A1.14 Macaronesian communities of lower eulittoral rock very exposed to wave action

Summary

This habitat is present on rocky shores of the Macaronesian islands that are very exposed to wave action. Because of this the associated biotopes are characterised by encrusting species such as crustose and calcified red algae as well as species that are able to settle and remain attached in wave exposed conditons such as the stalked barnacle *Pollicipes cornucopiae*. There are records from the Canary Islands (e.g. Gran Canaria and Lanzarote), Madeira and the Azores.

The main pressures and threats are related to shellfish collection and the destruction or modification of the habitat as a result of coastal development. These include the construction of harbours and tourist resorts which can extend across the intertidal zone or affect the wave exposure. Waste disposal and sewage discharges to the marine environment are other activities which can damage or degrade the biotopes associated with this habitat although the exposure conditions means that these are unlikely to be major threats. More recently, oil-platform maintenance works are a potential entrance vector for marine exotic species although any ecological effects on Macaronesia habitats have not been yet evaluated.

Beneficial measures include the regulation of coastal development and of discharges to the marine environment as well as controls on the introduction of invasive species. Marine Protected Areas which include this habitat can act as a focus for the introduction of such measures.

Synthesis

This habitat is only present in the EU 28 in the North East Atlantic region. There is insufficient information to determine historical, current or future trends in quantity or quality of this habitat although it is considered likely to decline in the future if conservation measures are not introduced. The known distribution is such that the identified threats are unlikely to affect all localities at once.

This habitat has large EOO and therefore qualifies as Least Concern under criterion B1 and B3. The AOO suggests this habitat could be Vulnerable under criterion B2 however given the lack of information on trends in quantity and quality, and the fact that its overall distribution is unknown, expert opinion is this habitat should be considered Data Deficient 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
Data Deficient	-	Data Deficient	-

Sub-habitat types that may require further examination

None.

Habitat Type

Code and name

A1.14 Macaronesian communities of lower eulittoral rock very exposed to wave action

Crustose algae, *Lithophyllum* on lower eulittoral rocks. Bañaderos, Gran Canaria, Spain (© R.Haroun).

Habitat description

This intertidal habitat occurs on rocky shores of bedrock and boulders in areas that are very exposed to wave action. Because of this the associated biotopes are characterised by encrusting species such as crustose and calcified red algae (e.g. *Lithophyllum tortuosum* (ex *Tenarea undulosa*), *Lithophyllum lobatum* and *Titanoderma polycephalum)* as well as species that are able to settle and remain attached in wave exposed conditons such as the stalked barnacle *Pollicipes cornucopiae*.

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. 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:

Lithophyllum tortuosum (ex *Tenarea undulosa*), *Lithophyllum lobatum, Pollicipes cornucopiae,* and *Titanoderma polycephalum*

Classification

EUNIS (2004)

Level 4. A sub-habitat of ‘High Energy littoral rock’ (A1.1) with modification to include Macaronesia.

Annex 1:

1170 Reefs

MAES:

Marine - Marine inlets and transitional waters

Marine – Coastal

MSFD:

Littoral rock & 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?
Unknown

Justification
There is insufficient information to determine whether this habitat is an outstanding example of typical characteristics of the Macaronesian region.

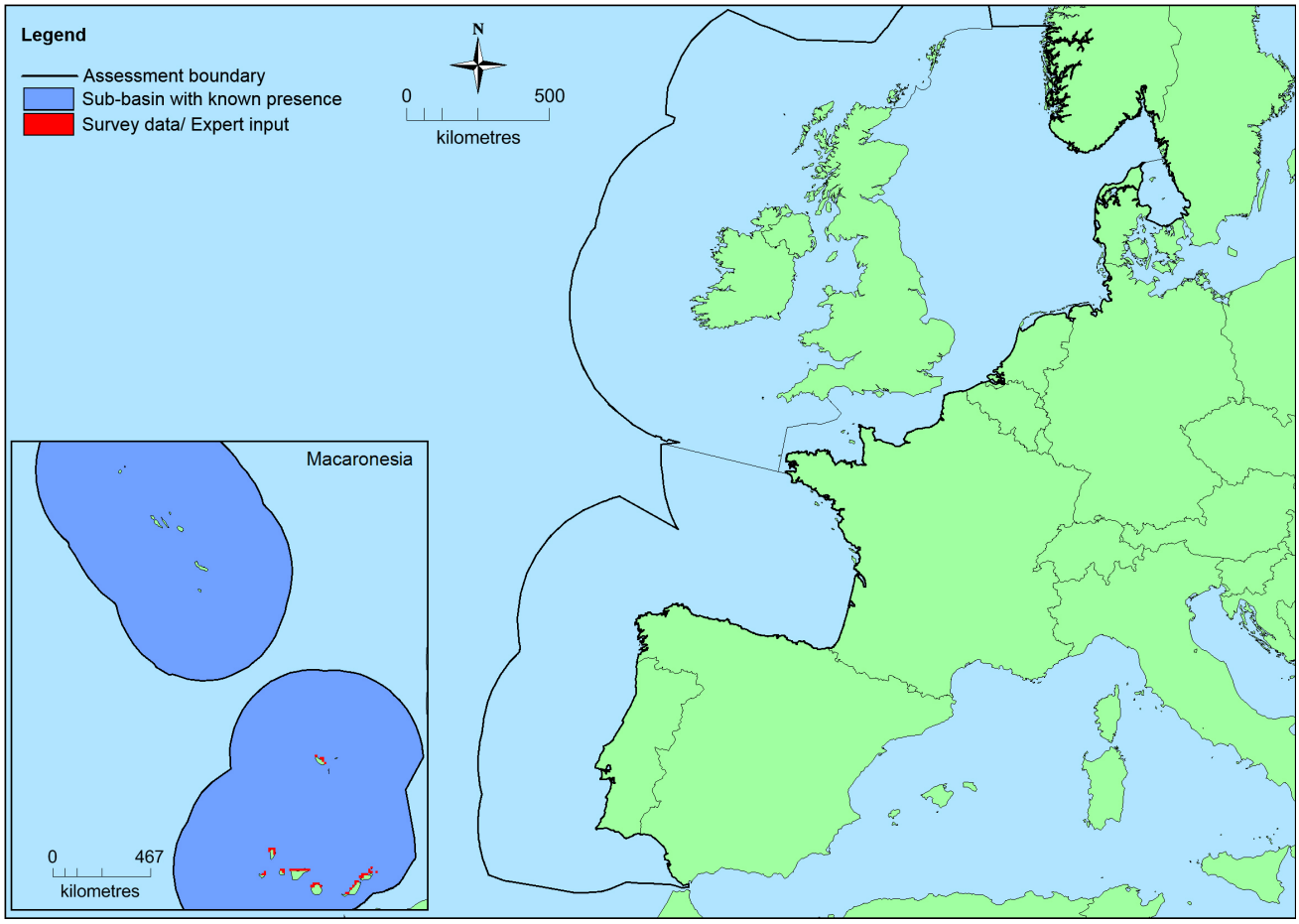
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
North-East Atlantic	Macaronesia: 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
EU 28	168,359 Km^2	49	Unknown Km^2	Based on a limited data set. AOO is known to be an underestimate.
EU 28+	168,359 Km^2	49	Unknown Km^2	Based on a limited data set. AOO is known to be an underestimate.

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 is defined as a Macaronesian habitat therefore 100% is hosted by EU 28.

Trends in quantity

There is insufficient information on past extent of this habitat to determine historical trends in quantity. As it occurs in the intertidal zone which is subject to different degrees of human pressures such as habitat destruction or modification it is considered likely to decline in the future if conservation measures are not introduced.

- 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 as it is present in both the Azores and the Canary Islands.
- 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 as it is present in both the Azores and the Canary Islands.

Trends in quality

There is insufficient information on past extent of this habitat to determine historical trends in quality. As it occurs in the intertidal zone which is subject to different degrees of human pressures such as habitat destruction or modification it is considered likely to decline in the future if conservation measures are not introduced.

- Average current trend in quality
  EU 28: Unknown
  EU 28+: Unknown

Pressures and threats

The main threats to this habitat is related to shellfish collection (i.e. *Pollicipes cornucopiae*) and to the high intensity of urban coastal development which has taken place on the most populated islands of Macaronesia in recent decades. Harbour construction, tourism resorts have exerted siginificant pressures on habitats in the littoral zone. Poorly managed waste disposal and sewage discharge can be an additional pressure but this is less likely given the exposed conditions where this habitat occurs.

The increase in international maritime traffic in the harbours of main cities of the Canaries Archipelago and, more recently, oil-platform maintenance works may potentially lead to the introduction of marine exotic species. The ecological effects of such species on Macaronesian habitats have not been evaluated.

List of pressures and threats

Urbanisation, residential and commercial development

Urbanised areas, human habitation
Discharges

Biological resource use other than agriculture & forestry

Fishing and harvesting aquatic resources

Pollution

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

Invasive, other problematic species and genes

Invasive non-native species

Conservation and management

This habitat is included within some Marine Protected Areas where there are associated management measures, regulations and codes of conduct but not necessarily targetting this specific habitat. Regulation of coastal development and discharges to the marine environment, and control of activities that might leat to the introduction of invasive species are other measures that could benefit this habitat.

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 urban areas, industry, energy and transport

Urban and industrial waste management
Managing marine traffic

Conservation status

Annex 1:

1170: MMAC FV

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

There is insufficient information to determine whether this habitat retains the capacity to recover when severely damaged.

Effort required

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 %

This habitat is only present in the EU 28 in the North East Atlantic region. There is insufficient information on the past extent of this habitat to determine historical trends in quantity. As it occurs in shallow waters, in areas subject to pressure from development, it is considered likely to decline in the future if conservation measures are not introduced. The scale of any such future decline cannot be estimated at the present time. This habitat has therefore been assessed as Data Deficient 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	49	Unknown	Unknown	No	No
EU 28+	>50,000 Km^2	Unknown	Unknown	No	49	Unknown	Unknown	No	No

The area of this habitat has not been quantified however current knowledge, based on expert opinion, is that EOO >50,000 km^2 therefore it does not have a restricted geographical distribution. The AOO has been estimated as 49 indicating it is only present in a small number of 10 x 10km grid squares but this is likely to be an underestimate. There is a lack of information on trends. The known 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 under the remaining 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%

This habitat occurs in the littoral zone of the Macaronesian islands which are subject to different types and degrees of human pressures such as unregulated shellfish collection, habitat destruction or modification. There is insufficient informationto determine historical or future trends in quality although it is considered likely to decline in quality in the future if conservation/management measures are not introduced. This habitat has therefore been assessed as Data Deficient under 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	DD	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	DD	DD	DD	DD	LC	DD	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)

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