

## A2.22: Barren or amphipod-dominated Atlantic littoral mobile sand

### Summary

This intertidal habitat comprises shores of clean mobile sands (coarse, medium and some fine-grained), with little very fine sand, and no mud present. Shells and stones may occasionally be present on the surface. Most of these shores are either barren, in the case of the highly mobile sands or, in the case of more stable clean sands, support a limited range of species, typically isopods, amphipods and a limited number of polychaete species.

This habitat is sensitive to removal of the substratum by coastal construction or coastal protection works and dredging activities. Additionally, changes in the water flow rate and wave exposure will change the sediment structure with subsequent effects on the community. There is also a sensitivity to hydrocarbon (oil) contamination, which can smother sediments and prevent oxygen exchange, resulting in anoxia and death of infauna. Beneficial management measures would include water quality improvement programmes, and the regulation, including limits, on the locations where dredging, coastal development and hard coastal defence structures are permitted.

### Synthesis

This habitat type has a widespread distribution in the North East Atlantic region, with examples known to be present in locations as widely separated as northern Spain and the coast of the Netherlands. It is present in a very dynamic environment, where conditions that influence its extent can fluctuate significantly within seasons and inter-annually, as well as spatially. There have been localised losses/damage to this habitat, for example following oil spills, as well as recovery. This pattern is likely to continue.

This habitat has a large EOO and AOO, and therefore qualifies as Least Concern under criterion B. However the habitat is assessed as Data Deficient both at the EU 28 and EU 28+ levels because of the lack of information on trends in quantity and quality.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Data Deficient	-	Data Deficient	-

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

None.

### Habitat Type

---

#### Code and name

A2.22: Barren or amphipod-dominated Atlantic littoral mobile sand

#### Habitat description

This intertidal habitat comprises shores of clean mobile sands (coarse, medium and some fine-grained), with little very fine sand, and no mud present. Shells and stones may occasionally be present on the surface. The sand may be duned or rippled as a result of wave action or tidal currents. The sands are non-cohesive, with low water retention, and thus subject to drying out between tides, especially on the upper shore and where the shore profile is steep. Mobile sand shores are typically situated along open stretches

of coastline, with a relatively high degree of wave exposure. Bands of gravel and shingle may be present on the upper shore of exposed beaches. Where the wave exposure is less, and the shore profile more shallow, mobile sand communities may also be present on the upper part of the shore, with more stable fine sand communities present lower down. Mobile sand shores may show significant seasonal changes, with sediment accretion during calm summer periods and beach erosion during more stormy winter months. There may be a change in sediment particle size structure, with finer sediment grains washed out during winter months, leaving behind coarser sediments. Most of these shores support a limited variety of species, ranging from barren, highly mobile sands to more stable clean sands, supporting communities of isopods, amphipods and a limited number of polychaete species.

Indicators of quality:

Both biotic and abiotic indicators have been used to describe marine habitat quality. These include: the presence of characteristic species as well as those which are sensitive to the pressures the habitat may face; water quality parameters; levels of exposure to particular pressure, and more integrated indices which describe habitat structure and function, such as trophic index, or successional stages of development in habitats that have a natural cycle of change over time.

There are no commonly agreed indicators of quality for this habitat, although particular parameters may have been set in certain situations e.g. protected features within Natura 2000 sites, where reference values have been determined and applied on a location-specific basis.

Characteristic species:

Species which can characterise mobile sand communities include *Scolecopsis squamata*, *Pontocrates arenarius*, *Bathyporeia pelagica*, *B. pilosa*, *Haustorius arenarius* and *Eurydice pulchra*. A strandline of talitrid amphipods typically develops at the top of the shore where decaying seaweed accumulates.

## **Classification**

EUNIS (v1405):

Level 4 of the EUNIS classification. A sub-habitat of 'Atlantic littoral sand' (A2.2).

Annex 1:

1140 Mudflats & sandflats not covered at low tide

1160 Large shallow inlets and bays

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Littoral Sediment

EUSeaMap:

Not mapped

IUCN:

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

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

Unknown

Justification

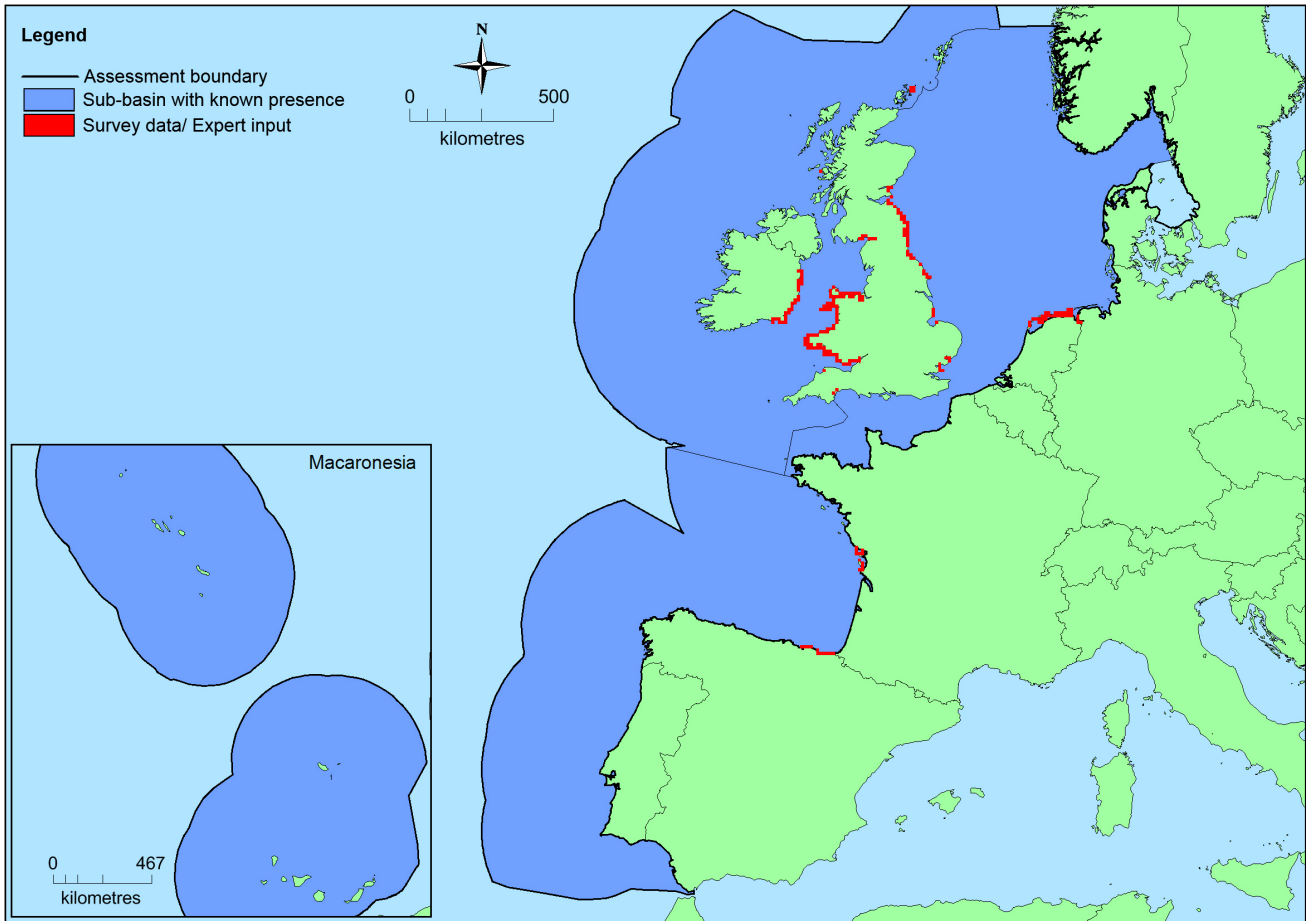
### **Geographic occurrence and trends**

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>North-East Atlantic</i>	Bay of Biscay and the Iberian Coast: Present Celtic Seas: Present Greater North Sea: Present Macaronesia: Present Kattegat: Uncertain	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>	972,052 Km <sup>2</sup>	318	Unknown Km <sup>2</sup>	EOO and AOO have been calculated on the available data. Although this data set is known to be incomplete the figures exceed the thresholds for threatened status.
<i>EU 28+</i>	>972,052 Km <sup>2</sup>	>318	Unknown Km <sup>2</sup>	EOO and AOO have been calculated on the available data. Although this data set is known to be incomplete the figures exceed the thresholds for threatened status.

### **Distribution map**



There are insufficient data to provide a comprehensive accurate map of the distribution of this habitat. This map has been generated using EMODnet data from modelled/surveyed records for the North East Atlantic (and supplemented with expert opinion where applicable) (EMODnet 2010). EOO and AOO have been calculated on the available data presented in this map however these should be treated with caution as expert opinion is that this is not the full distribution of the habitat.

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

Unknown.

### Trends in quantity

Unknown, however this is a habitat in a very dynamic environment, where influencing conditions can fluctuate significantly within seasons and inter-annually, as well as spatially. Severe winters and extreme events such as El Nino result in the most rapid changes. There have been localised losses/damage to this habitat e.g. following oil spills, as well as recovery. This pattern is likely to continue.

- 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 has a large natural range in the North East Atlantic region with examples as widely separated as northern Spain, the Orkney Islands and intertidal areas of the Netherlands.

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

No

*Justification*

This habitat has a large natural range in the North East Atlantic region with examples as widely separated as northern Spain, the Orkney Islands and intertidal areas of the Netherlands.

## **Trends in quality**

There is insufficient information to determine trends in quantity.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

## **Pressures and threats**

---

Wave action determines the slope and width of sandy intertidal areas and any modifications to degree of exposure through human intervention (construction works, coast protection works and dredging), may have considerable consequences on the communities that characterise the habitat. An increase in wave exposure would cause the substratum to become progressively coarser, creating conditions outside many species' habitat preference. Conversely, a decrease in the wave exposure would be likely to cause accretion of finer sands and opportunistic species may colonise the biotope.

Where this habitat occurs along industrialised and urbanised coastlines it may be exposed to effluent discharges which contain a variety of synthetic contaminants that have the potential to lead to a decline in associated species. Pollution incidents are another threat. Oil smothers sediments preventing oxygen exchange, producing anoxia and eventual death of infauna. Stranded oil penetrates the sediment, especially sands through wave and tidal action and destabilises the sediment. Microbial degradation of the oil increases the biological oxygen demand causing anoxia. Amphipods have been reported to be particularly intolerant of oil pollution.

## **List of pressures and threats**

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

Discharges

### **Pollution**

Marine water pollution

Oil spills in the sea

Toxic chemical discharge from material dumped at sea

Synthetic compound contamination

### **Natural System modifications**

Human induced changes in hydraulic conditions

Modification of hydrographic functioning, general

Dykes, embankments, artificial beaches, general

Sea defense or coast protection works, tidal barrages

### **Climate change**

Changes in abiotic conditions

Water flow changes (limnic, tidal and oceanic)

Wave exposure changes

## **Conservation and management**

---

Beneficial management measures for this habitat could include the regulation of activities which damage

or disturb shore communities, regulation of coastal developments and of the construction of hard coastal defence structures. Additionally, water quality improvement programmes to reduce the risk of toxic contamination would prevent degradation of the habitat.

## List of conservation and management needs

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

Restoring/Improving water quality  
Restoring/Improving the hydrological regime

### Measures related to spatial planning

Other spatial measures

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

Urban and industrial waste management

### Measures related to special resource use

Regulating/Management exploitation of natural resources on land  
Regulating/Managing exploitation of natural resources on sea

## Conservation status

Annex 1:

1140: MATL U2, MMAC XX

1160: MATL U2, MMAC FV

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

Yes. This is a naturally dynamic habitat which is regularly subject to disturbance. The associated species groups, isopods, amphipods and a limited number of polychaete species, which occur under these conditions are likely to be able to recolonise disturbed areas relatively rapidly.

## Effort required

10 years
Naturally

## Red List Assessment

---

### Criterion A: Reduction in quantity

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

Unknown, however this is a habitat in a very dynamic environment, where conditions that influence its extent can fluctuate significantly within seasons and inter-annually, as well as spatially. Severe winters and extreme events such as El Nino result in the most rapid changes. There have been localised losses/damage to this habitat e.g. following oil spills, as well as recovery. This pattern is likely to continue. This habitat has been assessed as Data Deficient 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 <sup>2</sup>	Unknown	Unknown	No	>50	Unknown	Unknown	No	No
EU 28+	>50,000 Km <sup>2</sup>	Unknown	Unknown	No	>50	Unknown	Unknown	No	No

This habitat has a large natural range in the North East Atlantic region. The precise extent is unknown however as EOO >50,000km<sup>2</sup> and AOO >50, this exceeds the thresholds for a threatened category on the basis of restricted geographic distribution. Trends are unknown. The distribution of the habitat is such that the identified threats are unlikely to affect all localities at once. This habitat has therefore been assessed as Least Concern under criteria B1(c) B2 (c) and B3 and Data Deficient for all other criteria.

## 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	DD	DD	DD	DD	LC	LC	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	DD	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
Data Deficient	-	Data Deficient	-

### Confidence in the assessment

Low (mainly based on uncertain or indirect information, inferred and suspected data values, and/or limited expert knowledge)

### Assessors

G. Saunders & C. Karamita.

### Contributors

C. Karamita and the North East Atlantic Working Group: S. Gubbay, G. Saunders, H. Tyler-Walters, N. Dankers, F. Otero-Ferrer, J.A. Forde, K. Fürhaupter and N. Sanders.

### Reviewers

S.Beal.

### Date of assessment

21/08/2015

### Date of review

19/01/2016

## References

---

European Environment Agency. 2014. EUNIS habitat type hierarchical view. Available at: <http://eunis.eea.europa.eu/habitats-code-browser.jsp> [accessed]. (Accessed: 22/08/2014).

MarLIN (Marine Life Information Network) .2015. MarLIN - The Marine Life Information Network. Available at: <http://www.marlin.ac.uk/habitats.php>. (Accessed: 18/11/2015).

Tempera, F., E. Atchoi, P. Amorim, J. Gomes-Pereira & J. Gonçalves. 2013. *Atlantic Area Marine Habitats. Adding new Macaronesian habitat types from the Azores to the EUNIS Habitat Classification*. Horta: MeshAtlantic, IMAR/DOP-UAç, p.126.