predominantly hard (rock and mixed substrates).

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	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 sub-basins however there is insufficient information for accurate calculation of EOO and AOO.
EU 28+	>50,000 Km^2	>50	Unknown Km^2	This habitat is present in all the Baltic sub-basins however there is insufficient information for accurate calculation of EOO and AOO.

Distribution map
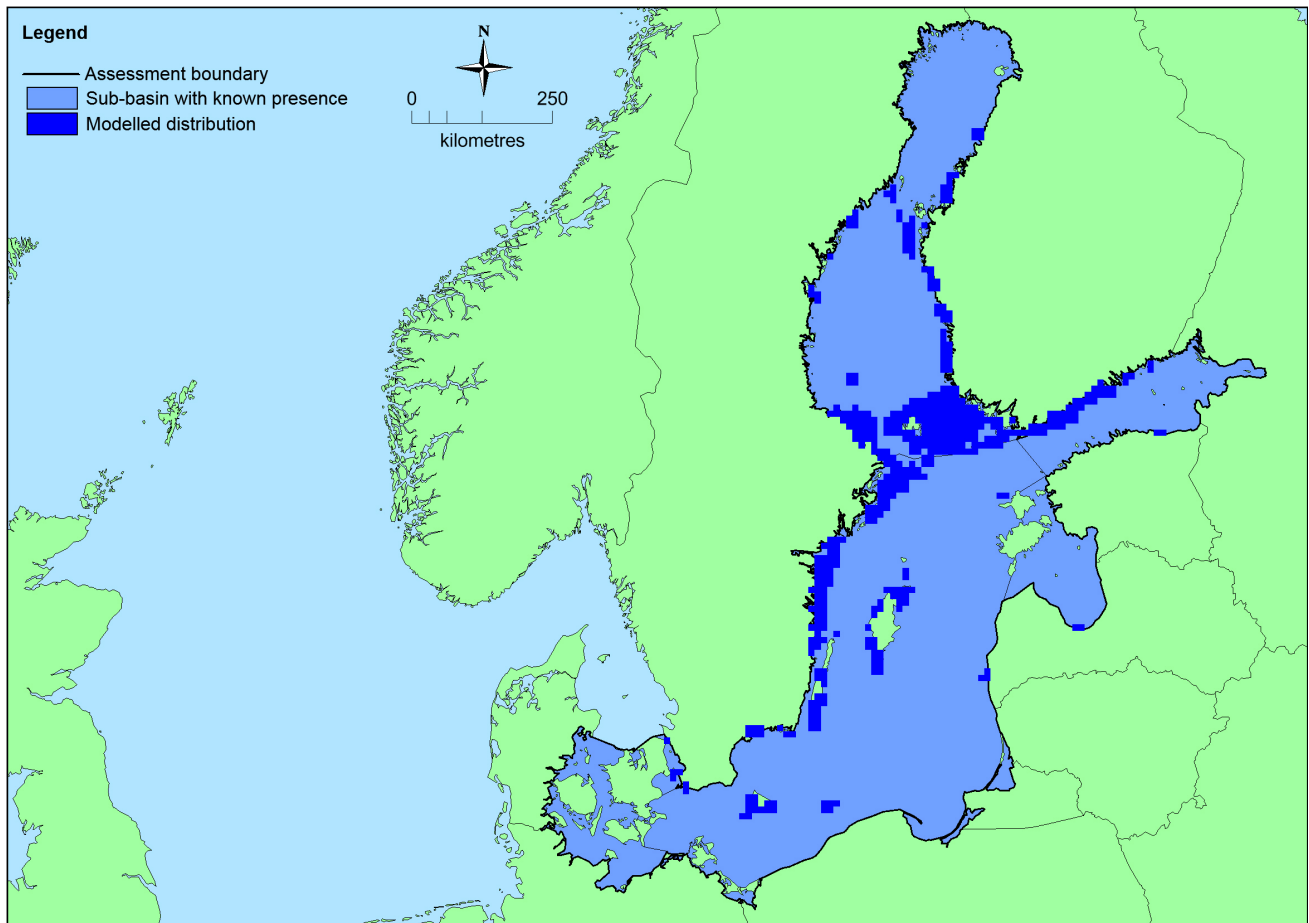
There are insufficient data to provide a comprehensive and accurate map of the distribution of this habitat. This map has therefore been generated using the modelled data available on EMODnet for EUNIS level 3 habitats in the Baltic Sea (EMODnet, 2010). This means it indicates potential areas in which 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 although some of the associated biotopes have a more restricted distribution. e.g. AA.A2W Baltic photic rock and boulders characterized by microphytobenthic organisms and grazing snails only occurs in the Gulf of Bothnia and Gulf of Finland. There is insufficient information to determine any trends in quantity of this habitat over the last 50 years. Some of the associated biotopes may increase in extent in the future due to changes in salinity, but overall, the trends have not been predicted.

- 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 is present in all the Baltic Sea sub-basins therefore 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 is present in all the Baltic Sea sub-basins therefore does not have a small natural range.

Trends in quality

There are no established criteria on which to base a quality assessment and insufficient information to determine if there have been any recent trends in the quality of this habitat.

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

Pressures and threats

No pressure and threats have been identified specifically for this habitat.

List of pressures and threats
-

Conservation and management

No conservation and 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:

1160: MBAL U2

1650: MBAL U2

HELCOM (2013) assessments:

1160: VU C1

1650: VU C1

1170: VU C1

HELCOM (2013) assessed six sub-habitats AA.A2T, AA.A2W, AA.A4U, AA.M2T, AA.M2W, 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	<25 %	Unknown %	Unknown %	Unknown %

Criterion A	A1	A2a	A2b	A3
EU 28+	<25 %	Unknown %	Unknown %	Unknown %

The area covered by this habitat is not known and there are no quantitative data on trends in quantity but expert opinion is that there has been less than a 25% decline over the last 50 years. This habitat has therefore been assessed as Least Concern under Criteria A.

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	No	>50	Unknown	Unknown	No	No
EU 28+	>50,000 Km^2	Unknown	Unknown	No	>50	Unknown	Unknown	No	No

There is insufficient information on which to determine a baseline or trends in quantity and quality of this habitat at the present time although there is some country specific data e.g. a minimum area estimate of 184 km^2 from surveys of six areas investigated off the coast of Estonia between 2005-8. Nevertheless, as patches of this habitat are widespread and common, being present in all the Baltic Sea sub-basins, EOO exceeds 50,000 km^2 and AOO >50. It has been therefore assessed as Least Concern 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 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	LC	LC	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	DD	DD	DD	LC	LC	LC	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
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References

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