

A1.23: Communities of moderately exposed Mediterranean lower mediolittoral rock

Summary

This is mediolittoral habitat of rocky and boulder shores. It is present in locations that are moderately exposed to wave action and may be subject to strong or moderate currents. The associated biotopes are dominated by the red algae. It has been impacted by coastal development, particularly schemes which modify the coastline, and by nutrient enrichment which has caused a deterioration in water quality. Beneficial actions include those which improve water quality and the regulation of coastal development.

Synthesis

This is a widespread habitat in the Mediterranean Sea, however there is very little information on its detailed distribution. Expert opinion is that it has suffered some declines in extent and this is likely to continue as the pressures and threats remain although past and future reductions in quantity and quality cannot be quantified. The habitat has a large EOO and AOO, and its distribution is such that the identified threats are unlikely to affect all localities at once. It therefore qualifies as Least Concern under Criterion B but the overall assessment is Data Deficient both at the EU 28 and the EU 28+ levels because of the lack of information on its 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

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The subhabitat of *Corallina elongata* in Cataluña coast, Spain (© S. Pinedo).



The subhabitat of *Gelidium pusillum* and *Gelidium crinale* along the Catalan coast (© Littoral Cartography Group, CEAB, CSIC).

Habitat description

This is an intertidal habitat which occurs on rocky and boulder shores, just above the mid tide levels. It is present in locations that are moderately exposed to wave action and may be subject to strong or moderate currents. The associated biotopes are dominated by the red alga *Corallina elongata* in the most exposed conditions, and *Gelidium pusillum* and *G. crinale* where there are elevated nutrient levels. In some situation the habitat is almost devoid of erect macroalgae, grazed by *Patella* spp., and characterised by crusts of the *Lithophyllum* spp. In the inner parts of bays or close to the beaches, other red algae species (mainly *Laurencia pyramidalis*, *Laurencia glandulifera*, *Palisada perforata* and *Osmundea verlaquei*) but also *Hypnea musciformis* and *Ceramium ciliatum* may dominate. There is also an associated biotope dominated by *Palisada tenerrima* which forms dense, almost monospecific turfs that completely cover the rock in the central and southern part of the Mediterranean and a dominance by *Haliptilon virgatum* in several Mediterranean regions characterised by warm waters and relatively high light irradiances.

Indicators of quality

An increase in the abundance of many organisms: green algae, *Gelidium* spp., *Scytosiphon lomentaria*, *Petalonia fascia*, *Mytilus galloprovincialis* and, occasionally, *Corallina elongata* can be indicators of poor quality. Conversely species of the genus *Osmundea*, *Laurencia* and *Palisada* seem to avoid polluted waters. Their absence may therefore also be a potential indicator of changes in quality of the habitat.

A "Quality of Rocky Bottoms index" (CFR by its Spanish acronym) used in Spanish Atlantic waters for the assessment of macroalgae communities on rocky shores may have some potentially application in assessment of quality of this habitat.

Characteristic species:

Rhodophyta (red algae)-*Corallina elongata*, *Hypnea musciformis*, *Callithamnion granulatum*, *Gastroclonium clavatum*, *Grateloupia filicina*, *Ceramium ciliatum*, *Boergeseniella fruticulosa*, *Chondria boryana*, *Laurencia glandulifera*, *Gelidium crinale*, *Laurencia pyramidalis*, *Haliptilon virgatum*, *Ceramium diaphanum*, *Lithophyllum byssoides*, *Lithophyllum incrustans*, *Gelidium pusillum*, *Osmundea verlaquei*, *Antithamnionella elegans*, *Asparagopsis armata* (sporophyte), *Jania rubens*, *Ceramium tenerrimum*, *Hildenbrandia crouaniorum*, *Polysiphonia sertularioides*, *Chondracanthus acicularis*, *Lophosiphonia obscura*, *Ceramium echionotum*, *Lithophyllum pustulatum*, *Lophosiphonia cristata*, *Palisada perforata*, *Ceramium virgatum*, *Liagora viscida*, *Gayliella flaccida*.

Phaeophyta (brown algae)-*Cystoseira compressa*, *Sphacelaria cirrosa*, *Dictyota* sp., *Ralfsia verrucosa*, *Padina pavonica*, *Halopteris scoparia*, *Pseudolithoderma adriaticum*, *Cystoseira mediterranea*.

Chlorophyta (green algae)-*Ulva rigida*, *Ulva fasciata*, *Ulva compressa*, *Cladophora laetevirens*, *Bryopsis muscosa*, *Chaetomorpha aerea*, *Anadyomene stellata*.

Cnidaria-*Actinia equina*, *Anemonia viridis*.

Bivalvia-*Mytilus galloprovincialis*, *Mytilaster minimus*.

Gastropoda-*Phorcus turbinatus*, *Patella rustica*, *Patella ulyssiponensis*, *Stramonita hemastoma*.

Cirripedia-*Perforatus perforatus*.

Decapoda-*Pachygrapsus marmoratus*.

Classification

EUNIS (v1405):

Level 4. A sub-habitat of A1.2 Moderate energy littoral rock.

Annex 1:

1160 Large shallow inlets and bays

1170 Reefs

MAES:

Marine - inlets and transitional waters

Marine - Coastal

MSFD:

Littoral rock and biogenic reef

EUSEaMap:

Not mapped

IUCN:

12.1 Rocky shoreline

Barcelona Convention (RAC/SPA):

II. 4. 2. Biocenosis of the lower mediolittoral rock

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

Yes

Regions

Mediterranean

Justification

Moderately exposed rocky shores are common and widespread in the Mediterranean.

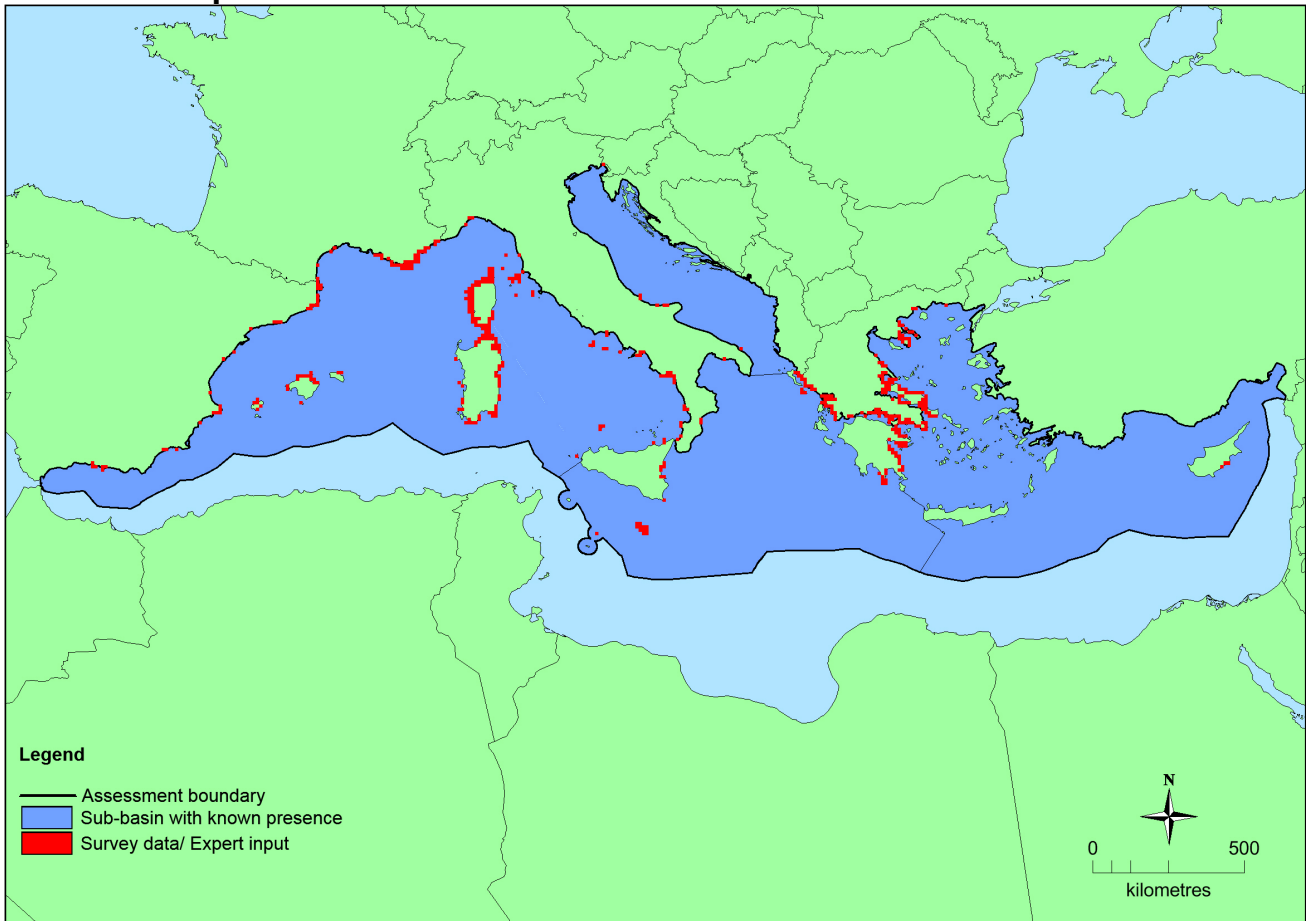
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Mediterranean Sea</i>	Adriatic Sea: Present Aegian-Levantine Sea: Present Ionian Sea and the Central Mediterranean Sea: Present Western Mediterranean Sea: Present	Unknown Km ²	Decreasing	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>	2,000,004 Km ²	367	Unknown Km ²	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>	>2,000,004 Km ²	>367	Unknown Km ²	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



This map has been generated using data from IUCN and the European Environment Agency (EEA), and supplemented with expert opinion. 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 may not indicate the full distribution of the habitat.

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

This habitat does occur in the EU 28+ but the percentage is unknown.

Trends in quantity

This habitat is common along Mediterranean shores and tends to replace other communities (e.g. *Cystoseira dominated* communities) when affected by certain level of urban and industrial pollution or strong herbivore pressure. There is a lack of detailed information on trends in quantity except in a few localities where expert opinion indicates the habitat is stable (Cataluña, Spain). Overall this habitat is considered to be decreasing in response to coastal development and pollution pressures. These pressures and the decline are considered likely to continue.

- Average current trend in quantity (extent)
EU 28: Decreasing
EU 28+: Decreasing
- Does the habitat type have a small natural range following regression?
No
Justification
The habitat does not have a small natural range as the EOO larger than 50,000 km².
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
No

Justification

This habitat is widespread along the Mediterranean coast and does not have an intrinsically restricted area.

Trends in quality

There is insufficient information to determine any trends in quality of this habitat.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

This habitat is vulnerable to coastal development and particularly to schemes which modify the coastline or the hydrographic conditions immediately offshore. Nutrient enrichment from discharges and run-off is another pressure affecting the habitat by changing the composition and abundance of associated species. For example it can lead to an increased in the abundance of ephemeral green algae and decrease in species of the genus *Osmundea*, *Laurencia* and *Palisada*. Chemical contaminants can also result in reduced growth rates of algae and general degradation of the habitat.

List of pressures and threats

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Discharges

Pollution

Pollution to surface waters by industrial plants

Other point source pollution to surface water

Diffuse pollution to surface waters due to household sewage and waste waters

Nutrient enrichment (N, P, organic matter)

Input of contaminants (synthetic substances, non-synthetic substances, radionuclides) - diffuse sources, point sources, acute events

Oil spills in the sea

Toxic chemical discharge from material dumped at sea

Conservation and management

This habitat is widespread and common and therefore likely to be present within some protected areas although it may not be subject to specific conservation measures. Beneficial actions include those which improve water quality and the regulation of coastal development in order to avoid both direct and indirect damage. Further work is needed to identify management measures to support the conservation of 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

Conservation status

Annex 1:

1160: MMED XX

1170: MMED XX

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

Some of the dominant species of this habitat such as *Corallina elongata* turfs show greater capacity to some disturbance and recovery. Overall it is considered capable of recovering if suitable substrate is present and the environmental conditions (including water quality) are beneficial.

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 %

Expert opinion is that this habitat has been decreasing overall but there is insufficient information to determine the percentage. 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 ²	Yes	Yes	No	>50	Yes	Yes	No	No
EU 28+	>50,000 Km ²	Unknown	Unknown	No	>50	Unknown	Unknown	No	No

This habitat has a large natural range in the Eastern and Western Mediterranean. It is considered likely to have a continuing decline in quantity but this cannot be quantified. As EOO >50,000km² and AOO >50, this exceeds the thresholds for a threatened category on the basis of restricted geographic distribution. 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 B for the EU 28 and under criteria B1c, B2c and B3 for the EU 28+ 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 %	slight %	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 %	slight %	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%

Increasing urbanization of the Mediterranean coast and poor water quality are considered likely to have had a moderate impact on the biotic and abiotic quality of this habitat in the recent past. This is likely to continue but lack of studies and data mean that the scale of such changes cannot be quantified. This habitat has therefore been assessed as Data Deficient under criteria C/D1.

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. Therefore, it is assessed as Data Deficient under Criterion E.

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)

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