

Crustose algae communities on Baltic infralittoral rock and mixed substrata

Summary

This benthic habitat is present throughout the Baltic where hard substrates are present and light levels enable the establishment of crustose algae communities. There are records of the characteristic species (*Hildenbrandia* spp. and *Pseudolithoderma* spp.) in all the Baltic sea sub-basins but no estimates of habitat extent and area, nor reporting of potential quality indicators. Activities which reduce light levels or lead to eutrophication (nutrient enrichment) could result in some deterioration of this habitat but the severity of such effects are unknown. Any potential effects on this habitat from changes in sea temperature and salinity that may result from future climate change are also unknown.

Synthesis

This habitat is present in all sub-basins of the Baltic and therefore the EOO exceeds 50,000 km². It is not considered to have declined significantly (>25%) over the last 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 the two associated Baltic biotopes (AA.A1R and AA.M1R) as Least Concern (based on criterion A1). With no additional information on changes in extent or quality of this habitat, the current expert opinion is an assessment of 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

Crustose algae communities on Baltic infralittoral rock and mixed substrata

Description

No characteristic photographs of this habitat currently available.

Habitat description

This is a Baltic Sea benthic habitat in the photic zone, either with at least 90% coverage of rock, boulders or stones of more than 63 mm in diameter but also on mixed substrates with at least 10% coverage of rock, boulders or stones according to the HELCOM HUB classification. Soft crustose algae cover at least 10% of the seabed while all perennial attached erect groups cover less than 10%. This habitat covers the full salinity range of the Baltic Sea and is more common in areas exposed to waves and current.

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:

These include *Hildenbrandia* spp., *Pseudolithoderma* spp. with different species present depending on the salinity regime.

Classification

EUNIS:

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

Shallow sublittoral mixed sediment

EUSeaMap:

Shallow photic rock or biogenic reef

Shallow coarse or mixed sediments

IUCN ecosystem:

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.A1R Baltic photic rock and boulder characterized by soft crustose algae

AA.M1R Baltic photic mixed substrate characterized by soft crustose algae

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

Unknown

Justification

Geographic occurrence and trends

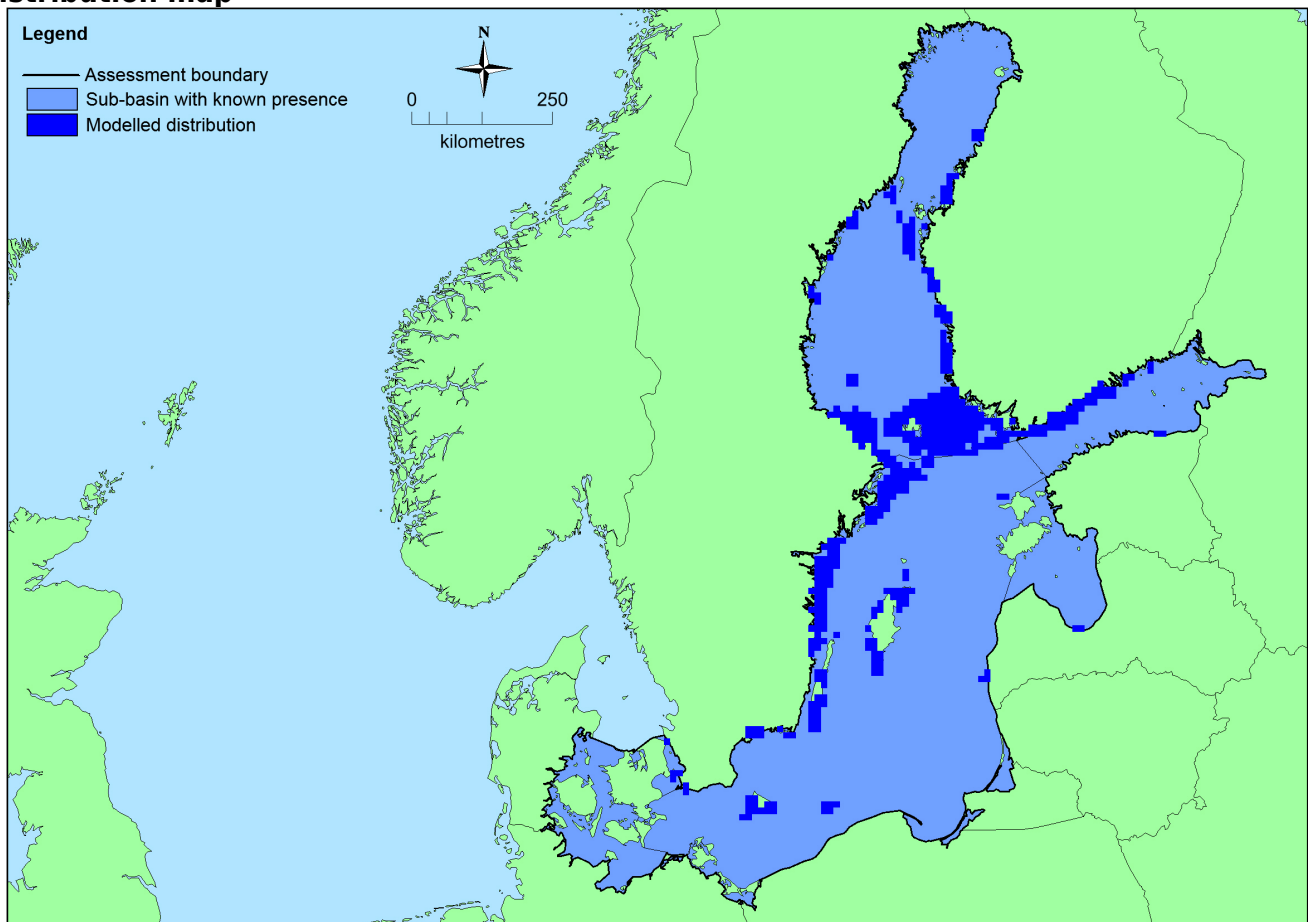
Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
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Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend 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
<i>EU 28</i>	>50,000 Km ²	Unknown	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.
<i>EU 28+</i>	>50,000 Km ²	Unknown	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. EOO and AOO cannot be calculated at

the present time, although the habitat is known to occur in all the Baltic Sea sub-basins.

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

Unknown

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

Trends in quality

Unknown

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

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

List of pressures and threats

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Conservation and management

Crustose algae are generally very tolerant to extremes of temperature, light and salinity. This habitat is likely to benefit from measures which reduce the risk of eutrophication (nutrient enrichment) and which maintain water clarity.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

Restoring/Improving water quality

Conservation status

Annex 1:

1160: MBAL U2

1170: MBAL U1

1650: MBAL U2

HELCOM (2013) assessments:

1160: VU C1

1170: VU C1

1650: VU C1

HELCOM has assessed the associated biotopes AA.A1R and AA.M1R 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 %

There are no quantitative data on trends in the area covered by this habitat type in the Baltic 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	unknown	unknown	Unknown	Unknown	unknown	unknown
EU 28+	>50,000 Km ²	Unknown	Unknown	unknown	unknown	Unknown	Unknown	unknown	unknown

Present in all Baltic Sea basins therefore EOO exceeds 50,000km² 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 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	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			
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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

T.A. Haynes.

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Date of review

17/12/15

References

HELCOM, 2013. HELCOM Red List Biotope information sheets. Available at: [http://www.helcom.fi/Documents/Ministerial2013/Associated%20documents/Background/HELCOM%20Red%20List%20Biotope%20Information%20Sheets%20\(BIS\).pdf](http://www.helcom.fi/Documents/Ministerial2013/Associated%20documents/Background/HELCOM%20Red%20List%20Biotope%20Information%20Sheets%20(BIS).pdf). (Accessed: 16/07/2015).

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