

A1.34 Macaronesian communities of lower eulittoral rock sheltered from wave action

Summary

This habitat occurs in the intertidal zone, on sheltered rocky shores of all the Macaronesian islands (the Azores, Canary Islands and Madeira). The associated communities develop in response to the combined effects of little wave action, variations in atmospheric pressure, wind and tide with the dominant aspect being the constant humidity of the substratum. Green and brown algae may become established on the rock surfaces and provide shelter for invertebrate fauna such as hermit crabs, molluscs and echinoderms.

The main pressures and threats are 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. 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

Detailed information on the abundance and extent of this habitat is lacking but survey information reveals that it does not have a narrow geographical distribution. Based on existing records it appears to have a small Area of Occupancy. Historical trend data are not available but expert opinion is that there is likely to be a substantial reduction in abiotic and/or biotic quality in the future. This habitat has therefore been assessed as Vulnerable under criteria B2 and C/D2.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Vulnerable	B2, C/D2	Vulnerable	B2, C/D2

Sub-habitat types that may require further examination

None.

Habitat Type

Code and name

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Rock surface sheltered from wave action colonised by the brown calcified macroalgae *Padina pavonica*. Bañaderos, Gran Canaria, Canary Islands, Spain (© R.Haroun).



Sheltered intertidal rock colonised by *Dasycladus vermicularis*. Hermit crabs Gran Canaria, Canary Islands, Spain (© R.Haroun).

Habitat description

This habitat occurs in the sheltered lower horizon of the mediolittoral rock and develops in response to the combined effects of little wave action, variations in atmospheric pressure, wind and tide. The dominant aspect is the constant humidity of the substratum. It is found throughout Macaronesia in the Azores, Madeira and the Canary Islands and includes a proposed newly described biotope 'Association with *Enteromorpha compressa*' which occurs in the Azores.

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.

One of the associated species, *Padina pavonica*, is affected by and thrives under acidic conditions and may therefore be useful as a bioindicator of ocean acidification

Characteristic species:

In the case of the southern Macaronesian archipelagos, *Padina pavonica*, *Stypocaulon scoparium*, *Dasycladus vermicularis* and *Colpomenia sinuosa*. Associated fauna include crabs such as *Xantho poressa* or *Dardanus spp* (hermit crabs), molluscs such as *Patella spp* or echinoderms (*Arbacia spp.*).

Classification

EUNIS(2004)

Level 4. A sub-habitat of 'low energy littoral rock' (A1.3) with modification to include Macaronesia.

Annex 1:

1160 Large shallow inlets and bays

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

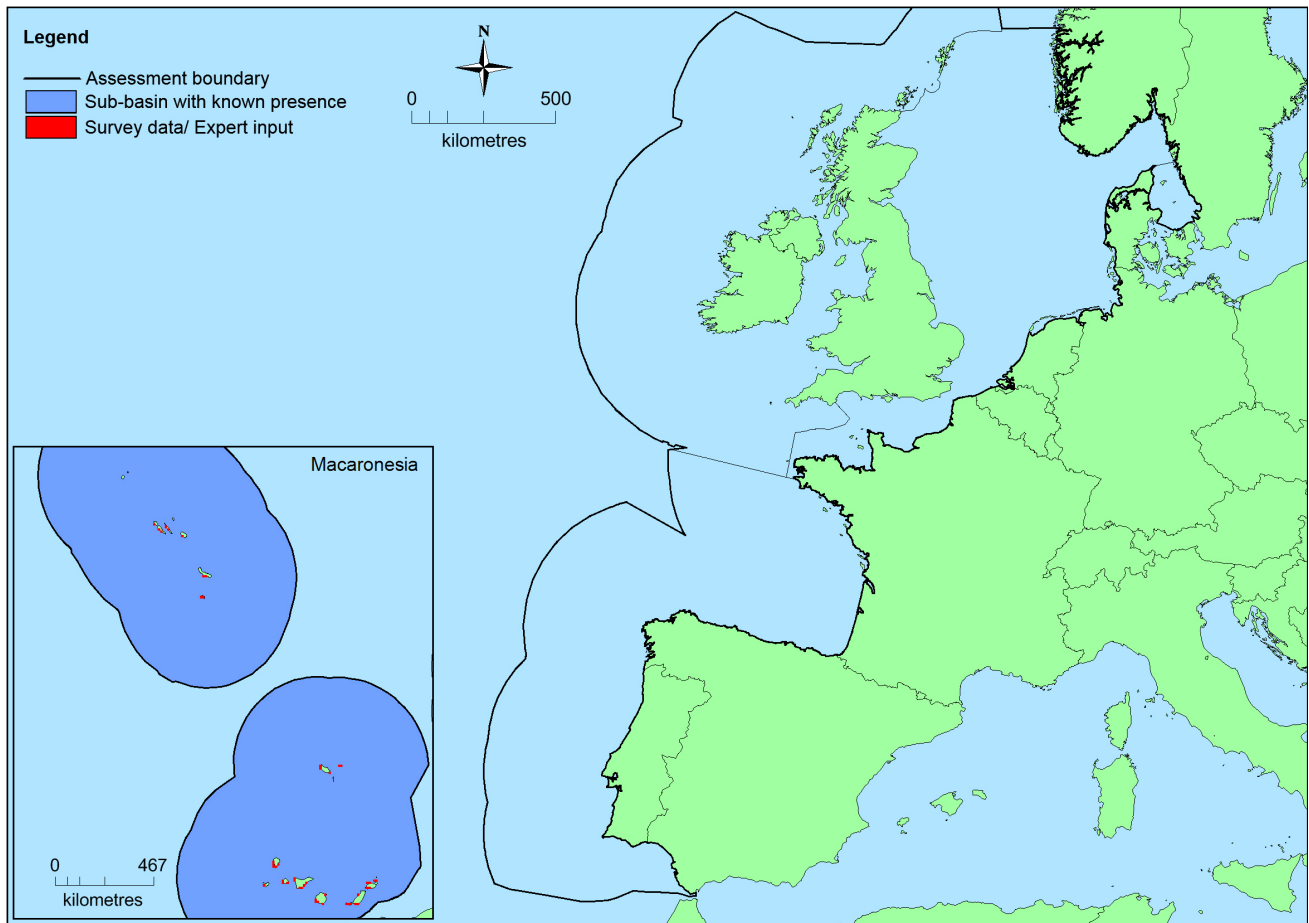
Geographic occurrence and trends

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>	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
<i>EU 28</i>	603,285 Km ²	47	Unknown Km ²	
<i>EU 28+</i>	603,285 Km ²	47	Unknown Km ²	

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 the past extent of this habitat to determine historical trends in quantity. As it occurs in the littoral zone which is subject to different types and degrees of human pressures such as habitat destruction or modification (such as eutrophication processes) 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 occurs in the Azores, Madeira 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 occurs in the Azores, Madeira and the Canary Islands.

Trends in quality

There is insufficient information about this habitat to determine historical trends in quality. As it occurs in the littoral zone which is subject to different types and degrees of human pressures such as habitat destruction or modification (such as eutrophication processes) 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 threat to this habitat is the high intensity of high urban coastal development which has taken place on the most populated islands of Macaronesia in recent decades, particularly on the south west coast of Tenerife island. Harbour construction, tourism resorts, and poorly managed waste disposal and sewage discharge have exerted significant pressures on habitats in the littoral zone. The increase in international maritime traffic in the harbours of the main cities of the Canaries Archipelago and, more recently, oil-platform maintenance work may potentially lead to the introduction of marine exotic species. The ecological effects of such species on Macaronesia habitats have not been evaluated.

List of pressures and threats

Urbanisation, residential and commercial development

Urbanised areas, human habitation

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

Climate change

Changes in abiotic conditions

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 targeting this specific habitat. Regulation of coastal development and discharges to the marine environment and control of activities that might lead 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:

1160: MMAC FV

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 %

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	Yes	No	47	Unknown	Yes	No	No
EU 28+	>50,000 Km ²	Unknown	Yes	No	47	Unknown	Yes	No	No

The area of this habitat has not been quantified however current knowledge, based on expert opinion, is that EOO >50,000 km² therefore it does not have a restricted geographical distribution. The AOO has been estimated as 47 indicating it is only present in a small number of 10 x 10km grid squares. When considered together with expert opinion that coastal development and other pressures are likely to cause declines in quantity and/or quality within the next 20 years, this habitat has been assessed as Vulnerable under criteria B2 (b).

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 %	30-80 %	substantial %	Unknown %	Unknown %
EU 28+	Unknown %	Unknown %	30-80 %	substantial %	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 sheltered parts of the littoral zone of the Macaronesian islands. Such areas are particularly vulnerable to loss and degradation as a result of coastal development and poor water quality. This is apparent particularly on the south west coast of Tenerife island. Although there is insufficient information to determine historical trends it is considered likely that the habitat may suffer a fairly substantial decline in quality in the future. Expert opinion is that this could range from a slight decline affecting up to 80% of the extent, an intermediate decline affecting up to 50% of the extent or a severe decline affecting 30% of the extent. This habitat has therefore been assessed as Vulnerable under criteria C/D2.

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	VU	LC	DD	VU	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	DD	DD	DD	DD	LC	VU	LC	DD	VU	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	B2, C/D2	Vulnerable	B2, C/D2

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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Reviewers

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