

Aquatic moss communities on Baltic infralittoral coarse sediment

Summary

Aquatic moss communities on Baltic infralittoral coarse sediment substrates may form extensive underwater meadows in sheltered waters. *Fontinalis* spp. penetrate into the southernmost part of the Gulf of Bothnia (Oregrund Archipelago) and are common in the Tvarminne area while *Drepanocladus* spp. are reported from the Gulf of Bothnia and Gulf of Finland. Although there is some species distribution information there are no quantitative data on the geographic extent of this habitat in the Baltic or changes in quality in recent or historic periods of time.

This habitat has not been extensively studied in the Baltic (compared to freshwater equivalents) but is believed to provide shelter and food for benthic animals as well as suitable spawning locations for some fish. The pressures and threats to this habitat are likely to be associated with decline in water quality, sedimentation, and physical damage. There is limited information on conservation and management measures specifically relating to this habitat but they could be expected to include those which reduce the risks of eutrophication and increase water clarity.

Synthesis

The presence of this habitat type in the Baltic is well established. The geographical areas in which it occurs are known in general terms (the Gulf of Bothnia and Gulf of Finland in areas of low salinity) but there is a lack of quantitative data on extent and quality. The current 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 this habitat (AA.I1D) to be Least Concern (A1). With no additional information on changes in extent or quality of this habitat, and based on an estimate of 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	-

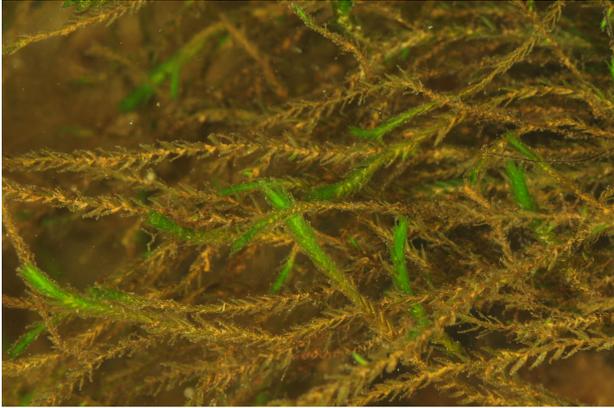
Sub-habitat types that may require further examination

None.

Habitat Type

Code and name

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© OCEANA / Carter Mingsel - Willow moss (Fontinalis antipyretica) Långron, Bothnian Sea, Sweden. Oceanic Nature Explorer Photo Sea Expedition, April 2011.
Wegge de agter (Fontinalis antipyretica) Långron, Mar de Botnia, Suedia. Expedición al Mar Báltico del Océano Nature Explorer, April 2011.

Willow moss (*Fontinalis antipyretica*) Långron,
Bothnian Sea, Sweden (© OCEANA/C.Minguell).

Habitat description

This habitat occurs on Baltic bottoms in the photic zone where the seabed substrate is at least 90% coarse sediment according to the HELCOM HUB classification. Aquatic moss covers at least 10% of the seabed and more than any other perennial attached erect groups. In some places the mosses form extensive underwater meadows which provide shelter and food for benthic animals. This habitat occurs where salinity is typically <5 psu and in all exposure ranges although more common in areas exposed to wave action. It occupies the photic zone typically between 1 to 7 meters.

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. The depth zone occupied and amount of epiphytic ephemeral filamentous algae are potential indicators of quality of this habitat.

Characteristic species:

Fontinalis spp. *Fissidens fontanus*, *Platyhypnidium riparioides*.

Classification

EUNIS:

The closest correspondence in EUNIS (2004) level 4 is A5.11 Infralittoral coarse 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:

1160 Large shallow inlets and bays

1650 Boreal Baltic narrow inlets

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Shallow sublittoral coarse sediment

EUSeaMap:

Shallow coarse or mixed sediments

IUCN

9.3 Subtidal Loose Rock/Pebble/Gravel

Other relationships

Level 5 of the HELCOM HUB classification (2013).

AA.I1D: Baltic photic coarse sediment characterized by aquatic moss

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

Yes

Regions

Justification

Aquatic moss habitats typically occur in freshwater. The low salinity conditions in the northern Baltic have enabled them to become established in coastal waters.

Geographic occurrence and trends

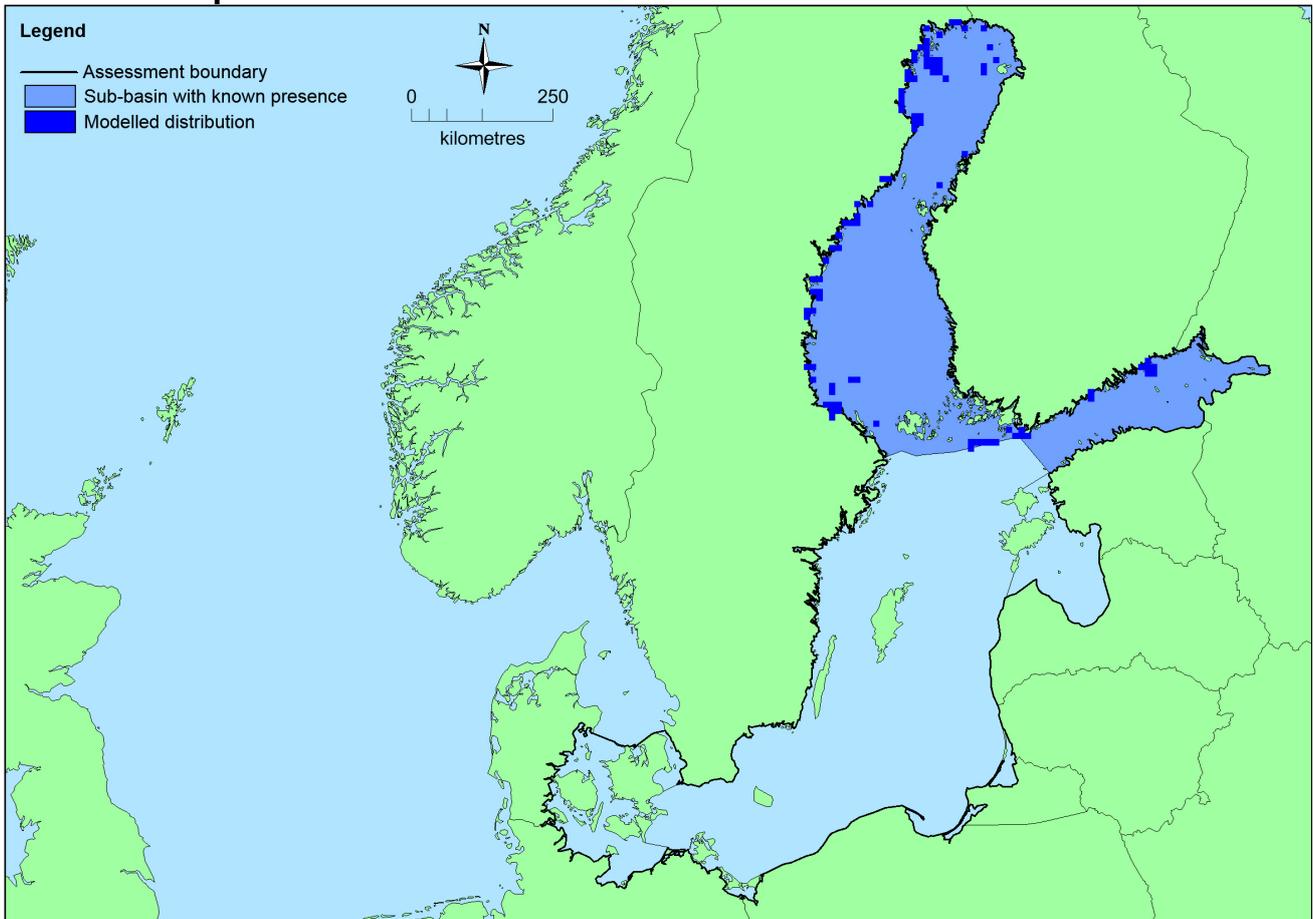
Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Baltic Sea</i>	Gulf of Bothnia: Present Gulf of Finland: Present	Unknown Km ²	Unknown	Unknown

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>	Unknown Km ²	Unknown	Unknown Km ²	

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28+	Unknown Km ²	Unknown	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?

Defined as a Baltic habitat therefore 100% occurs in the Baltic Sea. Unknown what percentage is hosted by Member States in the Baltic.

Trends in quantity

There is insufficient information on which to assess the current quantity of this habitat or any historical trends. No future trends have been estimated.

- Average current trend in quantity (extent)

EU 28: Unknown

EU 28+: Unknown

- Does the habitat type have a small natural range following regression?

Unknown

Justification

- Does the habitat have a small natural range by reason of its intrinsically restricted area?

Unknown

Justification

Trends in quality

There is insufficient information on which to assess the current quality of this habitat or any historical trends. No future trends have been estimated.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

There is limited information on pressures and threats specifically relating to this habitat but they could be expected to include poor water quality including nutrient enrichment (N, P and organic matter) and sedimentation which would reduce light levels, encourage the growth of epiphytes and potentially smother the aquatic mosses which are the characteristic species of this habitat.

List of pressures and threats

Pollution

Pollution to surface waters (limnic, terrestrial, marine & brackish)

Nutrient enrichment (N, P, organic matter)

Natural System modifications

Human induced changes in hydraulic conditions

Siltation rate changes, dumping, depositing of dredged deposits

Dumping, depositing of dredged deposits

Other human induced changes in hydraulic conditions

Conservation and management

There is limited information on conservation and management measures specifically relating to this habitat but they could be expected to include those which reduce the risks of eutrophication and increase 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

1650: MBAL U2

Status of Annex 1 types in Baltic as assessed by HELCOM (2013)

1160 (VU,C1)

1650 VU (C1)

HELCOM has assessed this habitat (AA.I1D) as LC (A1)

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

Unknown. There is no information available in order to estimate the recovery capacity of this habitat type.

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. Expert opinion is that there has been less than a 25% decline in the last 50 years. This habitat has therefore been assessed as Least Concern under Criteria A for 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	unknown Km ²	Unknown							
EU 28+	unknown Km ²	Unknown							

Experts consider there to be insufficient data on which to calculate EOO or AOO. This habitat is therefore 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 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

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

S.A. Wikström.

Date of assessment

02/07/2015

Date of review

12/01/2016

References

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