

Annual algal communities on Baltic infralittoral muddy sediment

Summary

This habitat, occurs in most the Baltic Sea sub-basins. It is characterized by annual algal communities on infralittoral muddy sediment. Threats and pressures are unknown at present and no specific conservation or management measures have been identified.

Synthesis

There is a lack of data on the extent, quantity and quality of this habitat but expert opinion is that it is unlikely to have declined in extent 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. This habitat was evaluated by HELCOM in the 2013 Red List of Habitat Assessment as Least Concern (A1). With no further baseline information or data on changes in extent or quality, the current expert opinion is an assessment of 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

Annual algal communities on Baltic infralittoral muddy sediment



Vaucheria

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. Annual algae cover at least 10% of the seabed, while all other epibenthic biotic structures like rooted plants, unattached perennial algae or blue mussels cover less than 10%. The habitat covers the full salinity range of the Baltic Sea and is common in sheltered, very shallow areas. One associated biotope has been identified: 'Baltic photic muddy sediment dominated by *Vaucheria* spp.' (AA.H1S3). This is encountered most of the Baltic Sea with the exception of the more saline western parts (the Belt Sea and The Sound) and is identified by a large representation of *Vaucheria* spp., which constitutes at least 50% of the biovolume of the annual algae. It forms dense mats in bays with soft sediment, requires a salinity below 7 psu and is found at up to 7 meters depth.

Indicators of quality:

The ratio of annual to perennial epibenthic components is used in several countries to describe habitat quality. As such the area of the habitat itself or the biomass of the corresponding species is used as an indicator for quality. In this particular case the lowest area or biomass is a sign of high quality as only in very high exposure levels should annual algae dominate. In all other circumstances perennials (*Fucus*) should dominate except where there is a low salinity (below 3 psu) as perennial algae growth does not generally occur under such conditions.

Characteristic species:

Vaucheria spp.

Classification

EUNIS:

The closest correspondence in EUNIS (2004) level 4 is A5.31 Sublittoral mud in low or reduced salinity or A5.52 Kelp and seaweed communities on sublittoral sediment.

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

9.10 Estuaries

Other relationships:

Level 5 of the HELCOM HUB classification (2013):

AA.H1S Baltic photic muddy sediment characterized by annual algae This habitat has one associated biotope on HUB level 6; 'Baltic photic muddy sediment dominated by *Vaucheria* spp. (AA.H1S3).

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

No

Justification

Biotores dominated by annual algae are found in all regional seas, although the characteristic species may vary between regions. In the Baltic Sea annual algae represent a more or less reduced marine flora.

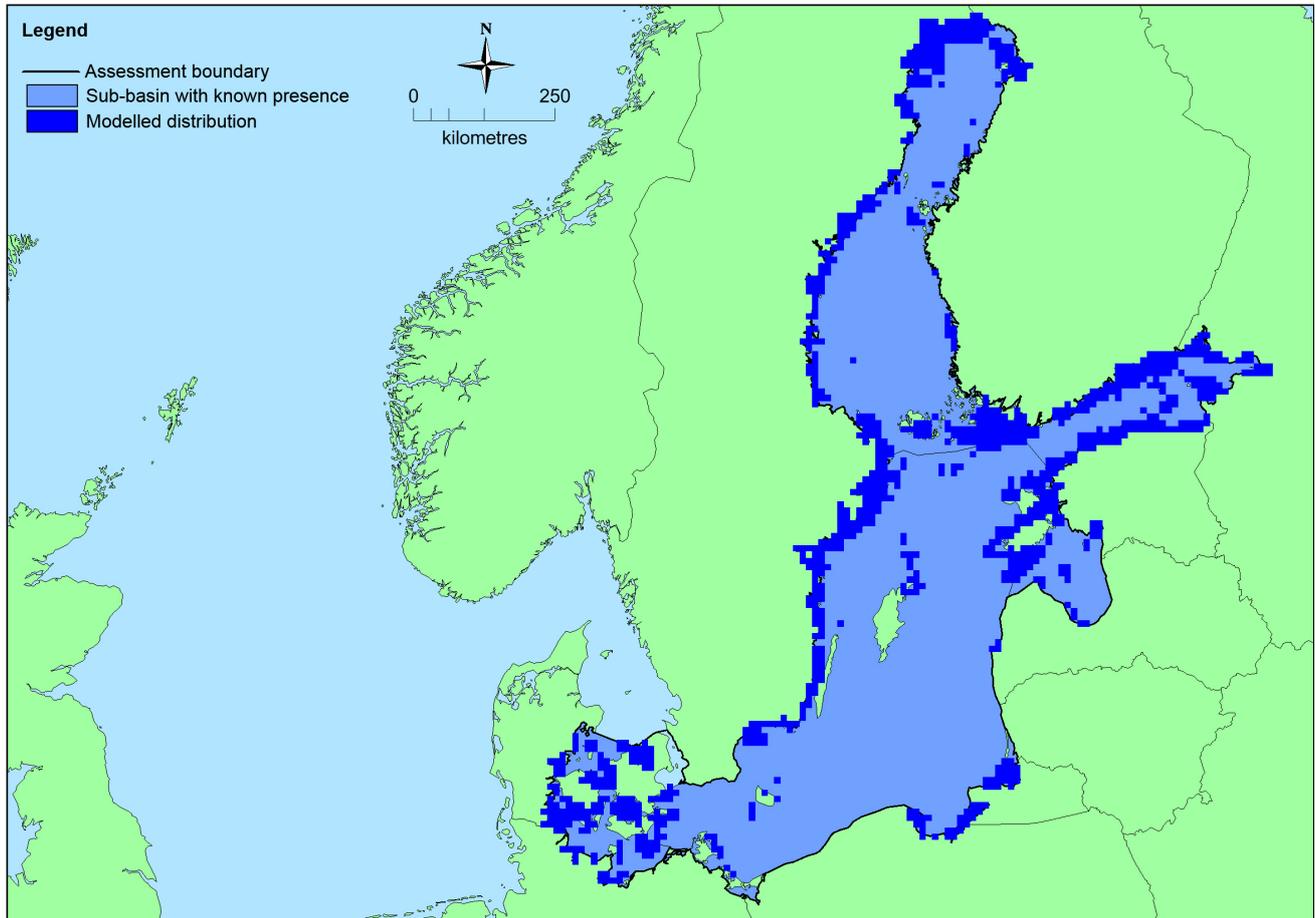
Geographic occurrence and trends

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 Gulf of Bothnia: Present Gulf of Finland: Present Gulf of Riga: Present Belt Sea: 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	>50	Unknown Km ²	
<i>EU 28+</i>	>50,000 Km ²	>50	Unknown Km ²	

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?

Unknown (no data available on whether it occurs in Russia).

Trends in quantity

This habitat is present in in nearly all sub-basins of the Baltic Sea: the Baltic Proper, Gulf of Bothnia, Gulf of Finland, Gulf of Riga and in coastal lagoons or estuaries of the Belt Sea with the respective low salinity values. No recent or historic decrease in quantity is believed to have occurred. Expected increase of around 15% over the next 50 years in the Quark and Bothnian Bay has been predicted. No information on other areas.

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

Trends in quality

Some decline in quality has been estimated such as 20% of the area in the Quark and Bothnian Bay over the past 50 years. There are no data related to trends in quality in other areas.

- 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

-

Conservation and management

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

List of conservation and management needs

-

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 this habitat as LC(A1).

When severely damaged, does the habitat retain the capacity to recover its typical character and functionality?

As the dominant species of this biotope are annual species, often known as opportunists with short life cycles, recovery can be very fast (1-2 years) even after strong declines.

Effort required

10 years
Naturally

Red List Assessment

Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	0 %	unknown %	unknown %	unknown %

Criterion A	A1	A2a	A2b	A3
EU 28+	0 %	unknown %	unknown %	unknown %

This habitat is not considered to have declined in extent over the last 50 years although there is an absence of quantitative data. 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	>50	Unknown	Unknown	unknown	Unknown
EU 28+	>50,000 Km ²	Unknown	Unknown	Unknown	>50	Unknown	Unknown	unknown	Unknown

This habitat has a large natural range in the Baltic Sea extending from the German estuaries in the west to the Bothnian Bay in the north-east. EOO >50,000 km² and AOO >50. There is a lack of data on its precise location. This habitat has therefore been assessed as Data Deficient under criterion B for both the EU 28 and EU 28+.

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%

Expert opinion is that there are insufficient data on which to undertake a quantitative assessment of criterion 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	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	DD	DD	DD	DD	DD	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD

Overall Category & Criteria			
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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

K. Fürhaupter.

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09/07/2015

Date of review

04/01/2016

References

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

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Kersen, P. 2012. First findings of the benthic macroalgae *Vaucheria cf. dichotoma* (Xanthophyceae) and *Puncaria tenuissima* (Phaeophyceae) in Estonian coastal waters. *Estonian Journal of Ecology* 2: 135-147