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Fact sheets on marine habitats and species for the Marine Baltic region

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Context:

The Topic Centre has prepared this Technical paper in collaboration with the European Environment Agency (EEA) under its 2018 work programme as a contribution to the EEA's work on Natura 2000 biogeographical seminars, making use of information from the EU Red List of Habitats¹ and from information reported by Member States under Art. 17 of the Habitats Directive, Art. 12 of the Birds Directive and Natura 2000.

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¹ Gubbay, S. Sanders, N., Haynes, T, Janssen, J.A.M, Rodwell, J.R, Nieto, A., Garcia Criado, M., Beal, S., Borg, J., Kennedy, M., Micu, D., Otero, M., Suanders, G., and Calix, M. 2016. European Red List of Habitats, Part 1. Marine habitats. European Commission. Luxembourg. Publications of the European Union.

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1 Introduction

1.1 Background

The new Natura 2000 Seminars at the biogeographical level aim to exchange and analyse information on measures necessary to achieving favourable conservation status of species and habitats of Community interest, with special attention to the management and coherence of the Natura 2000 network. The seminars involve Member States, key user groups, NGOs and independent experts (Arvela et al., 2012).

The 'Pre-scoping document for the marine regions (Core document)' published as ETC/BD Technical paper n°2/2015, presented the general background as well as the approach used by ETC/BD to guide the selection of habitat-types and species for priority consideration by Member States and stakeholders for discussion on management issues during the 1st Natura 2000 marine seminar held in Saint Malo (France) in May 2015.

The present document complements the above-mentioned report and the 'Fact sheets on selected marine habitats and species' by providing for the Marine Baltic Region the following information:

- Descriptive fact sheets on two EU Red List habitat-types directly extracted from *Gubbay et al.* 2016².
- Updated fact sheets prepared by ETC/BD for three Annex I habitat-types which are sub-types of the two EU Red List habitat-types.
- Updated fact sheet prepared by ETC/BD for one Annex II species.
- Fact sheet prepared by ETC/BD for one bird species.

1.2 Fact sheets prepared by ETC/BD

Each fact sheet prepared by ETC/BD presents the habitat/ species conservations status (trend for bird species) together with a distribution map for the Marine Mediterranean and Black Sea regions, information on pressures as well as on most important conservation measures implemented.

Quantitative information on Natura 200 sites hosting the concerned habitat/ species is also provided.

1.2.1 Conservation status

The assessment of conservation status is based on the reporting of the EU Member Countries based on requirements of the Habitats Directive Article 17 for period 2007-2012 (further "Article 17 Reporting"). For this assessment the following categories are used:

FV	Favourable	U1	unfavourable – inadequate
U2	unfavourable-bad	XX	unknown

As this information is not reported in Article 12 of the Birds Directive, birds species population trends at EU level have been provided.

² Gubbay, S. Sanders, N., Haynes, T, Janssen, J.A.M, Rodwell, J.R, Nieto, A., Garcia Criado, M., Beal, S., Borg, J., Kennedy, M., Micu, D., Otero, M., Suanders, G., and Calix, M. 2016. European Red List of Habitats, Part 1. Marine habitats. European Commission. Luxembourg. Publications of the European Union.

1.2.2 Maps

Maps showing the distribution of habitat types and species in the Baltic region were prepared using the Article 17 and 12 national distribution GIS layers (reporting cycle 2007-2012 and 2008-2012). In addition, these maps also show the conservation status for habitat types and non-bird species since the conservation status is not available for bird species.

A second map depicts the Sites of Community Importance or Special Protection Areas designated for each habitat type and species. As with the statistics, non-significant sites (those containing D population for species and D representativity for habitats) have been differentiated on maps.

1.2.3 Methodology on statistics for pressures and conservation measures

The list of pressures and conservation measures used for the assessment can be found on the Article 17 Reference Portal³. The list of pressures is structured in a hierarchical way, with 3 levels reflecting different degrees of precision, see Table 1.1.

Table 1.1 Pressure (and threats) categories used for Article 12 & 17 reporting, Level 1 in full and examples of Levels 2 and 3

Level 1		Level 2 (part)		Level 3 (part)	
Code	Name				
A	Agriculture				
B	Forestry				
C	Mining, quarrying & energy production				
D	Transportation & service infrastructure				
E	Urbanisation, residential & commercial development				
F	Use of living resources (other than agriculture & forestry)	F01	Marine and freshwater aquaculture		
G	Disturbances due to human activities	F02	Fishing and harvesting aquatic resources	F02.01	Professional passive fishing
H	Pollution			F02.02	Professional active fishing
I	Invasive and introduced species	F03	Hunting and collection of terrestrial wild animals	F02.03	Leisure fishing
J	Modification of natural conditions	F04	Taking and collection of terrestrial plants		
K	Natural processes (excluding catastrophes)	F05	Illegal taking of marine fauna		
L	Geological events, natural catastrophes	F06	Other hunting, fishing and collection activities		
M	Climate change				
X	No pressures or threats				
XO	Threats and pressures from outside the Member State				
XE	Threats and pressures from outside the EU territory				
U	Unknown threat or pressure				

³ http://bd.eionet.europa.eu/activities/Reporting/Article_17/reference_portal

For the Article 17 reports, Member States were requested to report pressures at the second hierarchical level, but were given the option of using more precise categories (i.e. third and fourth level). The following analyses on pressures are based on this requested hierarchical level.

In addition to the type of pressure and conservation measures (up to 20 maximum) for each habitat/species, Member States also ranked the relative importance of the pressure or conservation measures as falling under one of three categories: low, medium and high importance/impact. A maximum of five high ranked entries could be reported by Member States for each habitat/species in a given region.

The following habitats and species fact sheets only retain high-ranked pressures and conservation measures. As the ranking code was not obligatory to indicate unknown/no pressures and no measures, these categories have been excluded from statistics.

For the bird species triggering SPA classification, Member States were asked to report the 20 most important pressures and threats using an agreed hierarchical list which can be found on the Article 12 Reference Portal

(http://bd.eionet.europa.eu/activities/Reporting/Article_12/reference_portal).

The table below only contains information from Member States, where a species triggers SPA classification. Pressures and threats were ranked in three classes 'high, medium and low importance', the table below only shows pressures and threats classed as 'high', for some species there were less than ten pressures and threats reported as highly important.

This methodology is also applicable for conservation measures, Member States were asked to report up to 20 conservation measures being implemented for this species using an agreed list which can be found on the Article 12 Reference Portal. Member States were further requested to highlight up to five of the most important ('highly important') measures; the table below only shows measures classed as 'high' (for many species there were less than ten measures reported as highly important).

1.2.4 Habitats and non-bird species in SCIs and bird species in SPA

Statistical information is provided on occurrence of each habitat type and species in Natura 2000 sites for individual Member States for the Baltic region, i.e. number of sites and habitat area within the sites. Data is presented differentiating significant sites and non-significant sites (those containing D population for species and D representativity for habitats). For species tables, data on population size in Natura 2000 sites have been included as reported by Member States in the Article 17 and Article 12 reports (2007- 2012; 2008- 2012 reporting cycles). Note that data on birds are not available at marine region level, only at MS's level.

These data have been extracted from the Natura 2000 European database end 2017 with the exception of population size which comes from Article 17 and 12.

2 Habitats fact-sheets

Descriptive fact sheets for habitat 28 *Submerged rooted plant communities on Baltic infralittoral sand* and 42 *Epifaunal communities on Baltic infralittoral rock and mixed substrata* (predominantly hard) are extracted from the European Red List of Habitats

Descriptive fact sheets for habitats 1110 *Sandbanks which are slightly covered by sea water all the time* 1160 *Large shallow inlets and bays* and 1170 *Reefs* have been prepared by ETC/BD, making use of information from Art. 17 reporting.

2.1 28 Submerged rooted plant communities on Baltic infralittoral sand⁴

European Red List of Habitats - Marine: Baltic Habitat Group

Submerged rooted plant communities on Baltic infralittoral sand

Summary

This habitat occurs in all Baltic sub-basins in the shallow waters of the photic zone with the submerged rooted plant communities providing structure for the benthic environment and associated communities on the underlying sediment. Distribution of the associated biotopes depends on the dominant species and is influenced mainly by salinity and exposure. *Zostera noltei*, for example, is not found east of the Darss Sill in the Arkona basin, while *Potamogeton perfoliatus* occurs mostly in the northern part of the Bothnian Bay, and *Chara horrida* in the central Baltic and Archipelago Sea.

Eutrophication (increasing N, P and organic matter) has both direct and indirect negative impacts on this habitat. Reducing light penetration through the water column can reduce the depth penetration of submerged species, increased sedimentation can prevent settlement, and excess of nutrients often favours opportunistic species with short life cycles and rapid development over perennial species with lower productivity, causing a shift in the community composition. Climate change may also result in a shift in the dominant species due to predicted associated changes in salinity. All actions to reduce eutrophication of the Baltic Sea are important for the conservation of this habitat. Spatial measures are also important, such as area protection and restrictions on coastal works and dredging.

Synthesis

The presence of this habitat type in the Baltic is well known with different submerged rooted plant communities dominating depending on the salinity and exposure. There are quantitative data for some of the associated biotopes in some areas (e.g. in Isefjord, Kalundborg fjord and Flensborg Fjord in Denmark and along the entire German coastline) as well as maps indicating presence in 100 x 100 km squares prepared by HELCOM. There have been significant declines (>25%) in the extent of the seagrass and charophyte dominated communities in the last 50 years. *Zostera marina* and several species of Charales are on the HELCOM Red List of threatened species in the Baltic. Deeper water eelgrass meadows are at risk of disappearing in the future if there is continued reduction in light levels (e. g. due to eutrophication or sediment disturbance).

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 biotopes AA.J1B1, AA.J1B2, AA.J1B3, AA.J1B6 and AA.J1B8 as Least Concern (A1). Biotopes AA.J1B4, AA.J1B5 and AA.J1B7 were assessed as Near Threatened (A1). On the basis of these assessments and expert opinion, this habitat is assessed as Near Threatened for both the EU 28 and EU 28+ since there has been a significant decline in the area of some of the biotopes with the overall decline estimated to be between 25-30%.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Near Threatened	A1	Near Threatened	A1

Sub-habitat types that may require further examination

AA.J1B4 Baltic photic sand sominated by Charales AA.J1B5 Baltic photic sand dominated by spiny naiad (*Najas marina*) AA.J1B7 Baltic photic sand sominated by common eelgrass (*Zostera marina*).

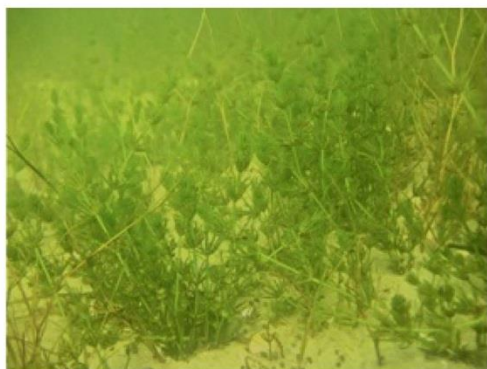
1

⁴ <https://forum.eionet.europa.eu/european-red-list-habitats/library/marine-habitats/baltic-sea>

Habitat Type

Code and name

Submerged rooted plant communities on Baltic infralittoral sand



Charophytes (mainly *Chara baltica*) mixed with some higher plants on sandy seabed, Greifswalder Bodden, Germany (© K. Fürhaupter).



Myriophyllum spp. and pondweeds are typical underwater vegetation in narrow Baltic inlets (© M.Westerbom, FINMARINET).

Habitat description

This is a Baltic Sea benthic habitat in the photic zone where at least 90% of the substrate is sand according to the HELCOM HUB classification. Submerged rooted plants, including plants with rhizoids (i.e. Charales) cover at least 10% of the seabed and more than other perennial attached erect groups. The habitat is present across the full salinity range of the Baltic, in locations that are moderately to very sheltered from wave action and in depths of up to 6m.

Eight associated biotopes with different dominant (>50% of the biovolume) macrophyte taxa (spiny naiad, spikerush, pondweed, watermilfoil, *Ranunculus* spp. Charales, and seagrass.) have been described.

They differ in their distribution along gradients in salinity, depth and wave exposure with the biotope dominated by the common eelgrass (*Zostera marina*)' (AA.J1B7) differing most strongly from the others in distribution. This occurs mainly under conditions of moderate exposure to wave action and in salinities of 5 psu or higher. It is also typically found deeper than the other biotopes (1-6 m) and often marks the lower depth limit distribution of soft bottom vegetation. This biotope is absent from areas with low salinity in the inner part of Gulf of Finland and Gulf of Bothnia.

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 vertical depth limit of submerged rooted plants is used in several countries as a Water Framework Directive parameter for assessing ecological status. The overall quality and continued occurrence of this habitat is, however, largely dependent on the presence of the rooted plant communities which create the biogenic structural complexity on which the characteristic associated communities depend. The density and the maintenance of a viable population of these species

is a key indicator of habitat quality, together with the visual evidence of presence or absence of physical damage.

Characteristic species:

Stuckenia pectinata, *Potamogeton perfoliatus*, *Zostera marina*, *Z. noltei*, *Ruppia cirrhosa*, *R. maritima*, *Zannichellia palustris*, *Myriophyllum spicatum*, *Najas marina*, *Chara aspera* *Ch. baltica*, *Ch. canescens*, *Ranunculus peltatus* subsp. *baudotii*, *Eleocharis* spp.

Classification

EUNIS:

The closest correspondence in EUNIS (2004) level 4 is A5.53 Sublittoral seagrass beds, A5.54 Angiosperm communities in reduced salinity and A5.21 Sublittoral sand 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

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 sand

EUSeaMap:

Shallow sands

IUCN:

9.4 Subtidal Sandy

9.9 Seagrass

9.10 Estuaries

Other relationships:

Level 5 of the HELCOM HUB classification (2013):

AA.J1B Baltic photic sand characterised by submerged rooted plants

This habitat has eight biotopes on HUB level 6; AA.J1B1 'Baltic photic sand dominated by pondweed (*Potamogeton perfoliatus* and/or *Stuckenia pectinata*)' AA.J1B2 'Baltic photic sand dominated by *Zannichellia* spp. and/or *Ruppia* spp. and/or *Zostera noltii*' AA.J1B3 Baltic photic sand dominated by watermilfoil (*Myriophyllum spicatum* and/or *Myriophyllum sibiricum*)' AA.J1B4 'Baltic photic sand dominated by Charales' AA.J1B5 'Baltic photic sand dominated by spiny naiad (*Najas marina*)' AA.J1B6 'Baltic photic sand dominated by *Ranunculus* spp.' AA.J1B7 'Baltic photic sand dominated by common eelgrass (*Zostera marina*)' AA.J1B8 'Baltic photic sand dominated by spikerush (*Eleocharis* spp.)'

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

Yes

Regions

Baltic

Justification

This habitat occurs in all the Baltic Sea sub basins and most of the associated biotopes are very typical of the Baltic. They have a characteristic species composition for the Baltic Sea, dominated by species of freshwater origin.

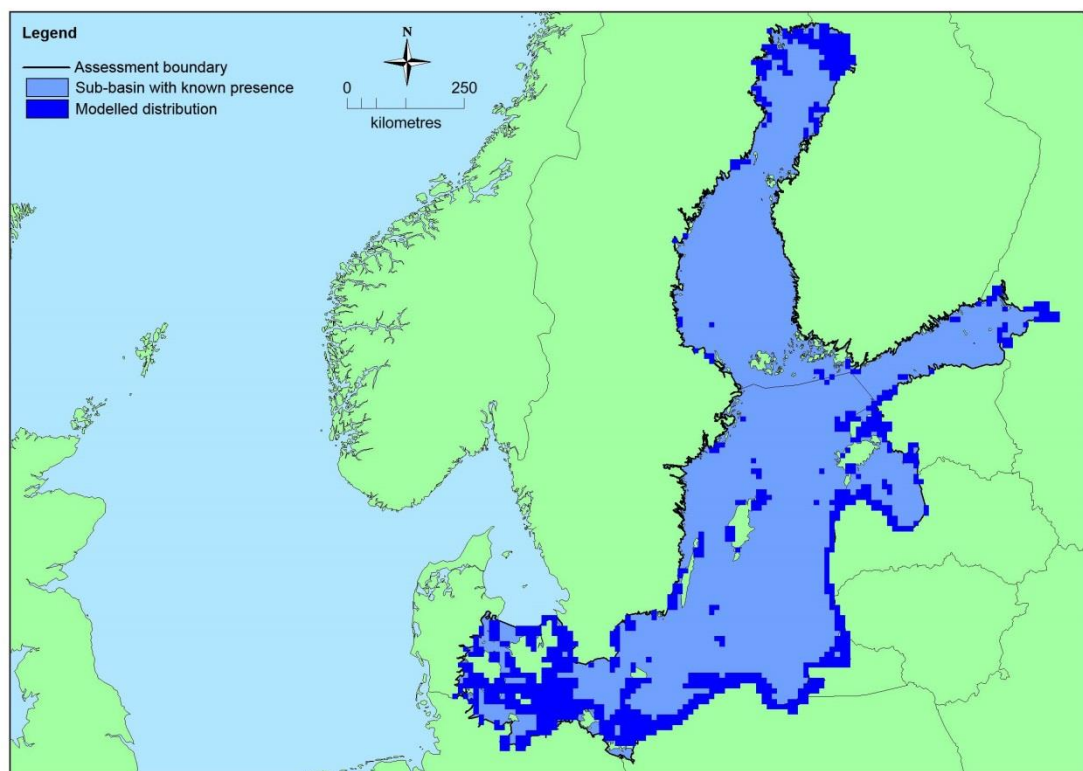
Geographic occurrence and trends

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	Decreasing	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. 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. This habitat may be present in other European regional seas.

Trends in quantity

The best studied biotopes are those dominated by seagrass, brackish water angiosperms and charophytes and for most of them there have been significant declines in extent. Two examples are in Greifswalder Boden, Germany where dense *Z. marina* meadows covered the seafloor in the 1930s, but between 1950 and 1980 there was been a decline of up to 90%; a decline of between 75-80% has been recorded in Oresund, Denmark. In Puck Bay, Poland the underwater meadows of vascular plants (including *Z. marina*) have been also reduced respectively between 1950 and 1980 but increasing since the 1990s. Present cover is very patchy and only a small fraction of its extensive historic distribution in the Bay. Also reductions for the sub-biotope dominated by charophytes are known from German inner bays and lagoons as well as the Polish Puck Bay.

The associated biotope AA.J1B4 'Baltic photic sand dominated by Charales' has declined by >25% during the last 50 years but to a varying extent in different Baltic Sea regions with the strongest decline in the Western and Southern Baltic Sea. In some bays and lagoons conditions have changed so intensively that it has disappeared completely. AA.J1B5 'Baltic photic sand dominated by spiny naiad (*Najas marina*)' has exhibited a strong decline in the highly eutrophicated areas of the Southern Baltic Sea and it is known to

have disappeared from some locations. A comparison of the current with the historical distribution status of *Najas marina* within the German Bodden areas of Mecklenburg Western Pomerania (Southern Baltic Sea) shows nearly total loss of the biotope. There are no data to indicate similar declines in other Baltic Sea areas but the biotope is largely restricted to lagoons which is an endangered biotope complex. 'Baltic photic sand dominated by common eelgrass (*Zostera marina*)' has declined >25% during the last 50 years, with the largest decline recorded in the Southern Baltic Sea. The remaining associated biotopes are believed to have declined by less than 25% over the last 50 years. There have been no estimates of future trends in the quantity of this habitat.

- Average current trend in quantity (extent)

EU 28: Decreasing

EU 28+: Decreasing

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

No

Justification

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

Trends in quality

The quality of this habitat is believed to have declined over the past 50 years, in at least some areas, but there are no consistent data to quantify the decline.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

Observed declines of the spatial distribution of the biotopes AA.J1B4 'Baltic photic sand dominated by Charales' and AA.J1B5 'Baltic photic sand dominated by spiny naiad (*Najas marina*)' are mainly caused by increased eutrophication and connected effects. Decreasing light penetration depth, massive growth of ephemeral algae and increased siltation rates cause massive alterations in the biotopes of sheltered coastal areas. The enclosed characteristic of bays and lagoons intensify the eutrophication impacts. Coastal works (e.g. dredging for deepening of harbour access channels, ditching and construction of leisure facilities) and increased tourism has led to a further degradation of the habitat. The threat level is particularly high in the Western and Southern Baltic Sea. In the future climate change (increasing exposure levels, temperatures) or increasing aquaculture in bays may cause additional threats.

The main causes of the observed declines of the spatial distribution of the biotope AA.J1B7 'Baltic photic sand dominated by common eelgrass (*Zostera marina*)' are (1) the "wasting disease" that caused about 90% of the North European stock to disappear in the 1930 and also affected the *Zostera* beds in Danish and German waters and (2) eutrophication of the Baltic Sea that has resulted in significant decline of eelgrass meadows in mainly Danish, German, Swedish and Polish coastal areas. Eutrophication has decreased the depth where *Zostera* dominated biotopes can receive enough light and may in addition cause a shift from eelgrass meadows to communities dominated by fast-growing macroalgae. Climate change is predicted to lower the salinity level in the northern parts of the Baltic Sea due to an increase of precipitation, which may threaten *Zostera marina* in the northernmost areas where it currently exists on the limits of its salinity tolerance.

List of pressures and threats

Pollution

Pollution to surface waters (limnic, terrestrial, marine & brackish)
Nutrient enrichment (N, P, organic matter)
Input of contaminants (synthetic substances, non-synthetic substances, radionuclides) - diffuse sources, point sources, acute events

Natural System modifications

Estuarine and coastal dredging
Dykes, embankments, artificial beaches, general
Sea defense or coast protection works, tidal barrages

Climate change

Changes in abiotic conditions
Temperature changes (e.g. rise of temperature & extremes)
Changes in biotic conditions
Habitat shifting and alteration

Conservation and management

All actions to reduce eutrophication of the Baltic Sea are important for the conservation of this habitat. For the associated biotopes that mainly occur in bays with limited water exchange with the open ocean (those dominated by Charales' and the spiny naiad), combating local sources of eutrophication is essential. Conservation measures are also important, such as area protection and restrictions on coastal works and dredging in shallow coastal lagoons and archipelago areas.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

Restoring/Improving water quality

Measures related to marine habitats

Restoring marine habitats

Measures related to spatial planning

Establish protected areas/sites

Measures related to urban areas, industry, energy and transport

Other measures
Managing marine traffic

Conservation status

Annex 1:

1110: MBAL U1

1130: MBAL U2

1160: MBAL U2

1650: MBAL U2

HELCOM (2013) assessments:

1110 VU C1

1130 CR C1

1160 VU C1

1650 VU C1

HELCOM (2013) have assessed associated biotopes AA.J1B1, AA.J1B2, AA.J1B3, AA.J1B6 and AA.J1B8 as LC(A1). AA.J1B4, AA.J1B5 and AA.J1B7 have been assessed as NT(A1).

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

The associated biotope AA.J1B7 'Baltic photic sand dominated by common eelgrass (*Zostera marina*)' can be slow to recover after strong decline (>20 yrs) > intervention (through transplantation) may speed up the recovery but transplantation experiments have had limited success to date. Regeneration from root systems is slow and recovery of entire beds, with characteristic structure and associated species will take long. In the northern Baltic low salinity means that any expansion takes place vegetatively. *Zostera* plants are believed to be from the same genotype, estimated to be between 800-1600 years old. Clonal growth and low genetic diversity may reduce the acclimation capacity and survival of the species in rapidly changing environmental conditions. For the other biotopes natural recovery can probably occur within 10 years.

Effort required

10 years	20 years
Naturally and through intervention	Naturally and through intervention

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 quantitative data for changes in this habitat in some parts of its range in the Baltic Sea and for some of the sub-habitats. Expert opinion is that overall this is probably more than 25% in the last 50 years. This habitat has therefore been assessed as Near Threatened 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	Yes	Yes	No	>50	Yes	Yes	No	No
EU 28+	>50,000 Km ²	Yes	Yes	No	>50	Yes	Yes	No	No

This habitat has a large natural range in the Baltic Sea extending from the Danish coast in the west to the Bothnian Bay in the north-east. EOO >50,000 km² and AOO > 50 and it is not limited to a few locations. The habitat is believed to have declined in extent over the last 50 years and there is a likelihood of continuing decline but because it does not have a restricted geographic distribution it has been assessed as Least Concern 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 %

There have been declines in the quality of some of the associated biotopes in some areas e.g. charophytes and *Zostera marina* but experts consider there to be insufficient data on which to make an overall assessment of 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	NT	DD	DD	DD	LC	LC	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	NT	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
Near Threatened	A1	Near Threatened	A1

Confidence in the assessment

Medium (evenly split between quantitative data/literature and uncertain data sources and assured expert knowledge)

Assessors

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Contributors

HELCOM RED LIST Biotope Expert Team 2013 and Baltic Sea Working Group for the European Red List of Habitats 2014 and 2015.

Reviewers

K. Fürhaupter.

Date of assessment

08/07/2015

Date of review

29/12/2015

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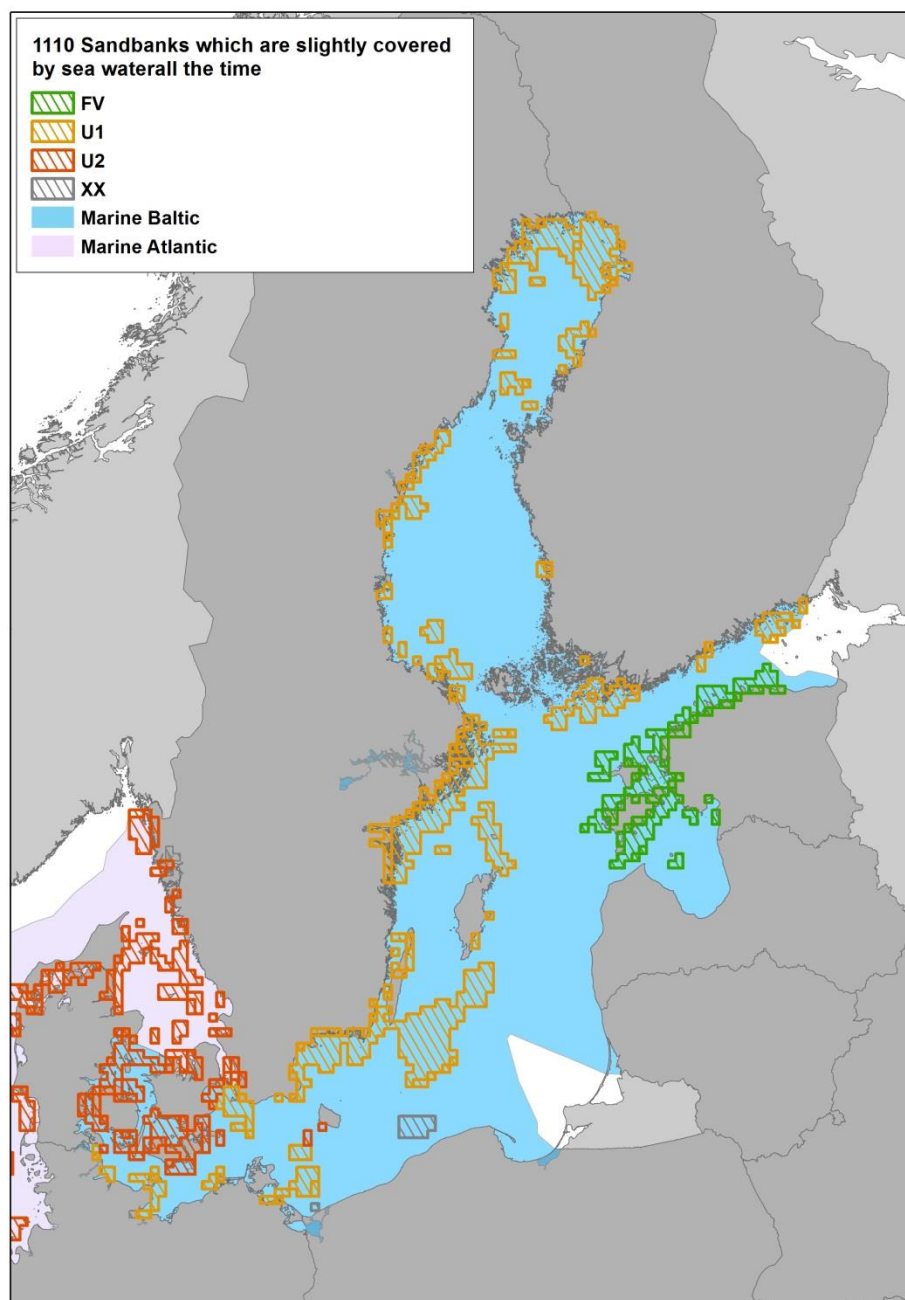
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2.1.1 1110 Sandbanks which are slightly covered by sea water all the time

The habitat “1110 - Sandbanks which are slightly covered by sea water all the time”, is basically a habitat complex that can encompass a variety of soft bottoms. According to the Interpretation Manual of European Union Habitats - EUR28, Sandbanks are: *elevated, elongated, rounded or irregular topographic features permanently submerged and predominantly surrounded by deeper water. They consist mainly of sandy sediments, but larger grain sizes, including boulders and cobbles, or smaller grain sizes including mud may also be present on a sandbank.*

The overall conservation status of this habitat type for the Marine Baltic Sea is Unfavourable-Inadequate (U1). Main pressures and threats reported for the habitat involve pollution including eutrophication effects, over fishing, quarrying and change in water bodies' conditions.

Map of habitat distribution and conservation status.



Habitat conservation status at the Member State and EU levels

Conservation status parameters	MBAL						
	DE	DK	EE	FI	PL	SE	EU27
range	FV	FV	FV	FV	XX	FV	FV
area	FV	XX	FV	FV	XX	FV	FV
structure	U1	U2	FV	U1	XX	U1	U1
future	XX	U2	FV	U1	XX	U1	U1
overall	U1	U2	FV	U1	XX	U1	U1

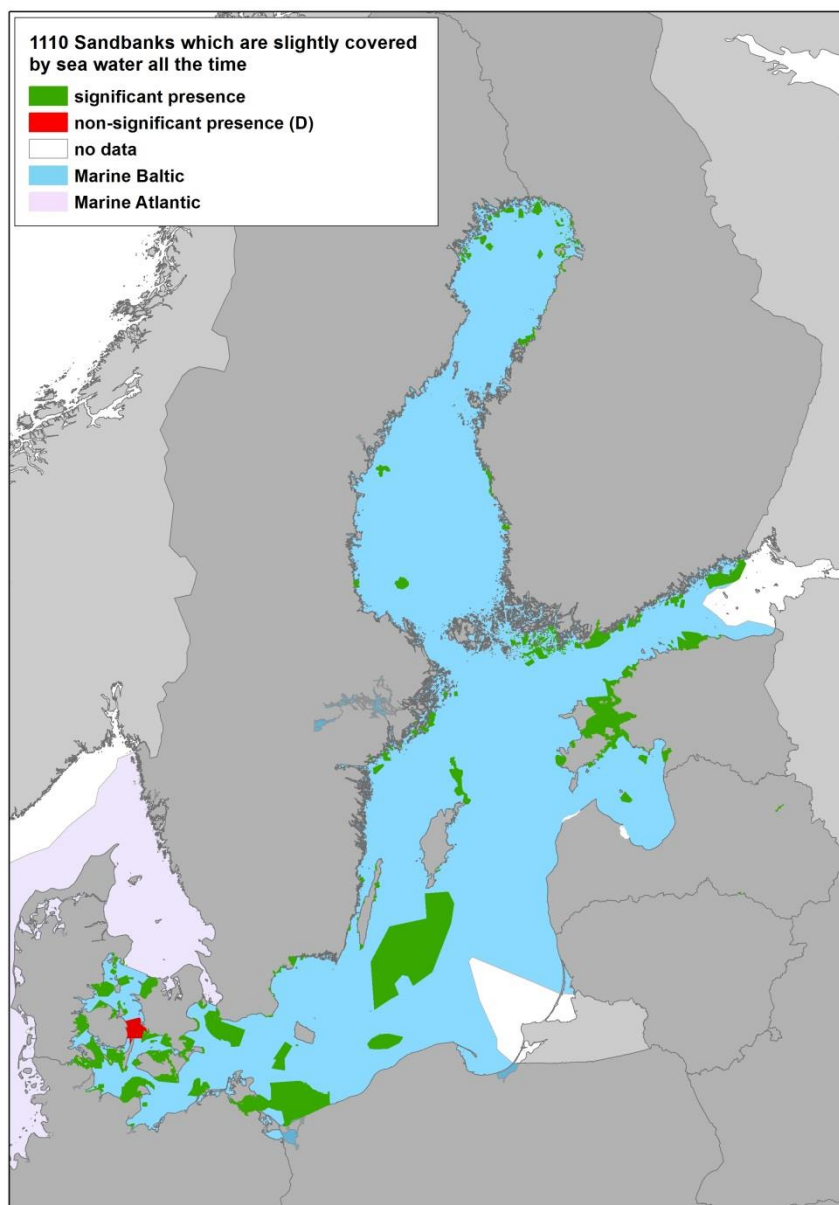
Proportion of pressures reported by MS as 'Highly important'

Pressures - Level 2	MBAL
C01 - Mining and quarrying	14.3%
D03 - Shipping lanes and ports	0%
E03 - Discharges (household/industrial)	0%
F01 - Marine and freshwater aquaculture	0%
F02 - Fishing and harvesting aquatic resources	14.3%
F06 - Other hunting, fishing and collection activities	0%
G05 - Other human intrusions and disturbances	0%
H01 - Pollution to surface waters	42.9%
H03 - Pollution to marine waters	0%
H04 - Air pollution, air-borne pollutants	14.3%
I01 - Invasive alien species	0%
J02 - Changes in water bodies conditions	14.3%
J03 - Other changes to ecosystems	0%

Proportion of conservation measures reported by MS as 'Highly important'

Conservation measures - Level 2	MBAL
4.0 - Other wetland-related measures	0%
4.1 - Restoring/improving water quality	12.5%
4.2 - Restoring/improving the hydrological regime	12.5%
5.0 - Other marine-related measures	12.5%
5.1 - Restoring marine habitats	0%
6.0 - Other spatial measures	12.5%
6.1 - Establish protected areas/sites	25.0%
6.3 - Legal protection of habitats and species	0%
7.1 - Regulation/ Management of hunting and taking	0%
7.3 - Regulation/ Management of fishery in marine and brackish systems	12.5%
8.1 - Urban and industrial waste management	0%
8.3 - Managing marine traffic	12.5%
9.0 - Other resource use measures	0%
9.2 - Regulating/Managing exploitation of natural resources on sea	0%

SCI distribution map for this habitat type



Number of SCIs where this habitat type occurs and habitat area covered by Natura 2000 per Member State (Natura 2000 End_2017 database)

MS	TOTAL SCI	SIGNIFICANT SCI	COVER (km ²)	SIGNIFICANT COVER (km ²)
DE	12	12	698,82	698,82
DK	33	32	869,93	869,93
EE	17	17	396,28	396,28
FI	27	27	130,87	130,87
LV	6	6	1,72	1,72
PL	2	2	767,93	767,93
SE	68	68	4023,86	4023,86

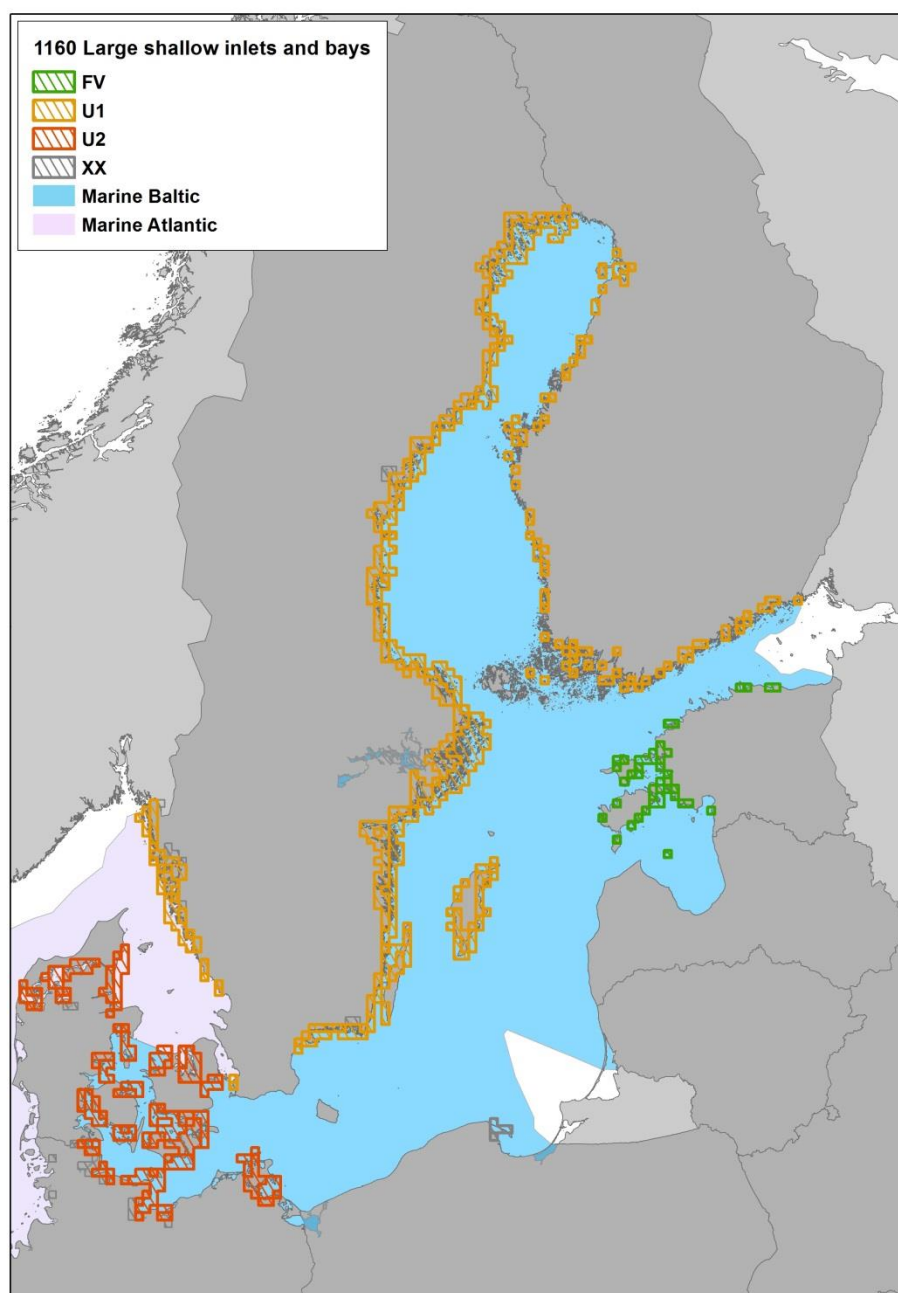
2.1.2 1160 Large shallow inlets and bays

According to the Interpretation Manual of European Union Habitats - EUR28, the habitat “Large shallow inlets and bays” is:

Large indentations of the coast where, in contrast to estuaries, the influence of freshwater is generally limited. These shallow indentations are generally sheltered from wave action and contain a great diversity of sediments and substrates with a well-developed zonation of benthic communities. These communities have generally a high biodiversity. The limit of shallow water is sometimes defined by the distribution of the *Zosteretea* and *Potametea* associations. Several physiographic types may be included under this category providing the water is shallow over a major part of the area: embayments, fjords, rias and voes.

Overall conclusion is unfavourable- bad (U2) for the Marine Baltic region. Pressures and threats towards the habitat mainly involve the alteration of water quality conditions with both eutrophication and various pollutants, but also overfishing and recreational activities.

Map of habitat distribution and conservation status



Habitat conservation status at the Member State and EU levels

Conservation status parameters	MBAL						
	DE	DK	EE	FI	PL	SE	EU27
range	FV	FV	FV	FV	XX	FV	FV
area	FV	FV	FV	FV	XX	FV	FV
structure	U2	U2	FV	U1	XX	U1	U2
future	U1	U2	FV	U1	XX	U1	U1
overall	U2	U2	FV	U1	XX	U1	U2

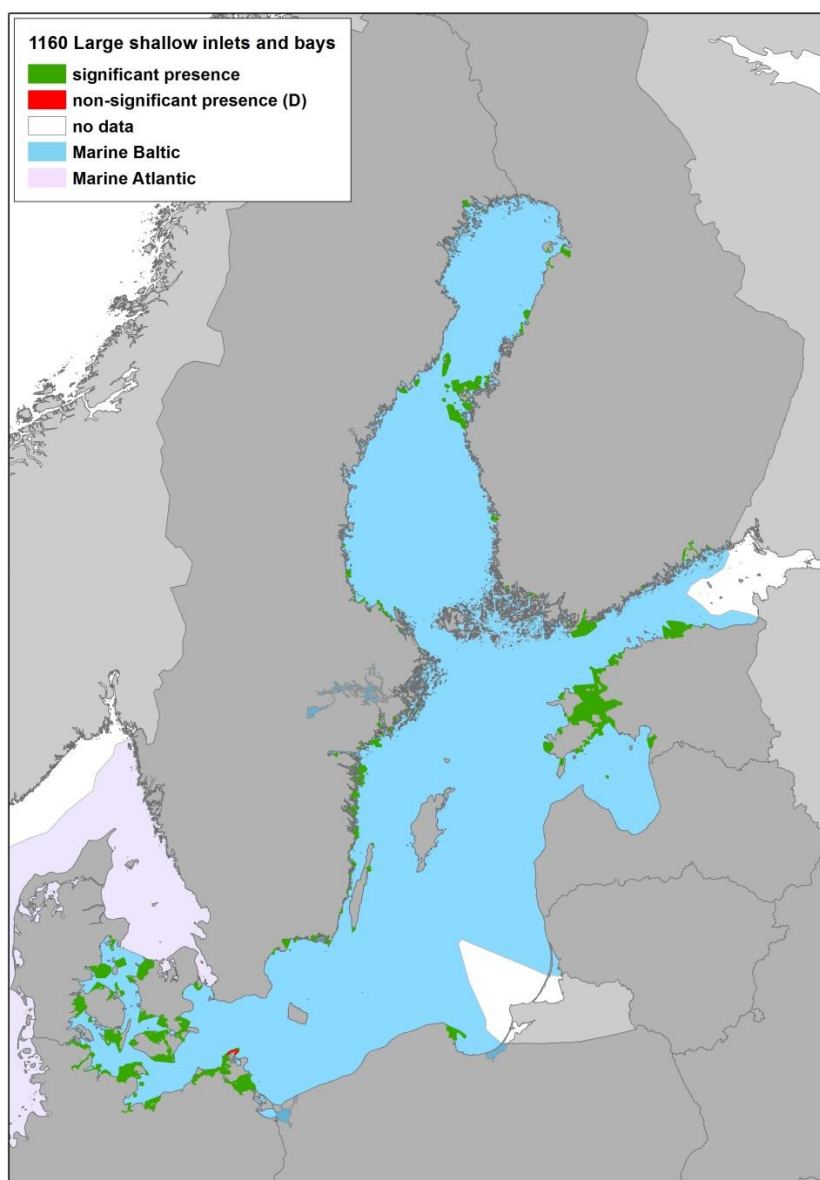
Proportion of pressures reported by MS as 'Highly important'

Pressures - Level 2	MBAL
A08 - Fertilisation in agriculture	0%
D03 - Shipping lanes and ports	0%
E01 - Urbanisation and human habitation	0%
E03 - Discharges (household/industrial)	0%
F01 - Marine and freshwater aquaculture	0%
F02 - Fishing and harvesting aquatic resources	16.7%
F05 - Illegal taking of marine fauna	0%
F06 - Other hunting, fishing and collection activities	0%
G01 - Outdoor sports, leisure and recreational activities	16.7%
G05 - Other human intrusions and disturbances	0%
H01 - Pollution to surface waters	50.0%
H03 - Pollution to marine waters	0%
I01 - Invasive alien species	0%
J02 - Changes in water bodies conditions	16.7%
J03 - Other changes to ecosystems	0%
K01 - Abiotic natural processes	0%

Proportion of conservation measures reported by MS as 'Highly important'

Conservation measures - Level 2	MBAL
2.0 - Other agriculture-related measures	0%
4.0 - Other wetland-related measures	0%
4.1 - Restoring/improving water quality	0%
4.2 - Restoring/improving the hydrological regime	20.0%
4.3 - Managing water abstraction	0%
5.0 - Other marine-related measures	20.0%
6.0 - Other spatial measures	0%
6.1 - Establish protected areas/sites	20.0%
6.3 - Legal protection of habitats and species	0%
7.3 - Regulation/ Management of fishery in marine and brackish systems	20.0%
8.3 - Managing marine traffic	20.0%
9.2 - Regulating/Managing exploitation of natural resources on sea	0%

SCI distribution map for this habitat type



Number of SCIs where this habitat type occurs and habitat area covered by Natura 2000 per Member State (Natura 2000 End_2017 database)

MS	TOTAL SCI	SIGNIFICAN SCI	COVER (km ²)	SIGNIFICANT COVER (km ²)
DE	20	19	1150,83	1150,82
DK	22	22	941,72	941,72
EE	20	20	202,95	202,95
FI	23	23	148,72	148,72
PL	1	1	219,90	219,90
SE	102	101	135,36	135,35

2.2 42 Epifaunal communities on Baltic circalittoral rock and mixed substrata (predominantly hard)⁵

⁵ <https://forum.eionet.europa.eu/european-red-list-habitats/library/marine-habitats/baltic-sea>

Epifaunal communities on Baltic infralittoral rock and mixed substrata (predominantly hard)

Summary

This habitat is very common being present along most coastal waters except possibly some of the eastern and southern Baltic where sand is the dominating substrate or in areas of low salinity, i.e. the Bothnian Bay and parts of Gulf of Finland. Detailed mapping of distribution and extent has not taken place although there are some data from regional studies (e.g. Estonia).

Eutrophication is a major threat to at least to some of the associated biotopes as the higher nutrient concentrations enhances the growth rate of annual macrophytic algae, restricting the available substrate for development of epifaunal turf communities. In contrast Mytilids are very tolerant to, and even favoured by, eutrophication (because it increases food availability). Potentially beneficial measures include reducing the diffuse run off from agricultural land and nutrient run off from point-sources by constructing waste water treatment plants. All actions to reduce physical disturbance from bottom trawling, offshore construction work and dredging, including prohibition in protected areas, would also be beneficial.

Synthesis

This habitat is present in all sub-basins of the Baltic therefore EOO exceeds 50,000 km² although the lack of quantitative data on extent, means that accurate calculations of EOO and AOO are not possible at the present time. There is believed to have been some deterioration in extent and quality of some of the associated biotopes, but expert opinion is that overall this habitat has not declined significantly (>25%) 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. HELCOM (2013) assessed all the associated Baltic biotopes as Least Concern (A1) except for those dominated by the bryozoan *Flustra foliacea* (AA.A1H2 and AA.M1H2) which were assessed as Near Threatened (A1). With no additional information on changes in extent or quality of this habitat, and because the biotopes assessed as Near Threatened by HELCOM are less common than the other biotopes, 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

AA.A1H2 : Baltic photic rock and boulders dominated by erect moss animals, *Flustra foliacea*

AA.M1H2: Baltic photic mixed substrate dominated by erect moss animals, *Flustra foliacea*

Habitat Type

Code and name

Epifaunal communities on Baltic infralittoral rock and mixed substrata (predominantly hard)



Blue mussel beds (*Mytilus*) on boulders in the Northern Baltic Proper (© OCEANA/ C.Minguell).



Stony reef community, Fehmarn Belt, Germany (© BfN/ Krause & Hübner).

Habitat description

This is a Baltic Sea benthic habitat in the photic zone where at least 90% of the substrate is rock, boulders or stones and mixed (predominantly hard), according to the HELCOM HUB classification. Eleven associated biotopes have been identified dominated (at least 50% of the biomass) by either epibenthic bivalves, chordates, cnidarians, bryozoans, crustaceans or sponges. They are typically present in depths of between 2-20 meters but have varying distributions depending on salinity and exposure. For example those biotopes where Mytilidae such as *Mytilus* spp. or *Modiolus modiolus* dominate typically occur in depths of 5 – 20 meters, in all exposure classes and in salinities over 5 psu. Biotopes dominated by the mussel *Dreissena polymorpha* (AA.A1E2/AA.M1E2) usually occupy a depth zone of between 2 – 10 meters, in sheltered to moderate exposure and in salinities less than 5 psu. They occur in the eastern parts of the Gulf of Finland and along the Estonian west coast. 'Baltic photic rock and boulders/mixed sediment dominated by erect moss animals (*Flustra foliacea*)' (AA.A1H2/AA.M1H2) is found only in western and southwestern Baltic Sea due to salinity constraints (15 psu).

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 the dominant species and associated fauna are potential indicators of quality of this habitat.

Characteristic species:

For mussel dominated biotopes *Mytilus* spp., *Modiolus modiolus*, *Dreissena*; for epibenthic chordate dominated biotopes - Sea squirts (Ascidiaceae), for example *Ciona intestinalis*, *Dendrodoa grossularia*, *Molgula* spp.; for epibenthic chordate dominated biotopes - Hydroids (e.g. *Cordylophora caspia*, *Gonothraea loveni*, *Laomedea* spp), sea anemones, corals. For moss animal dominated biotopes *Electra crustulenta*, *Flustra foliacea*, other Bryozoa (*Eucratea loricata*), also sponges, sea squirts or hydrozoans. For epibenthic crustacean dominated biotopes - Balanidae, for example *Amphibalanus improvisus*, *Balanus crenatus*, *Semibalanus balanoides*. For sponge dominated biotopes - *Ephydatia fluviatilis*, *Chalinula limbata*, *Halichondria panicea*, *Haliclona oculata*.

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:

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.A1E Baltic photic rock and boulders characterized by epibenthic bivalves

AA.M1E Baltic photic mixed characterized by epibenthic bivalves

AA.A1F Baltic photic rock and boulders characterized by epibenthic chordates

AA.M1F Baltic photic mixed substrate characterized by epibenthic chordates

AA.A1G Baltic photic rock and boulders characterized by epibenthic cnidarians.
 AA.M1G Baltic photic mixed substrate characterized by epibenthic cnidarians.
 AA.A1H Baltic photic rock and boulders characterized by epibenthic moss animals (Bryozoa).
 AA.M1H Baltic mixed substrate characterized by epibenthic moss animals (Bryozoa).
 AA.A1I Baltic photic rock and boulders characterized by epibenthic crustaceans.
 AA.M1I Baltic photic mixed substrate characterized by epibenthic crustaceans
 AA.A1J Baltic photic rock and boulders characterized by epibenthic sponges (Porifera).
 AA.M1J Baltic photic mixed substrate characterized by epibenthic sponges (Porifera)
 AA.A1V Baltic photic rock and boulders characterized by mixed epibenthic macrocommunity
 AA.M1V Baltic photic rock and boulders characterized by mixed epibenthic macrocommunity

Biotopes on HUB level 6:

AA.A1E1 Baltic photic rock and boulders dominated by Mytilidae
 AA.M1E1 Baltic photic mixed dominated by Mytilidae,
 AA.A1E2 Baltic photic rock and boulders dominated by zebra mussel (*Dreissena polymorpha*)
 AA.M1E2 Baltic photic mixed dominated by zebra mussel (*Dreissena polymorpha*).
 AA.A1F1 Baltic photic rock and boulders dominated by sea squirts (Ascidiacea).
 AA.M1F1 Baltic photic mixed substrate dominated by sea squirts (Ascidiacea).
 AA.A1G1 Baltic photic rock and boulders dominated by Hydroids (Hydrozoa).
 AA.M1G1 Baltic photic mixed substrates dominated by Hydroids (Hydrozoa).
 AA.A1H1 Baltic photic rock and boulders dominated by crustose moss animals (*Electra crustulenta*),
 AA.A1H2 Baltic photic rock and boulders dominated by erect moss animals (*Flustra foliaceae*).
 AA.M1H1 Baltic photic mixed substrate dominated by crustose moss animals (*Electra crustulenta*),
 AA.M1H2 Baltic photic mixed substrate dominated by erect moss animals (*Flustra foliaceae*)
 AA.A1I1 Baltic photic rock and boulders dominated by barnacles (Balanidae).
 AA.A1I1 Baltic photic mixed substrate dominated by barnacles (Balanidae).

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

Yes

Regions

Baltic

Justification

This habitat occurs in all parts of the Baltic with the associated species composition characteristic of Baltic brackish waters.

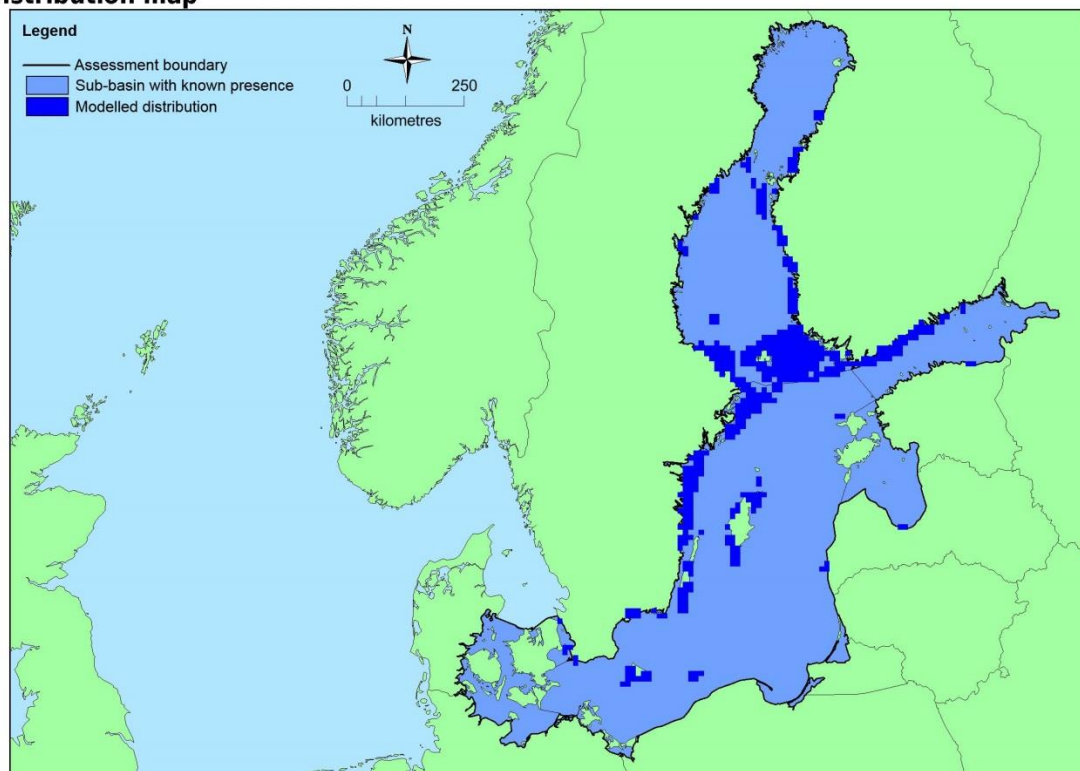
Geographic occurrence and trends

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>	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	>50	Unknown Km ²	This habitat is present in all the Baltic sub-basins.
<i>EU 28+</i>	>50,000 Km ²	>50	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. 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?

Defined as a Baltic habitat therefore 100% occurs in the Baltic Sea. An estimated 95% occurs in EU 28. Similar habitats do occur in other European Regional Seas.

Trends in quantity

This habitat is common throughout the Baltic although some of the associated biotopes have a more limited distribution due to differences in salinity. Baltic biotopes dominated by erect moss animals, for example, only occur in western-most areas; biotopes dominated by zebra mussel are restricted to eastern parts of the Gulf of Finland and along the Estonian west coast. There have been declines in some of the associated biotopes due to eutrophication, siltation of hard bottom areas and physical removal of hard substrates (stone fishing) but overall the decline is considered to be less than 25%. No historic data on trends in quantity are available. Decline in some of the associated biotopes is predicted in the future, where climate change is predicted to result in changes in the salinity regime.

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

Trends in quality

There has been a reduction in quality of some of the associated biotopes (e.g. AA.A1E Baltic photic rock and boulders dominated by mussels) (10-20% over the past 50 years) but a lack of quantitative data on trends in quality for the habitat. The alien species *Dreissena polymorpha* has been present in the Baltic for more than a century with expansion most notable since the 1990s.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

Eutrophication is a major threat to at least to some of the associated biotopes as the higher nutrient concentrations enhances the growth rate of annual macrophytic algae, restricting the available substrate for development of epifaunal turf communities. Increased siltation or turbidity further reduces the availability of hard substrates impeding the settlement of larvae while higher particle concentration in the water can also impede filter feeding, e.g. of adult *Flustra foliacea*. Oxygen depletion due to eutrophication is seen as a smaller threat. In contrast Mytilids are very tolerant to, and even favoured by, eutrophication (because it increases food availability). These biotopes have been shown to increase in coastal areas where perennial macrophyte habitats are lost due to eutrophication. Other pressures on this habitat are physical disturbance by bottom trawling, offshore construction and dredging.

List of pressures and threats

Biological resource use other than agriculture & forestry

- Fishing and harvesting aquatic resources
- Professional active fishing
- Benthic or demersal trawling
- Benthic dredging

Pollution

- Pollution to surface waters (limnic, terrestrial, marine & brackish)
- Nutrient enrichment (N, P, organic matter)

Natural System modifications

- Human induced changes in hydraulic conditions
- Removal of sediments (mud...)
- Estuarine and coastal dredging
- Siltation rate changes, dumping, depositing of dredged deposits
- Dumping, depositing of dredged deposits
- Other siltation rate changes

Conservation and management

The distribution of this habitat and the type of environmental conditions it requires is unclear. All actions reducing eutrophication in the Baltic are likely to be of benefit. This includes measures to reduce the diffuse run off from agricultural land and nutrient run off from point-sources by constructing waste water treatment plants. Actions to reduce physical disturbance from bottom trawling, offshore construction work and dredging, including prohibition of these activities in protected areas would constitute effective conservation measures.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

- Restoring/Improving water quality

Measures related to spatial planning

- Other spatial measures
- Establish protected areas/sites

Measures related to hunting, taking and fishing and species management

- Regulation/Management of fishery in marine and brackish systems

Measures related to urban areas, industry, energy and transport

- Urban and industrial waste management

Conservation status

Annex 1:

1160: MBAL U2

1170: MBAL U1

1650: MBAL U2

HELCOM (2013) assessments:

1170 VU C1

1160 VU C1

1650 VU C1

HELCOM (2013) assessed all the associated biotopes as LC (A1) except for (AA.A1H2/AA.M1H2) Baltic photic rock and boulders/mixed substrate dominated by erect moss animals (*Flustra folicea*) which were assessed as NT (A1).

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

This habitat has the potential to recover fairly quickly with epifauna recolonising damaged areas after pressure/threats have been removed and the environmental conditions have been restored.

Effort required

10 years
Naturally

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 has been some reduction in extent of at least one of the associated biotopes but expert opinion is that, overall, this habitat has not declined in extent by more than 25% 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

This habitat is very common being present along most coastal waters except possibly some of the eastern and southern Baltic where sand is the dominating substrate or in areas of low salinity. There has been some reduction in extent of at least one of the associated biotopes but overall trends in extent and area are unknown. EOO >50,000 km² and AOO >50 (although exact figures are not available), and it is not limited to a few locations. This habitat has therefore been 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 %

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 %

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

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. Wikstrom.

Date of assessment

09/07/2015

Date of review

16/01/2016

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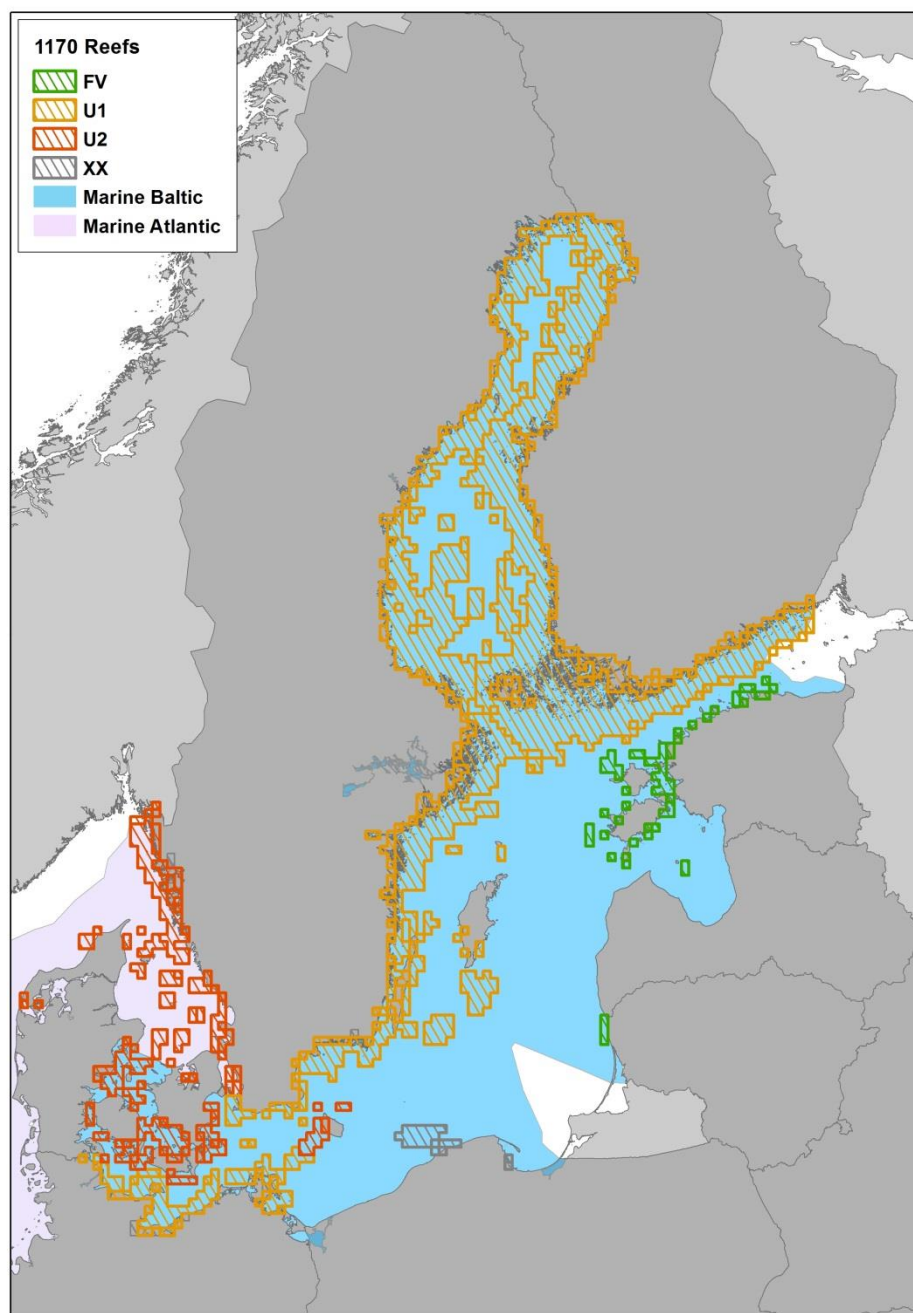
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2.2.1 1170 Reefs

The Interpretation Manual of European Union Habitats - EUR28 includes an extensive definition for this habitat type due to the multiple subtypes. *‘Reefs can be either biogenic concretions or of geogenic origin. They are hard compact substrata on solid and soft bottoms, which arise from the sea floor in the sublittoral and littoral zones,. Reefs may support a zonation of benthic communities of algae and animal species as well as concretions and corallogenic concretions’.*

In the Marine Baltic Region it is assessed as unfavourable-inadequate due to poor structure and functioning and poor future prospects. In 2007 the status was unfavourable bad. This change is considered as not genuine since all Member States report that the change is due to more accurate data or use of a different method. Pressures and threats towards the habitat mainly involve the alteration of water quality conditions by both eutrophication and various pollutants, but also quarrying.

Map of habitat distribution and conservation status



Habitat conservation status at the Member State and EU levels per marine region

Conservation status parameters	MBAL								
	DE	DK	EE	FI	LT	LV	PL	SE	EU27
range	FV	FV	FV	FV	FV	U2	XX	FV	FV
area	U1	FV	FV	FV	FV	U2	XX	FV	FV
structure	U1	U2	FV	U1	FV	U2	XX	U1	U1
future	U1	U2	FV	U1	FV	XX	XX	U1	U1
overall	U1	U2	FV	U1	FV	U2	XX	U1	U1

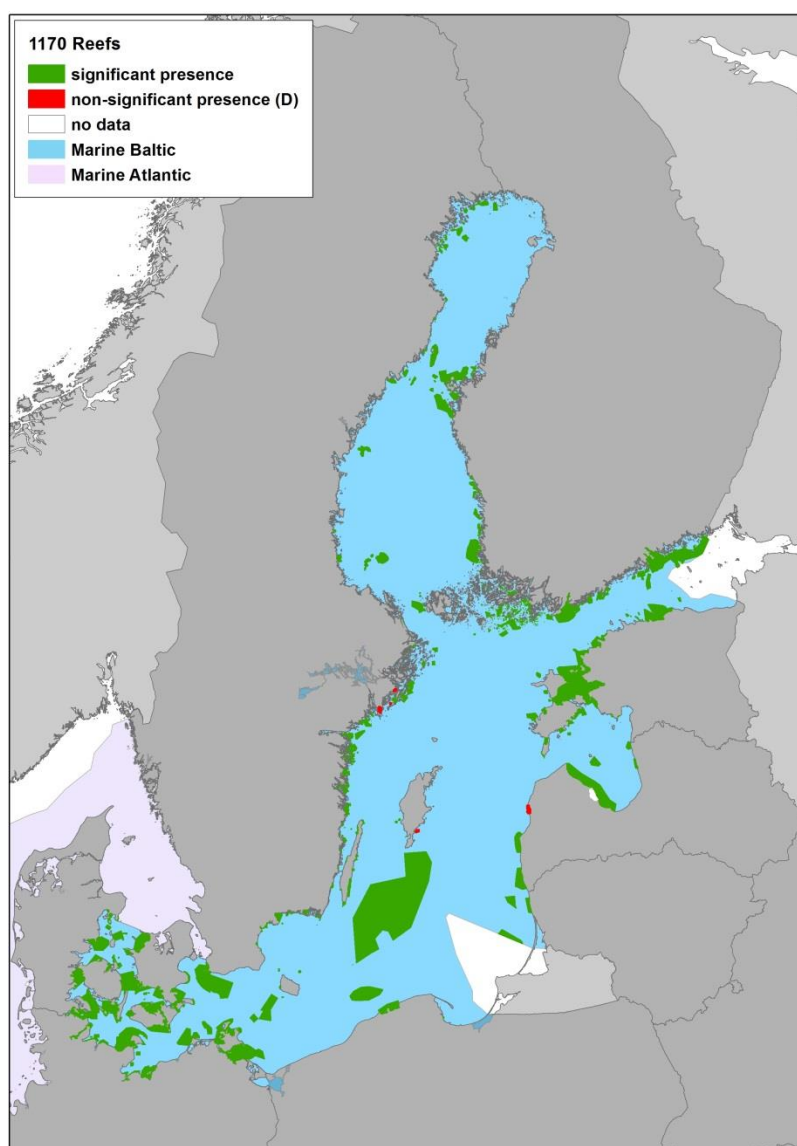
Proportion of pressures reported by MS as 'Highly important'

Pressures - Level 2	MBAL
C01 - Mining and quarrying	11.1%
E01 - Urbanisation and human habitation	0%
E03 - Discharges (household/industrial)	0%
F02 - Fishing and harvesting aquatic resources	0%
G01 - Outdoor sports, leisure and recreational activities	0%
G05 - Other human intrusions and disturbances	11.1%
H01 - Pollution to surface waters	22.2%
H03 - Pollution to marine waters	11.1%
H04 - Air pollution, air-borne pollutants	11.1%
I01 - Invasive alien species	0%
J02 - Changes in water bodies conditions	11.1%
J03 - Other changes to ecosystems	0%
K01 - Abiotic natural processes	11.1%
M01 - Abiotic changes (climate change)	11.1%

Proportion of conservation measures reported by MS as 'Highly important'

Conservation measures - Level 2	MBAL
4.0 - Other wetland-related measures	0%
4.1 - Restoring/improving water quality	7.7%
4.2 - Restoring/improving the hydrological regime	7.7%
4.4 - Restoring coastal areas	0%
5.0 - Other marine-related measures	15.4%
5.1 - Restoring marine habitats	7.7%
6.0 - Other spatial measures	7.7%
6.1 - Establish protected areas/sites	15.4%
6.2 - Establishing wilderness areas/ allowing succession	0%
6.3 - Legal protection of habitats and species	15.4%
7.1 - Regulation/ Management of hunting and taking	0%
7.3 - Regulation/ Management of fishery in marine and brackish systems	15.4%
7.4 - Specific single species or species group management measures	0%
8.1 - Urban and industrial waste management	0%
8.3 - Managing marine traffic	7.7%
9.2 - Regulating/Managing exploitation of natural resources on sea	0%

SCI distribution map for this habitat type



Number of SCIs where this habitat type occurs and habitat area covered by Natura 2000 per Member State (Natura 2000 End_2017 database)

MS	TOTAL SCI	SIGNIFICANT SCI	COVER (km ²)	SIGNIFICANT COVER (km ²)
DE	31	31	1127,45	1127,45
DK	38	38	1140,6	1140,60
EE	21	21	63,1	63,10
FI	33	33	105,28	105,28
LT	3	3	176,26	176,26
LV	8	7	0,043	0,043
PL	3	3	485,10	485,10
SE	134	130	866,32	866,21

3 Species fact sheets

3.1 1351 Harbour porpoise (*Phocoena phocoena*)

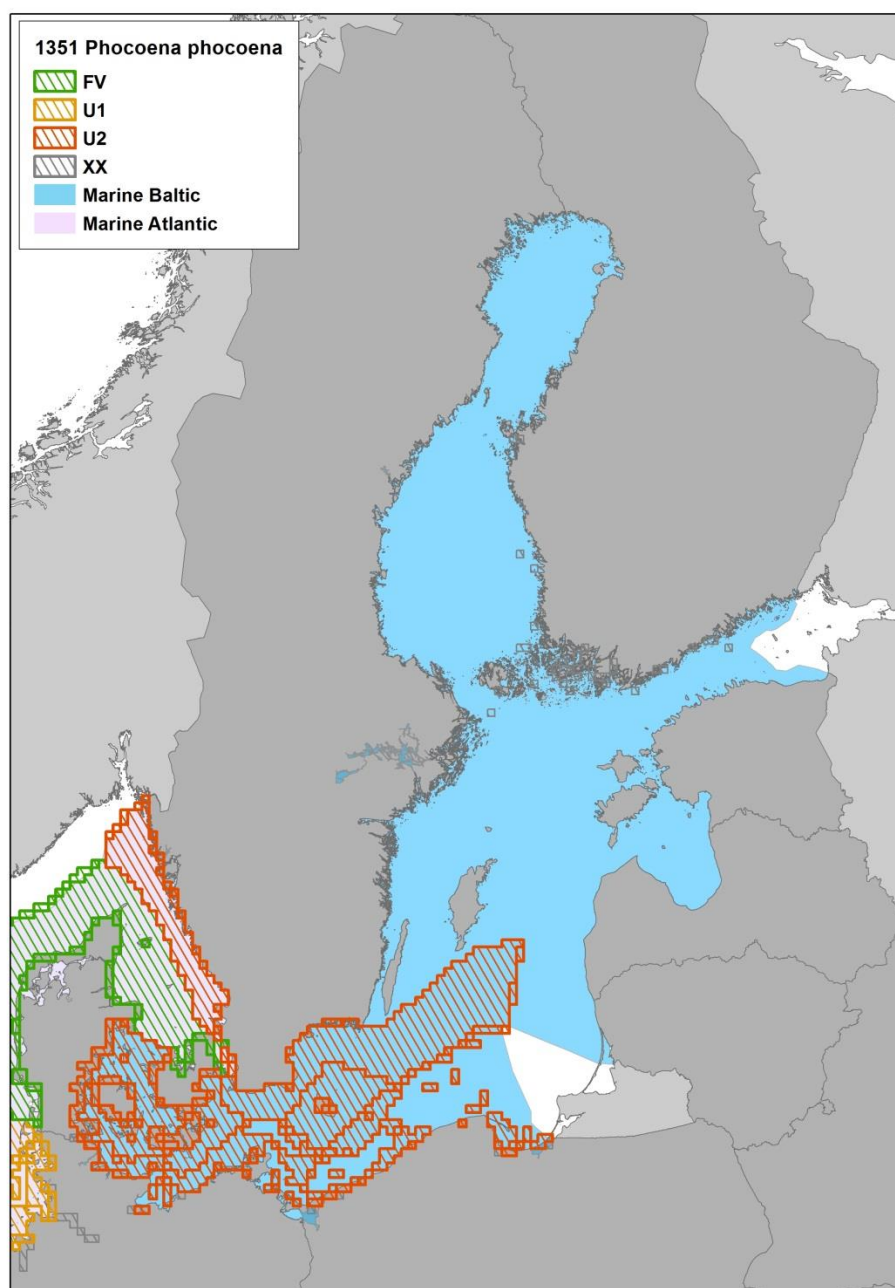
(Annexes II and IV)

The harbour porpoise inhabits the cold temperate to sub-polar continental shelf waters of the marine Baltic and Atlantic regions. It is present as a subspecies, *Phocoena phocoena relicta*, in the Aegean and Marmara seas of the marine Mediterranean region.

In the marine Baltic region the overall assessment is 'unfavourable-bad' due to the species decline in both population and habitat and the consequent unfavourable future prospects linked to habitat degradation and threats posed by fishery interactions that the species is exposed to. The species is listed at a global level as 'least concern' in the IUCN Red List of threatened species, while the Mediterranean subspecies is listed as 'endangered' and the Baltic Sea population as critically endangered (CR). Among the main pressures listed for the Baltic region are fishing activities and pollution.

Main pressures and threats reported for the habitat involve pollution including eutrophication effects and overfishing.

Map of species distribution and conservation status



Species conservation status at the Member State and EU levels per marine region

Conservation status parameters	MBAL					
	DE	DK	FI*	PL	SE	EU27
range	FV	FV		U1	FV	FV
population	U2	U2		U2	U2	U2
habitat of species	U2	XX		U1	U1	XX
future	U2	U2		U2	U2	U2
overall	U2	U2	NA	U2	U2	U2

Proportion of pressures reported by MS as 'Highly important'

Pressures - Level 2	MBAL
C01 - Mining and quarrying	0%
C03 - Production of renewable energy (abiotic)	8.3%
D03 - Shipping lanes and ports	0%
F02 - Fishing and harvesting aquatic resources	25.0%
F03 - Hunting and collection of terrestrial wild animals	8.3%
G04 - Military use and civil unrest	8.3%
H01 - Pollution to surface waters	0%
H03 - Pollution to marine waters	25.0%
H06 - Excess energy (noise, light, heating, electromagnetic)	16.7%
H07 - Other forms of pollution	8.3%
K03 - Interspecific faunal relations	0%
M02 - Biotic changes (climate change)	0%

Proportion of conservation measures reported by MS as 'Highly important'

Conservation measures - Level 2	MBAL
4.1 - Restoring/improving water quality	0%
5.0 - Other marine-related measures	28.6%
5.1 - Restoring marine habitats	14.3%
6.1 - Establish protected areas/sites	14.3%
6.3 - Legal protection of habitats and species	28.6%
7.0 - Other species management measures	14.3%
7.1 - Regulation/ Management of hunting and taking	0%
7.2 - Regulation/ Management of fishery in limnic systems	0%
7.3 - Regulation/ Management of fishery in marine and brackish systems	0%
8.3 - Managing marine traffic	0%
9.2 - Regulating/Managing exploitation of natural resources on sea	0%

SCI distribution map for this species



Number of SCIs where this species occurs per Member State (Natura 2000 End_2017 database)

MS	TOTAL SCI	SIGNIFICANT SCI	POPULATION SIZE in N2K SITES (Art.17)	SCI AREA (km ²)	SIGNIFICANT SCI AREA (km ²)
DE	25	20	164- 635 i	5058,26	4491,01
DK	28	7		5462,24	1803,16
PL	4	4	1-24 i	3333,72	3333,72
SE	2	2		11662,39	11662,39

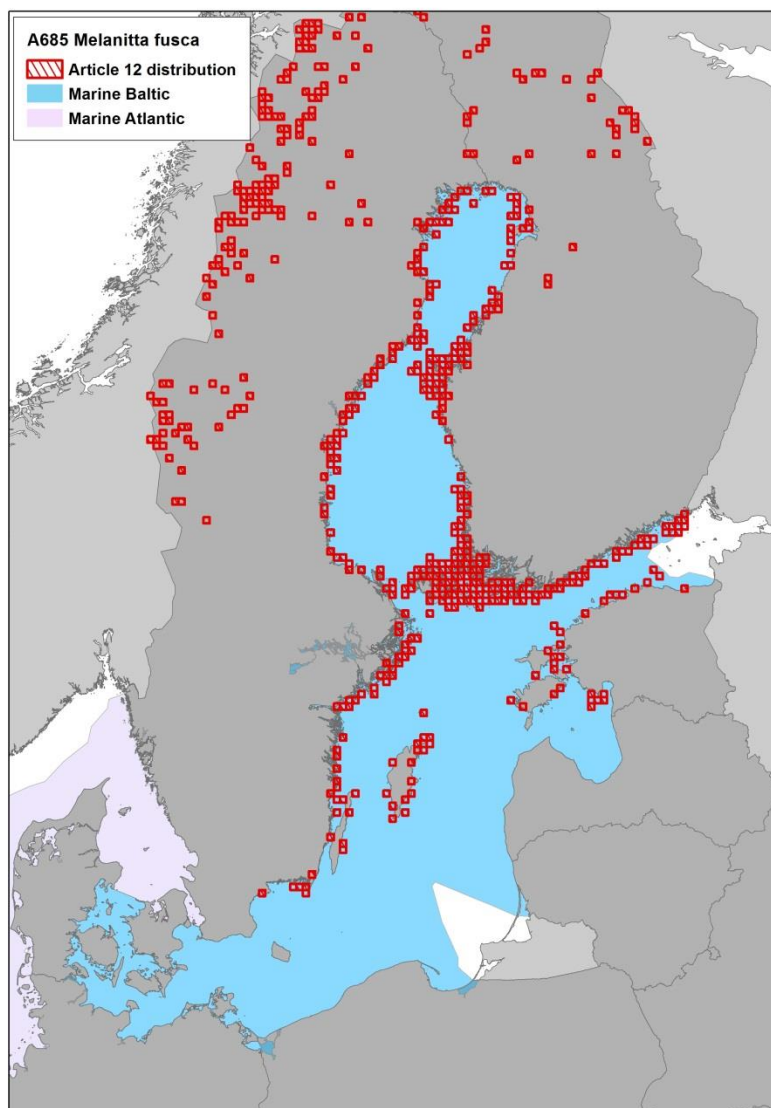
3.2 A685 Velvet scoter (*Melanitta fusca fusca*)

Velvet scoter, *Melanitta fusca*, is a species of seaduck found in unvegetated or sparsely vegetated land, river and lake, coastal and shelf ecosystems.

It has a breeding population size of 11700-24100 pairs and a breeding range size of 185000 square kilometers in the EU27. The breeding population trend in EU27 is decreasing in both the short term and the long term. *Melanitta fusca* has a winter population size of 301000-519000 individuals in the EU27. The winter population trend in the EU27 is fluctuating in the short term and unknown in the long term.

The EU population status of *Melanitta fusca* was assessed as Threatened, as the species meets one or more of the IUCN Red List criteria for threatened at the EU27 scale.

Article 12 distribution



Species population trends by MS

MS/Ter.	% in EU27	Breeding population size	Breeding population trend		Range area	Breeding range trend		Winter population size	Winter population trend	
			Short term	Long term		Short term	Long term		Short term	Long term
BE								50 - 250 i	x	x
DE								39000 - 39000 i	F	-
DK								600 - 600 i	-	-
EE	7.3	150 - 300 p	-	-	12300	-	-	20000 - 200000 i	0	0
FI	46.4	3600 - 11800 p	-	-	73600	x	-			
FR								115 - 1515 i	F	-
IE								40 - 40 i	x	x
LT								16800 - 16800 i	-	-
LV								20000 - 20000 i	0	-
NL								5 - 278 i	F	F
PL								200000 - 230000 i	F	x
SE	46.3	8000 - 12000 p	0	-	99600	0	x	2500 - 7000 i	x	x
SI								5 - 30 i	F	F
UK								2500 - 2500 i	-	+

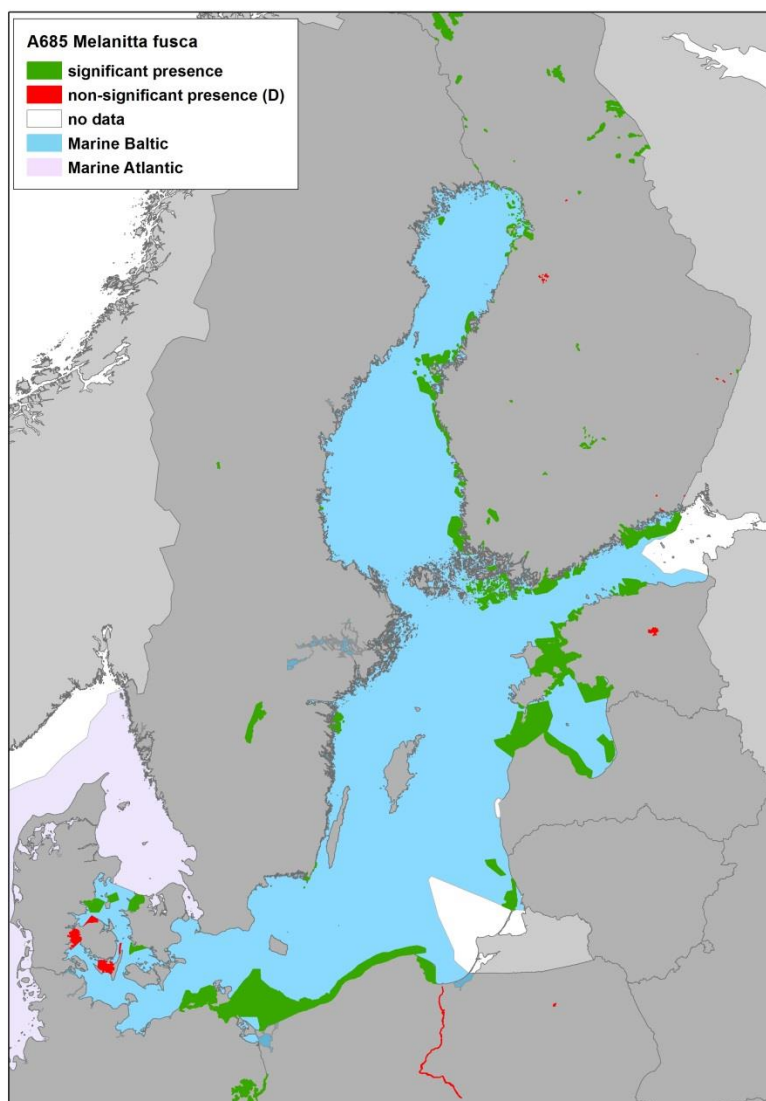
Proportion of pressures reported by MS as 'Highly important' at EU scale

Code	Activity	Frequency
H03	Pollution to marine waters	36
F02	Fishing and harvesting aquatic resources	21
M02	Biotic changes (climate change)	14
C03	Production of renewable energy (abiotic)	7
I03	Introduced species/genetes	7
K03	Interspecific faunal relations	7
L07	Storm, cyclone	7

Proportion of conservation measures reported by MS as 'Highly important' at EU scale

Code	Measure	Frequency
6.1	Establish protected areas/sites	45
6.3	Legal protection of habitats and species	27
5.0	Other marine-related measures	9
6.0	Other spatial measures	9
7.1	Regulation/ Management of hunting and taking	9

SPA distribution map for species



Number of SPAs where this species occurs per Member State (Natura 2000 End_2017 database)

MS	TOTAL SPA	SIGNIFICANT SPA	POPULATION SIZE in N2K SITES (Art.12)*	SPA AREA (km ²)	SIGNIFICANT SPA AREA (km ²)
DE	40	31	W 31200 i	7025,7123	7025,71
DK	8	4	W 400- 450 i	2041,3	1142,85
EE	12	11	B/ P 129000 i/ W 20000- 150000 i	7334,281	7334,28
FI	82	73	P/ B 2970-9640 p	14533,041	14533,04
LT	3	3	W 3000-8000 i	877,6753	877,68
LV	4	4	P 90600-135000 i/ W 20000 i	3890,13	3890,13
PL	7	3	W 130000-150000 i/P 84000-97000 i	14533,041	5661,38
SE	12	12	B / W 30- 470 i	915,84	915,84

*Note: population size refers to the MS, not to biogeographical region. B= breeding, W= wintering, P= passage.