

## A2.11 Marine Atlantic littoral shingle (pebble) and gravel

### Summary

This habitat tends to support virtually no macrofauna because of the very mobile and freely draining substratum. The shingle (mobile cobbles and pebbles) or coarse gravel, is typically deposited as a result of onshore wave action and longshore drift and the beach profile tends to be relatively steep.

This is a robust habitat, the greatest threat being the removal or interruption of a reliable sediment supply. This may be compromised when it is extracted for aggregates, restricted by coastal defence structures or artificially redistributed around the site. Natural along-shore drift is prevented by groynes while sea defence walls behind a feature stop shingle ridges rolling back landwards. Conservation and management of this habitat requires consideration of its geomorphological context and the coastal processes that sustain it and may therefore need to be wide ranging. At a more local level useful measures are controls on coast protection works, on shore constructions and preventing the direct removal of shingle, pebble and gravel from the beach.

### Synthesis

Shingle, gravel and pebble features in the intertidal zone constantly change morphologically as their finite sediment supply is reworked landward, offshore and alongshore. Trends therefore need to be viewed in the context of natural accretion and erosion and reworking of the sediment. Although changes have been studied in detail in some locations (e.g. Dungeness Spit and Chesil Beach in the UK) there is insufficient information to determine any trends in quantity or quality of this habitat throughout the North East Atlantic region.

This habitat has a large EOO and AOO (based on the distribution of vegetated shingle), 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

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#### Code and name

A2.11 Marine Atlantic littoral shingle (pebble) and gravel



Intertidal shingle bank separating the open sea from the Cemlyn lagoon, North Wales, UK (© A.R.Davis).

## Habitat description

Shingle beaches occur on high energy wave dominated coasts where a sediment supply is available for reworking. The shingle (mobile cobbles and pebbles) or coarse gravel, is typically deposited as a result of onshore wave action and long-shore drift and the beach profile tends to be relatively steep. The particle size tends to increase along the shore in the direction of the long-shore drift. As the sediment is very coarse and often quite mobile, it typically supports little marine life, other than opportunist amphipods and oligochaete worms. Summer growths of ephemeral green algae (*Enteromorpha* spp.) may develop.

### 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:

This habitat tend to support virtually no macrofauna because of the very mobile and freely draining substratum. The few individuals that may be found are those washed into the habitat by the ebbing tide, including the occasional amphipod or small polychaete. Under conditions of moderate exposure there may be dense populations of the amphipod *Pectenogammarus planicrurus*.

## Classification

EUNIS (v1405):

Level 4. A sub-habitat of 'Atlantic littoral coarse sediment' (A2.1).

Annex 1:

No relationship

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Littoral Sediment

EUSEaMap:

Not mapped

IUCN:

12.3 Shingle and/or Pebble Shoreline and/or Beaches

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

Unknown

Justification

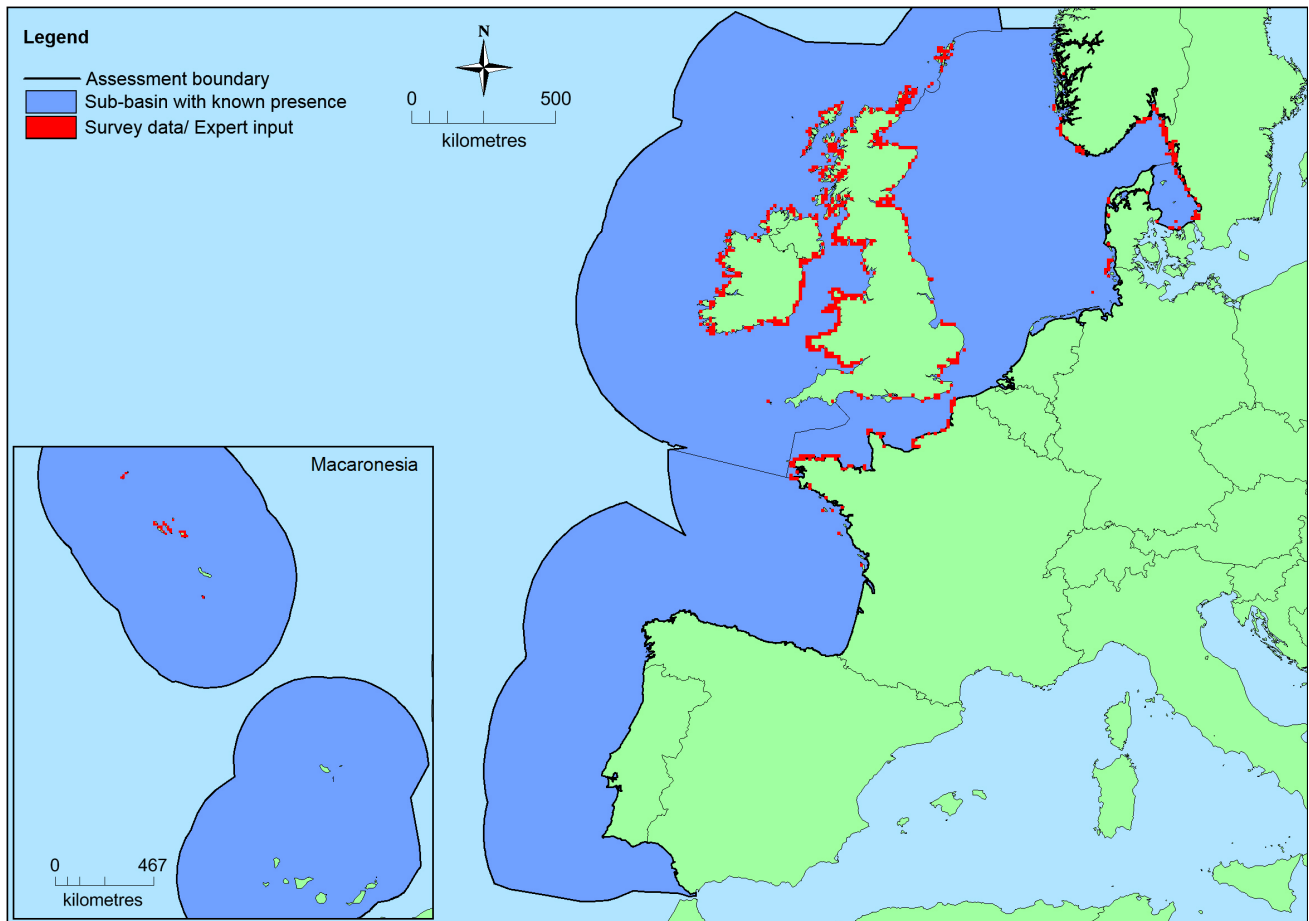
### **Geographic occurrence and trends**

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>	Greater North Sea: Present Bay of Biscay and the Iberian Coast: Present Celtic Seas: Present Kattegat: Present Macaronesia: 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>	3,581,679 Km <sup>2</sup>	729	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>	3,609,065 Km <sup>2</sup>	757	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 and 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) and using Article 17 records for vegetated shingle which is adjacent to this habitat type. 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?

This habitat occurs in the EU 28+ (e.g. Isle of Man, Channel Islands). The percentage hosted by the EU 28 is therefore less than 100% but there is insufficient information to establish the proportion.

### Trends in quantity

Shingle features constantly change morphologically as their finite sediment supply is reworked landward and alongshore. Trends need to be viewed in the context of natural accretion and erosion and reworking of the shingle. Changes have been studied in detail in some locations (e.g. Dungeness spit and Chesil Beach in the UK) however there is insufficient information to determine any trends in quantity of this habitat throughout the North East Atlantic region.

- 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 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 does not have a small natural range.

### **Trends in quality**

Shingle features constantly change morphologically as their finite sediment supply is reworked landward and alongshore. Trends need to be viewed in the context of natural accretion and erosion and reworking of the shingle. There is insufficient information to determine any trends in quality.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

### **Pressures and threats**

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This is a robust habitat. The greatest threat is removal or interruption of a reliable sediment supply as without sediment to pick up and deposit on the beach, the sea would simply erode shingle structures. Any kind of development on shingle is likely to negatively affect it by reducing its ability to migrate in response to the sea. Water abstraction, nuclear power plants, housing and defence are all examples of development which occur on the habitat. Where the morphology of the shingle ridge has been altered by building and sea defence works to protect the infrastructure further inhibits its ability to behave naturally.

The sediment supply is compromised when it is extracted for aggregates, restricted by coastal defence structures or artificially redistributed around the site. Natural longshore drift is prevented by groynes while sea defence walls behind a feature stop shingle ridges rolling back landwards.

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

#### **Natural System modifications**

Removal of sediments (mud...)

Modification of hydrographic functioning, general

Sea defense or coast protection works, tidal barrages

#### Other ecosystem modifications

Reduction or loss of specific habitat features

Anthropogenic reduction of habitat connectivity

Reduction, lack or prevention of erosion

### **Conservation and management**

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Conservation and management of this habitat requires consideration of its geomorphological context and the coastal process that sustain it and may therefore need to be wide ranging. At a more local level useful measures are controls on coast protection works, on shore constructions and preventing the direct removal of shingle, pebble and gravel from the beach.

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

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

Other spatial measures

Manage landscape features

## Measures related to special resource use

Regulating/Managing exploitation of natural resources on sea

## Conservation status

Annex 1:

None

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

This is a very robust, species poor habitat so has the capacity to become re-established where the substrate and exposure conditions are suitable. The limiting factor is supply of shingle and gravel where this originates from relict glacial deposits.

## 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 %

There is insufficient information available on which to determine any historical, recent or potential future trends in extent of this habitat. This habitat has therefore 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 (based on the distribution of vegetated shingle habitat) 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 %

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	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

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#### Contributors

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#### Reviewers

J.Leinikki.

**Date of assessment**

19/08/2015

**Date of review**

12/01/2016

**References**

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