

## A1.14: Communities of exposed Mediterranean lower mediolittoral rock

### Summary

This habitat develops on the lower horizon of the mediolittoral rock. It occupies a zone of variable extent, generally immediately above mean sea level. The hard surfaces are colonised by encrusting and erect epifauna with the dominant species depending on the wave exposure. It is vulnerable to coastal development and particularly to schemes which modify the coastline or the hydrographic conditions immediately offshore as well as to poor water quality, particularly nutrient enrichment, which alters the composition and abundance of associated species. Conservation measures are generally not specific to this habitat. Those which are likely to be of benefit include establishment of protected areas, regulation of coastal development and measures to improve or maintain good water quality.

### Synthesis

Despite most of the Mediterranean coast being rocky, studies on quantitative data are scarce. Nonetheless, given the past development of harbours, dikes and others coastal structures, and the known distribution of this habitat along the EU coastline, at estimated 25 % has been lost over the last 50 years. This habitat has therefore been assessed as Near Threatened under criterion A1 for the EU 28. For EU 28+, the habitat has a large EOO, and therefore it qualifies as Least Concern under Criterion B. However, the habitat is assessed as Data Deficient at EU 28+ level given the lack of information on its trends in quantity and quality and the fact that its overall distribution is unknown.

Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Near Threatened	A1	Data Deficient	-

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

Exposed, lower mediolittoral rocks with *Lithophyllum byssoides* and with *Lithophyllum cf. vickersiae* because of its sensitivity to pollution.

### Habitat Type

#### Code and name

A1.14: Communities of exposed Mediterranean lower mediolittoral rock



Exposed lower mediolittoral rocks with *Mytilus galloprovincialis* (© S.Mariani).



Exposed, lower mediolittoral rocks with *Lithophyllum byssoides* (© Littoral

## Habitat description

This habitat develops on the lower horizon of the mediolittoral rock. Although never completely submerged for long periods of time, the rock surfaces are kept moist by spray from wave action. It occupies a zone of variable extent, generally immediately above mean sea level. The hard surfaces are colonised by encrusting and erect epifauna with the dominant species depending on the wave exposure and shape different associated biotopes which are dominated by encrusting species. The mussel *Mytilus galloprovincialis* may be frequent, especially where there are high levels of organic matter. Encrusting coralline algae (*Lithophyllum spp.*) are also characteristic of this habitat with different species dominating depending on the rock type and geographical area.

Indicators of quality.

Some of the coralline algae associated with this habitat may be potential indicators of pollution (e.g. *Lithophyllum byssoides*) and the abundance of *Mytilus galloprovincialis* can be linked to decrease in environmental quality. An quality index based on the presence and abundance of macroalgal communities is being used in Spanish Atlantic waters to report on similar habitats (CRF Index).

Characteristic species

Rhodophyta (red algae)-*Lithophyllum byssoides*, *Lithophyllum cf. vickersiae*, *Corallina elongata*, *Hypnea musciformis*, *Callithamnion granulatum*, *Ceramium diaphanum*, *Lithophyllum incrustans*, *Callithamnion granulatum*, *Polysiphonia tripinnata*, *Boergeseniella fruticulosa*, *Polysiphonia sertularioides*, *Lithophyllum*

*papillosum*, *Acrochaetium duboscqii*, *Ceramium virgatum*, *Ceramium ciliatum*, *Gelidium pusillum*, *Osmundea verlaquei*, *Palisada tenerima*, *Laurencia glandulifera*, *Laurencia pyramidalis*, *Rissoella verruculosa*,

Phaeophyta (brown algae)-*Pseudolithoderma adriaticum*, *Ralfsia verrucosa*, *Nemoderma tingitanum*.

Chlorophyta (green algae)-*Chaetomorpha mediterranea v. crispa*, *Bryopsis muscosa*, *Cladophora spp.*, *Ulva compressa*, *Ulva rigida*, *Ulva fasciata*, *Patella ulyssiponensis*, *Patella ferruginea*.

Bivalvia-*Mytilus galloprovincialis*, *Lasaea adansonii*, *Mytilaster minimus*,

Cirripedia-*Perforatus perforatus*, *Chthamalus stellatus*, *Chthamalus montagui*.

## Classification

This habitat may be equivalent to, or broader than, or narrower than the habitats or ecosystems in the following typologies.

EUNIS (v1405)

Level 4. A sub-habitat of A1.1 High 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

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

Exposed rocky shores are common and widespread throughout the Mediterranean.

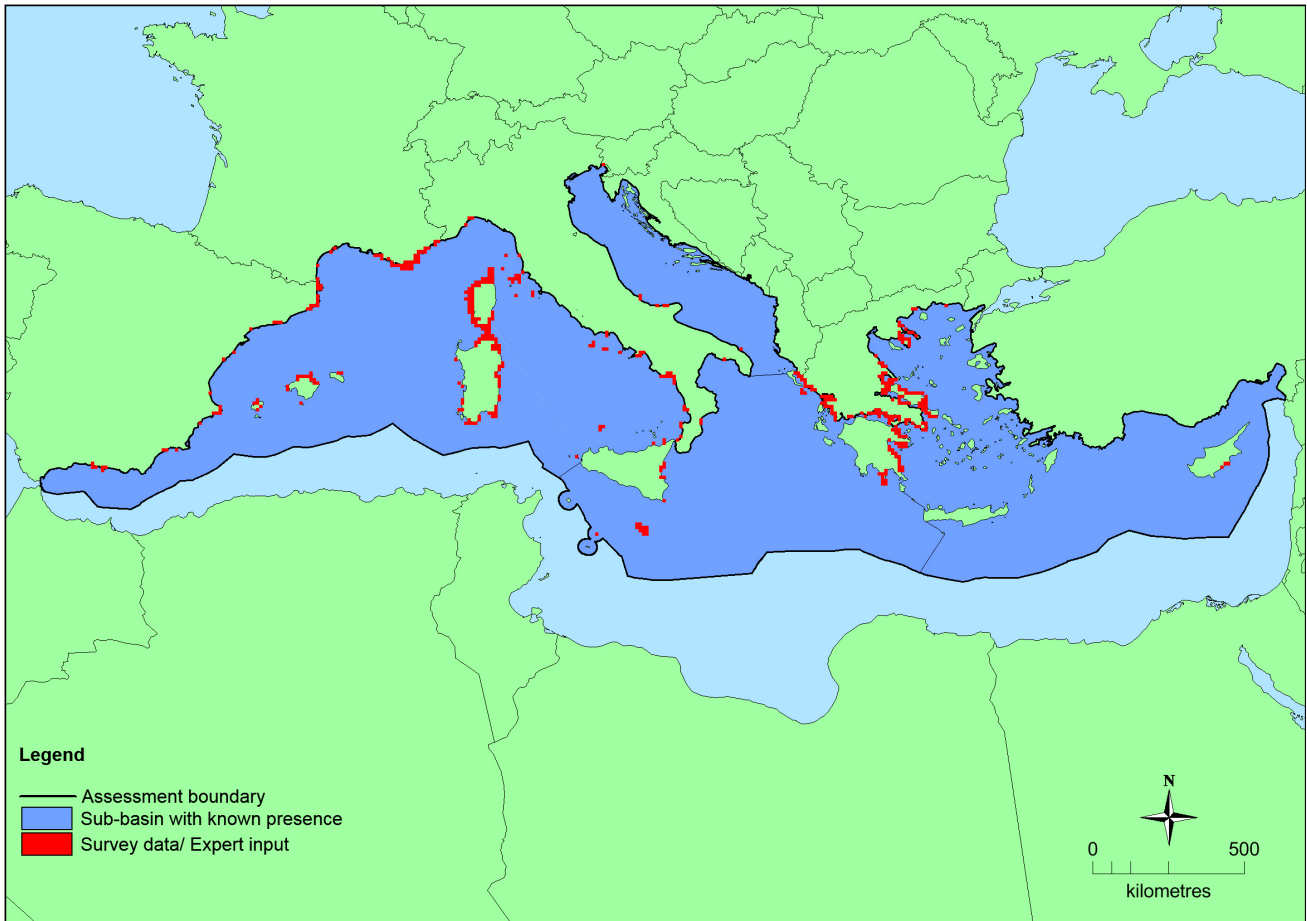
**Geographic occurrence and trends**

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	Km <sup>2</sup>	-	-

**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 <sup>2</sup>	367	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>	2,185,765 Km <sup>2</sup>	474	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**



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 is present in the EU 28+. The percentage is unknown.

### Trends in quantity

An estimated 54% of the Mediterranean coastline is occupied by rocky mediolittoral environments. Although this habitat is common and widely distributed around the Mediterranean there are few monitoring sites and no data on extent and trends in quantity from individual countries. Based on information provided by the European Environment Agency for 2006 on the extent of built up coastline (2,622 km of the EU 28 in the Mediterranean) this habitat is believed to have declined by around 25% representing a change from being present along at least 5,528 km of coast to 4,112 km. The associated biotope formed by the mussel *Mytilus galloprovincialis* might have increased in extent but the overall trend is decreasing.

The decrease is associated with coastal development and other construction works such as breakwaters, harbours, jetties and seawalls and has been particularly apparent in the second half of the 20<sup>th</sup> century, both within and outside the EU 28 countries of the Mediterranean.

- 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 is larger than 50,000 km<sup>2</sup>.

- Does the habitat have a small natural range by reason of its intrinsically restricted area?

No

*Justification*

The habitat does not have a small natural range as the EOO is larger than 50,000 km<sup>2</sup> nor does it have an intrinsically restricted area.

## **Trends in quality**

Biotopes dominated by pollution sensitive communities such as those characterised by *Lithophyllum* cf. *vickersiae* or the coralline alga *Lithophyllum byssoides* are believed to have shown some decline in quality in some locations however this is insufficiently documented. Overall trends in quality are therefore unknown at the present time.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

## **Pressures and threats**

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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 green algae (*Cladophora* and *Ulva* spp.) and of turfs of *Corallina elongata* as well as increasing the density and size of *Mytilus galloprovincialis*.

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

#### **Urbanisation, residential and commercial development**

Urbanised areas, human habitation

Discharges

Other urbanisation, industrial and similar activities

#### **Pollution**

Pollution to surface waters (limnic, terrestrial, marine & brackish)

Nutrient enrichment (N, P, organic matter)

Marine water pollution

#### **Natural System modifications**

Human induced changes in hydraulic conditions

## **Conservation and management**

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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, the regulation of coastal development in order to avoid both direct and indirect damage, and controls on the harvesting of the mussel *Mytilus galloprovincialis*.

## List of conservation and management needs

### Measures related to wetland, freshwater and coastal habitats

Restoring/Improving water quality  
Restoring coastal areas

### Measures related to spatial planning

Establish protected areas/sites

### Measures related to hunting, taking and fishing and species management

Other species management measures

## 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?

Many of the species associated with this habitat are robust and can recolonise rapidly.

### Effort required

10 years
Naturally

## Red List Assessment

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### Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	25 %	unknown %	unknown %	unknown %
EU 28+	unknown %	unknown %	unknown %	unknown %

Coastal development has been the most severe threat to this habitat and is estimated to have resulted in a decline in extent of around 25% over the last 50 years for the EU 28. Trends for the EU 28+ cannot be quantified at the present time. This habitat has therefore been assessed as Near Threatened under criteria A1 for the EU 28 and Data Deficient for the 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>	Yes	No	No	> 50	No	No	No	no

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	unknown	no

This habitat has a large natural range in the Eastern and Western Mediterranean. It has declined in quantity and as the same pressures still exist it is likely to continue to decline. The distribution of the habitat is such that the identified threats are unlikely to affect all localities at once. As EOO >50,000km<sup>2</sup> and AOO >50, this exceeds the thresholds for a threatened category on the basis of restricted geographic distribution. 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+ . It is Data Deficient under 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 %	moderate %	Unknown %	Unknown %	Unknown %	Unknown %
EU 28+	Unknown %	moderate %	Unknown %	Unknown %	Unknown %	Unknown %

Criterion C	C1		C2		C3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	Unknown %	moderate %	Unknown %	moderate %	Unknown %	Unknown %
EU 28+	Unknown %	moderate %	Unknown %	Unknown %	Unknown %	Unknown %

Criterion D	D1		D2		D3	
	Extent affected	Relative severity	Extent affected	Relative severity	Extent affected	Relative severity
EU 28	Unknown %	slight%	Unknown %	slight%	Unknown %	Unknown%
EU 28+	Unknown %	slight%	Unknown %	Unknown%	Unknown %	Unknown%

The assessment of reduction in abiotic and/or biotic quality is not possible due to the lack of studies and data on past state conditions although the increasing urbanization of the Mediterranean coast is believed likely to continue to have a slight to moderate impact of this habitat although the extent affected is unknown. Since there are no studies available on the past and current conditions to calculate the reductions in abiotic and/or biotic quality, the habitat type is assessed as Data Deficient under Criterion C/D, C and D for both the EU 28 and EU 28+.

### 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	NT	DD	DD	DD	LC	LC	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
Near Threatened	A1	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

Otero, M.

### Contributors

Mariani S., Ballesteros E., Elena Cefalì M., Alcazar E.

### Reviewers

Gubbay S.

### Date of assessment

13/11/2015

### Date of review

18/12/2015

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