

## B1.1a Atlantic, Baltic and Arctic sand beach

### Summary

Atlantic, Baltic and Arctic sandy beach is a linear habitat, occurring along all sandy shores of the Atlantic Ocean, and the North Sea, Arctic Sea and Baltic Sea. It is mainly an unvegetated habitat with low species diversity. Annual halophytes are the typical plant species, appearing temporarily on strandline sediments. On less dynamic beaches, as around the Baltic, perennials including some brackish and freshwater marsh plants are characteristic. Around Icelandic shores volcanic sediments can provide a distinctive character. Distinctive invertebrates characterise beaches and their driftlines, providing food for some wading birds. Seaside tourism, often involving beach cleaning, widely threatens this habitat, especially around sunnier coastlines, and it needs strict protection to allow its features to naturally come and go.

### Synthesis

Atlantic and Baltic sandy beaches are assessed as Vulnerable (NT) because of a large decline in quality (criterion C/D1) over the last 50 years, with values very close to the thresholds for Endangered. Besides, small declines in area have been reported. A problem with the assessment for this type is the uncertainty in the reported area data, which may be very unreliable for this habitat occurring in linear stretches. However, calculations with adapted values for countries reporting extreme high areas, did not affect the overall outcome of the assessment.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Vulnerable	C/D1	Vulnerable	C/D1

### Sub-habitat types that may require further examination

The habitat varies between the Atlantic, Arctic and the Baltic Sea and also from north to south in both the Atlantic and the Baltic region, but there is not enough knowledge about the habitat to propose any subdivision at the moment.

### Habitat Type

#### Code and name

B1.1a Atlantic, Baltic and Arctic sand beach



Sandy beach with *Leymus arenarius* near Pavilosta, Latvia (Photo: John Janssen).



Sandy beach with *Tripleurospermum maritimum* and *Cakile maritima*, Abbekås, Sweden (Photo: Hans Gardfjell).

## Habitat description

The beaches along the west-coast of the Atlantic Ocean, the North Sea and the Baltic form a transition between the marine and terrestrial world. The lower parts of the beach (sublittoral/littoral foreshore), which are inundated most of the day, are considered under marine habitats. The higher (supralittoral or – in the Baltic – geolittoral) part, only rarely inundates during extreme high tides, is considered under terrestrial types. Sand beaches are found along sedimentary coasts, where the sediments deposited by waves and currents have a particle size of about 0.1 to 2 mm. Sedimentation of finer coastal particles results in salt marshes (habitat A2.5b and c). Sedimentation of coarser material results in shingle shores (habitat B2.1-3a), while shores with particular large cobbles and boulders (about >100 mm) are considered under rocky shores and cliffs (habitat B3.1\_3a).

Sand beaches form a very dynamic habitat under the constant influence of disturbance by sea water, wind and salt spray, causing erosion and accretion, and by amounts of organic matter brought by the tides. The sediment is supplied from erosion of the coasts, carried shoreward from the sea bottom or brought in by rivers. On Iceland and Macaronesian islands sand beaches may be made up of black, volcanic (basaltic) sediments. In the Baltic tidal influence is limited and salinity is relatively low; here beaches are more influenced by freshwater.

Vegetation is scarce in space and time, restricted to the backshore (higher beach) and mainly restricted to litter deposits on the high-tide line. Typical species of such drift-lines are a range of *Atriplex* species (*Atriplex caltheca*, *Atriplex glabriuscula*, *Atriplex laciniata*, *Atriplex littoralis*, *Atriplex longipes*, *Atriplex patula*, *Atriplex prostrata*), *Cakile maritima* (incl. different subspecies) and *Salsola kali*. *Beta vulgaris* subsp. *maritima* is also frequently present, and grows on shingles as well. These are all annuals, adapted to dynamic, yearly changing conditions. Most of them have deep rooting systems in the freshwater floating on the deeper marine water. Seeds are dispersed by sea or wind and they have adaptations to deal with high salt concentrations. One of the few common perennial species on the Atlantic and North Sea beaches is *Honckenya peploides*, growing also in primary and white dunes, and often accompanied by primary dune species, like *Elytrigia farctus* subsp. *boreoatlantica*, *Leymus arenarius*, *Ammophila arenaria* and *Calystegia soldanella*. On the – less dynamic – Baltic Sea sand beaches perennial species are more common, including species associated with primary and white dunes, as well as helophytic species of wet conditions (*Bolboschoenus maritimus*, *Scirpus tabernaemontani*). Other typical species in the wet, lower parts of the Baltic beaches are often associated with pioneer habitat along rivers, like *Potentilla anserina*, *Ranunculus sceleratus*, *Polygonum hydropiper*, *Rorippa palustris*, *Juncus bufonius*, *Polygonum lapathifolium*, *Chenopodium rubrum* and *Agrostis stolonifera*. *Potentilla anserina* is also common in boreal driftlines, for example in Iceland, Norway and Scotland, where it is accompanied by *Mertensia maritima*. Helophytic species may be found on Atlantic beaches as well, but only rarely, in places where freshwater leaches out of high dunes and forms streams to the sea. Also *Salix* shrubs may grow in such conditions. In the bay of Biscaye, *Euphorbia peplis* can grow on the upper part of sand beaches.

A group of typical invertebrates of beaches is associated with the drift lines and its vegetation, while several other invertebrates live oligophagous on characteristic plants species, like on *Cakile maritima*. Several bird species breed on beaches (for example ringed plover, little tern), often in places with many shells, but only in those places where there is no disturbance by tourism. The Sanderling (*Calidris alba*) is a typical feeder in the surf on the beaches during its migration.

Indicators of good quality:

The following characteristics are considered as indicators of good quality:

- Presence of drift-line vegetation
- Forming gradients and progressive morphologic profile towards primary dunes
- Presence and success of breeding birds in spring/summer

Characteristic species:

Flora: *Atriplex caltheca*, *Atriplex glabriuscula*, *Atriplex laciniata*, *Atriplex littoralis*, *Atriplex longipes*, *Atriplex patula*, *Atriplex prostrata*, *Beta vulgaris* subsp. *maritima*, *Cakile maritima*, *Honckenya peploides*, *Matricaria maritima*, *Mertensia maritima*, *Polygonum maritimum*, *Polygonum oxyspermum*, *Polygonum raii*, *Potentilla anserina*, *Salsola kali*

Fauna, birds: Ringed plover (*Charadrius hiaticula*), Little tern (*Sternula albifrons*), Kentish plover (*Charadrius alexandrinus*)

### **Classification**

This habitat may be equivalent to, or broader than, or narrower than the habitats or ecosystems in the following typologies.

EUNIS:

B1.1 Sand beach driftlines

B1.2 Sand beaches above the driftline

EuroVegChecklist (alliances):

*Atriplicion littoralis* Nordhagen 1940

*Salsolo-Minuartion peploidis* Tx. Ex Br.-Bl. et Tx. 1952

*Cakilion edentulae* Thannheiser 1981

*Elymo littorei-Rumicion crispi* (Nordhagen 1940) Isermann et Dengler in Iserm. 2004

Annex 1:

1210 Annual vegetation of drift lines

1640 Boreal Baltic sandy beaches with perennial vegetation

Emerald:

B1.1 Sand beach driftlines

MAES-2:

Sparsely vegetated land

IUCN:

12.2. Sandy Shoreline and/or Beaches, Sand Bars, Spits, etc.

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

Yes

#### Regions

Atlantic

Boreal

#### Justification

Sandy beaches form a characteristic habitat around the Baltic Sea and along the Atlantic coast. In the Baltic Sea it occurs mostly in the Boreal region, but in Poland, Germany and Denmark the Baltic shores are in the Continental region. In the Arctic region it is likely that pebble/shingle beaches are more common than sandy beaches.

### **Geographic occurrence and trends**

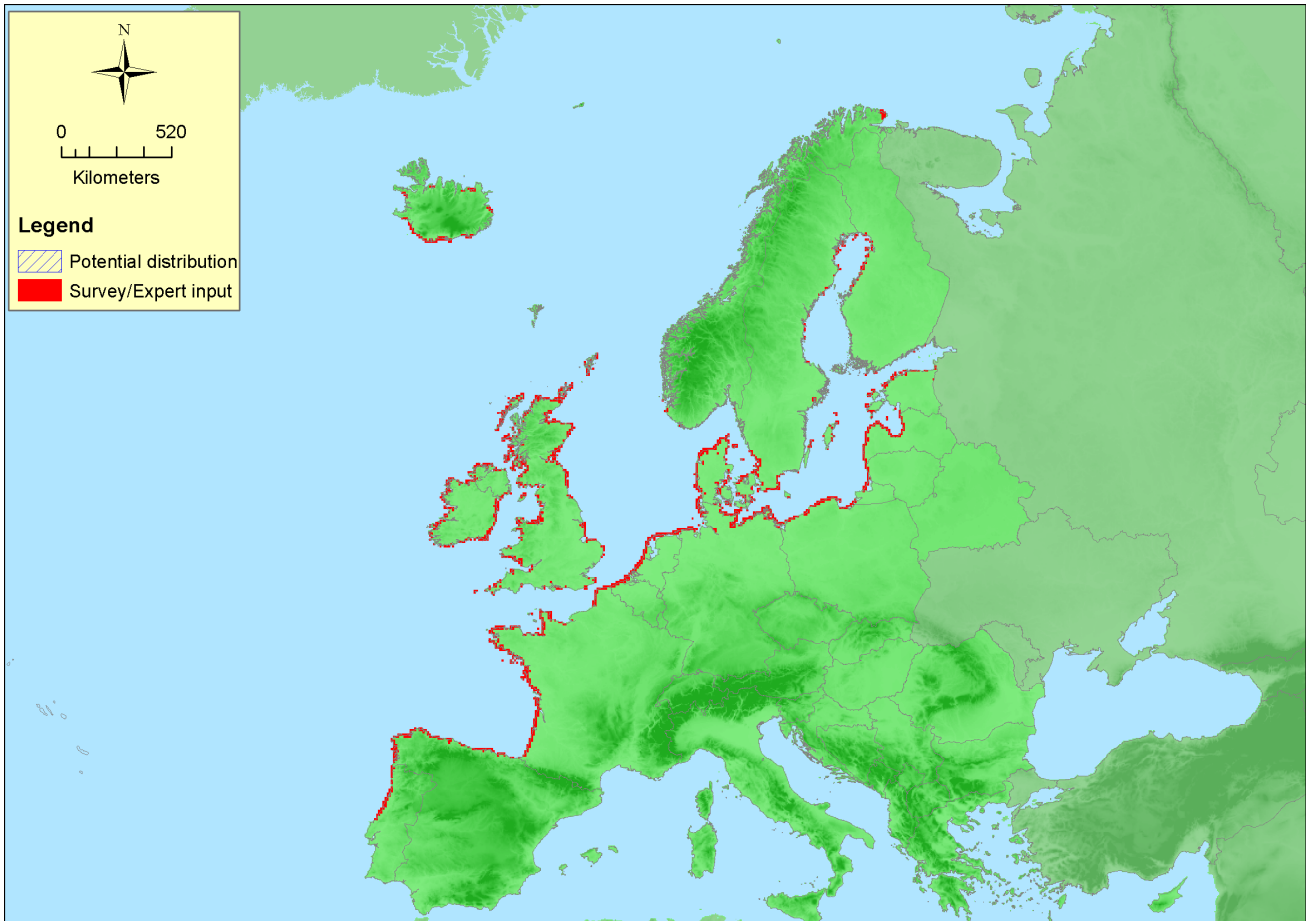
EU 28	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Belgium</i>	Present	1.8 Km <sup>2</sup>	Stable	Stable
<i>Denmark</i>	Present	Unknown Km <sup>2</sup>	Unknown	Unknown
<i>Finland</i>	Aland Islands: Present Finland mainland: Present	8 Km <sup>2</sup>	Decreasing	Decreasing
<i>France</i>	France mainland: Present	2875 Km <sup>2</sup>	Decreasing	Decreasing
<i>Germany</i>	Present	150 Km <sup>2</sup>	Stable	Decreasing
<i>Ireland</i>	Present	1 Km <sup>2</sup>	Decreasing	Decreasing
<i>Latvia</i>	Present	1 Km <sup>2</sup>	Decreasing	-
<i>Lithuania</i>	Present	2 Km <sup>2</sup>	Stable	Decreasing
<i>Netherlands</i>	Present	22.5 Km <sup>2</sup>	Stable	Increasing
<i>Poland</i>	Present	1 Km <sup>2</sup>	Unknown	Unknown
<i>Portugal</i>	Portugal mainland: Present	14 Km <sup>2</sup>	Decreasing	Decreasing
<i>Spain</i>	Spain mainland: Present	70 Km <sup>2</sup>	Decreasing	Decreasing
<i>Sweden</i>	Present	12 Km <sup>2</sup>	Stable	Stable
<i>UK</i>	Northern Island: Present United Kingdom: Present	1322 Km <sup>2</sup>	Unknown	Unknown

EU 28 +	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Faroe Islands</i>	Present	Unknown Km <sup>2</sup>	Unknown	Unknown
<i>Kaliningrad</i>	Present	Unknown Km <sup>2</sup>	Unknown	Unknown
<i>Norway</i>	Norway Mainland: Present	Unknown Km <sup>2</sup>	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>	3564650 Km <sup>2</sup>	2672	3380 Km <sup>2</sup>	Data missing from Denmark and some uncertainties what the data represent from some countries
<i>EU 28+</i>	5933150 Km <sup>2</sup>	2775	3380 Km <sup>2</sup>	Data missing from Norway

### Distribution map



Map rather complete, with data gaps in the Baltic region and Iceland. Data sources: EVA, BOHN, ART17.

### How much of the current distribution of the habitat type lies within the EU 28?

> 80%, assuming a definition that restricts the habitat to temperate and arctic Europe. Outside the EU28 the habitat occurs in Norway, Iceland and Russia.

### Trends in quantity

The habitat shows a small recent decline 3-5% in area. This trend is supported by the reports for HD Article 17 on a slow but continuous exploitation of the Baltic and Atlantic shores.

- 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*

The habitat has a larger range than 50,000 km<sup>2</sup>

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

No

*Justification*

The habitat does not have a limited area. It occurs in long, linear stretches.

### Trends in quality

In most countries that has reported quantitative trends in quality it is clearly negative, but several countries have reported unknown trends in quality.

- Average current trend in quality

EU 28: Decreasing  
EU 28+: Decreasing

## **Pressures and threats**

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There are many different pressures affecting the sandy beaches. Some relate to all beaches, like marine pollution and different ways of exploitations, while others are more specific, like invasive species (e.g. *Rosa rugosa*) and intensive use by humans for recreation. Tourism is likely the most important pressure, as it also leads to mechanical replacement of sand on many beaches. The pressure differs a lot between different parts of the range. In northern parts of the Baltic Sea the pressures are low, except in a few places, but in the southern Baltic and parts of the northern Atlantic it is much higher. Very few beaches undergo no or very few pressures and form suitable habitat for animals (breeding birds, seals),

### **List of pressures and threats**

#### **Urbanisation, residential and commercial development**

Discontinuous urbanisation

#### **Human intrusions and disturbances**

Trampling, overuse

Intensive maintenance of public parks / Cleaning of beaches

#### **Pollution**

Oil spills in the sea

Marine macro-pollution (i.e. plastic bags, styrofoam)

#### **Invasive, other problematic species and genes**

Invasive non-native species

## **Conservation and management**

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The most important measures are regulation of the use of the sandy beaches, eradication of invasive species (*Rosa rugosa*) and international regulation of sea pollution.

### **List of conservation and management needs**

#### **Measures related to wetland, freshwater and coastal habitats**

Restoring coastal areas

#### **Measures related to spatial planning**

Establish protected areas/sites

Legal protection of habitats and species

Manage landscape features

#### **Measures related to urban areas, industry, energy and transport**

Managing marine traffic

### **Conservation status**

Annex I:

1210: ATL U1, BOR U1, CON U1

1640: BOR U2

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

The recovery time is very dependent on type of destruction, but in most cases when you built a harbor or an industry in the habitat it will never recover by itself, but if the industry is taken away and the habitat is restored, the species composition can be back in some decades.

### Effort required

20 years	200+ years
Through intervention	Naturally

## Red List Assessment

### Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	-5.3 %	unknown %	unknown %	unknown %
EU 28+	-5.3 %	unknown %	unknown %	unknown %

The habitat has declined during the last 50 years and still is expected to decline further in future in some countries, due to building of tourism facilities and erosion. However the declines are very small. No quantitative data are available on future or long term historical trends in area. A problem with the calculation is however the uncertainty in the reported area data. As this is a linear habitat, area estimates can be very unreliable.

### Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	>50000 Km <sup>2</sup>	Yes	No	No	>50	Yes	Yes	No	No
EU 28+	>50000 Km <sup>2</sup>	Yes	No	No	>50	Yes	Yes	No	No

The habitat is a little bit declining and will likely continue to decline, but EOO, AOO and number of locations are too large to fulfill the criteria under B. The conclusion is therefore Least Concern.

### 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	68 %	78 %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	68 %	78 %	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 has been a significant reduction in quality of the habitat, both in extent (68% of the area affected) and severity (73%). The values have been calculated from territorial data of 7 countries out of the 13 that reported on this habitat, covering more than 60% of the area. The result is strongly influenced by a large area reported from France. Data on quality trend in the UK, reporting the second highest amount, are missing. The overall values lead to the category Vulnerable (VU) for C/D1. The degradation in quality includes both abiotic and biotic degradation. No data on long-term historical or future declines in quality are known.

### 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 that estimates 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	VU	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	LC	DD	DD	DD	LC	LC	LC	VU	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
Vulnerable	C/D1	Vulnerable	C/D1

### 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

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### Reviewers

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22/04/2016



**Date of review**

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**References**

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