

## A1.12: Robust fucoid and/or red seaweed communities on wave-exposed Atlantic littoral rock

### Summary

This habitat occurs on extremely exposed to moderately exposed upper to lower shores with seaweeds that are able to tolerate the extreme conditions of exposure. It is naturally resilient but also subject to considerable natural variability. Although relatively robust the associated communities are vulnerable at a local level to pollution incidents such as oil spills. The habitat is also likely to be affected at a regional sea level by climate change because of predicted sea level rise and increased air and water temperatures.

There are limited opportunities and need for specific conservation and management measures to be directed at this habitat. More general beneficial measures include pollution control and regulation, development control and contingency plans to be followed in the event of a major pollution incident, representation in marine protected areas and measures to reduce global warming and sea level rise.

### Synthesis

This habitat has a large natural range in the North East Atlantic region, extending from the Canaries and Azores in the west to the Skagerrak coast of Sweden in the east. Local and/or seasonal factors often exert a substantial influence on intertidal habitats making it difficult to distinguish any long-term trend across the region. This is complicated further because differences between localities are often linked to differences in geographical latitude and, therefore, to differences in climatic traits such as temperature and/or ice cover.

There are studies showing short and long term trends in extent and quality in some locations, for example following natural events such as severe weather conditions or pollution incidents such as oil spills however expert opinion is that the extent of this habitat has most likely been stable over the last 50 years. Trends in quality are unknown. The nature and size of threats to this habitat, and the distribution data which are available, suggest that known threats are unlikely to affect all localities at once. This habitat has therefore been assessed as Least Concern for both the EU 28 and EU 28+

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Least Concern	-	Least Concern	-

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

None.

### Habitat Type

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#### Code and name

A1.12: Robust fucoid and/or red seaweed communities on wave-exposed Atlantic littoral rock



Fucoids on wave exposed littoral rock. Portree, Skye, Scotland (© R.Haroun).

## Habitat description

This habitat occurs on extremely exposed to moderately exposed upper to lower shores with seaweeds that are able to tolerate the extreme conditions of exposure. The physical stresses caused by wave action often results in dwarf forms of the individual seaweeds. The strong holdfasts and short tufts structure of the wracks *Fucus distichus* and *Fucus spiralis f. nana* allow these fucoids to survive on extremely exposed shores. Another seaweed able to tolerate the wave-wash is the red seaweed *Corallina officinalis*, which can form a dense turf on the mid- to lower shore. The olive brown wrack *Pelvetia canaliculata* positioned at the highest points of the intertidal shore, can withstand long periods of exposure. The wrack *Himanthalia elongata* occurs on the lower shore and can extend on to moderately exposed shores. The red seaweed *Mastocarpus stellatus* is common on both exposed and moderately exposed shores, where it may form a dense turf (particularly on vertical or overhanging rock faces). Very exposed to moderately exposed lower eulittoral rock can support a pure stand of the red seaweed *Palmaria palmata*. It is found either as a dense band or in large patches above the main sublittoral fringe.

Two biotopes associated with this habitat are characterised by extensive areas or a distinct band of *Osmundea pinnatifida* in areas exposed to moderately exposed lower eulittoral rock, and outcrops of fossilised peat in the eulittoral that are soft enough to allow a variety of piddocks, such as *Barnea candida* and *Petricola pholadiformis*, to bore into them.

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. Long term loss of the characteristic fucoids and/or red algae would indicate a deterioration in quality. Indicators which have been developed for the assessment of ecological quality of coastal water bodies for the Water Framework Directive (WFD) that are relevant to this habitat include a consideration of macroalgae species richness, proportions of different taxa of algae present, and the abundance and coverage of the rocky surfaces by typical species.

Characteristic species:

The characteristic species of fucoids and red algae that may be present in this habitat include *Fucus distichus*, *Fucus spiralis f. nana*, *Fucus guryii*, *Corallina officinalis*, *Himanthalia elongata*, *Lomentaria articulata*, *Ceramium* spp., *Mastocarpus stellatus* and *Palmaria palmata* depending of the degree of

exposure, latitude and rock orientation. On the lower margins *Laminaria digitata*. The green seaweeds *Enteromorpha intestinalis*, *Ulva lactuca*, *Ulva rigida* and *Cladophora rupestris* are occasionally present. The sponge *Halichondria panicea*, the barnacle *Semibalanus balanoides* and *Megabalanus azoricus*, the limpet *Patella vulgata*, the mussel *Mytilus edulis* and the whelk *Nucella lapillus* may present but never dominant.

## Classification

EUNIS (v1405).

Level 4. A sub-habitat of 'Atlantic littoral rock' (A1.1).

Annex 1:

1170 Reefs

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Littoral rock and biogenic reef

EUSeaMap:

Not mapped

IUCN:

12.1 Rocky shoreline

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

Yes

Regions

Atlantic

Justification

This habitat is very typical of exposed rocky shores in the North East Atlantic region including the Macaronesian Archipelagos.

### **Geographic occurrence and trends**

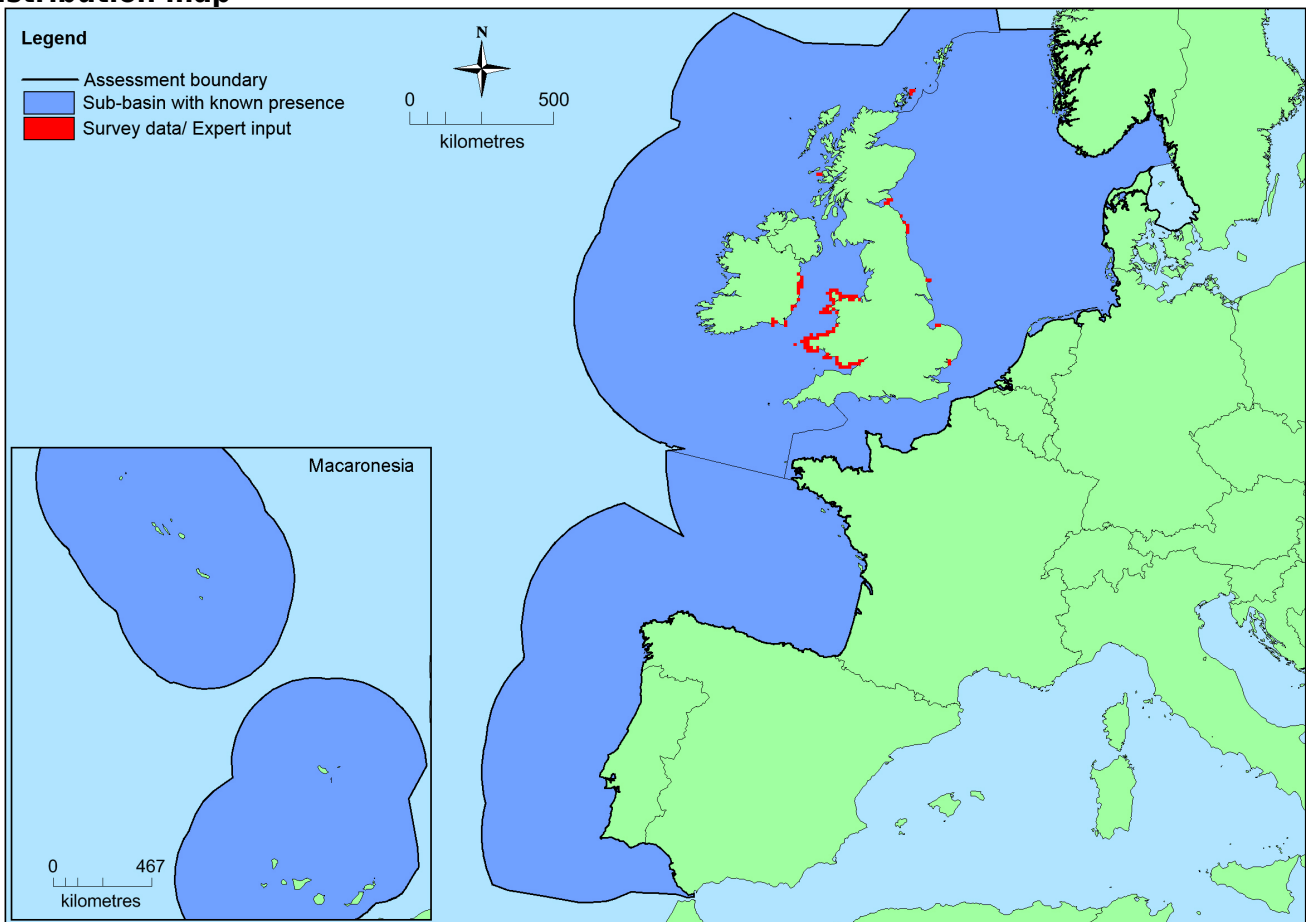
Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
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Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend 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	unknown Km <sup>2</sup>	Stable	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>	320,274 Km <sup>2</sup>	267	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>	320,274 Km <sup>2</sup>	267	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). 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. Norway, Isle of Man, Channel Islands). The percentage hosted by the EU 28 is likely to be between 85-90% but there is insufficient information to establish the exact figure.

### **Trends in quantity**

Local and/or seasonal factors often exert a substantial influence on intertidal habitats making it difficult to distinguish any long-term trend across the region. This is complicated further because differences between localities are often linked to differences in geographical latitude and, therefore, to differences in climatic traits like temperature and/or ice cover.

This habitat has been studied in detail in some localities however there is insufficient information to quantify any historical, recent and possible future trends in quantity. There has been some loss, for example associated with coastal development, but expert opinion is that overall there unlikely to have been any significant changes (>25%) in the extent of wave exposed littoral rock over the last 50 years. The quantity of this habitat is therefore most likely stable.

- Average current trend in quantity (extent)

EU 28: Stable

EU 28+: Stable

- 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 extending from the Canaries and Azores in the west to the Skagerrak coast of Sweden in the east.

- 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 extending from the Canaries and Azores in the west to the Skagerrak coast of Sweden in the east.

### **Trends in quality**

Local and/or seasonal factors often exert a substantial influence on intertidal habitats making it difficult to distinguish any long-term trend across the region. This is complicated further because differences between localities are often linked to differences in geographical latitude and, therefore, to differences in climatic traits like temperature and/or ice cover.

This habitat has been studied in detail in some localities and there have been reductions in quality e.g. following oil spills, as well as recovery. This is a pattern which is likely to continue however there is insufficient information to determine historical, recent and possible future trends in quality.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

### **Pressures and threats**

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This is a relatively robust habitat as it develops on wave exposed rocky shores although it is vulnerable to a number of pressures. The two which are mostly likely to have an impact are pollution incidents, such as oil spills, and climate change. In the latter case it has been suggested that climate change may not lead to a simple poleward shift in the distribution of intertidal organisms on rocky shores but could cause localised

extinctions in a series of hot-spots due to the inability of species to spread to suitable habitats. Coastal development including coast protection works which can alter the degree of exposure, shore collection, trampling and nutrient enrichment due to run-off from the land are also potential pressures but likely to be less of an issue than for more sheltered rocky shores.

## **List of pressures and threats**

### **Pollution**

- Marine water pollution
- Oil spills in the sea

### **Climate change**

- Changes in abiotic conditions
  - Temperature changes (e.g. rise of temperature & extremes)
  - Wave exposure changes
  - Sea-level changes
- Changes in biotic conditions
  - Habitat shifting and alteration
  - Migration of species (natural newcomers)

## **Conservation and management**

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There are limited opportunities and need for specific conservation and management measures directed at this habitat. More general beneficial measures include pollution control and regulation, development control and contingency plans to be followed in the event of a major pollution incident, survey and monitoring programmes, raised public awareness of their ecological value and vulnerability, representation in marine protected areas and measures to reduce global warming and sea level rise.

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

### **Measures related to marine habitats**

- Other marine-related measures

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

- Other spatial measures
- Establish protected areas/sites
- Legal protection of habitats and species

## **Conservation status**

Annex 1:

1170 MATL U2, MMAC FV.

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

Generally, the effects of chronic impacts on this habitat are reversible provided the disturbance is stopped. Recovery from acute impacts is also possible but may take much longer depending on the scale and type of impact.

## 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 %

The general distribution of this habitat is well known and its extent has been mapped in detail in some locations (e.g. some Marine Protected Areas). There are studies showing short and long term trends, for example following oil spills, in some locations but no assessment of overall trend in quantity for the North East Atlantic. Expert opinion is that the quantity of habitat is not considered likely to have declined by more than 25% over the last 50 years and has most likely been stable. This habitat has therefore been assessed as Least Concern 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>	No	No	No	>50	No	No	No	No
EU 28+	>50,000 Km <sup>2</sup>	No	No	No	>50	No	No	No	No

This habitat has a large natural range in the North East Atlantic region extending from the Canaries and Azores in the west to the Skagerrak coast of Sweden in the east. EOO >50,000 km<sup>2</sup>, AOO >50. The extent is considered to have been stable over the last 50 years, trends in quality are unknown. The nature and size of threats to this habitat and the distribution data which are available suggest that known threats are unlikely to affect all localities at once. This habitat has therefore 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 %

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%

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

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### Reviewers

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### Date of assessment

19/08/2015

### Date of review

31/03/2016

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