A4.27. Communities of Mediterranean lower circalittoral rock

Summary

This habitat type is typical of the Mediterranan lower circalittoral rocky floor, and is mainly characterised by erect sponges, some black corals (*Antipatharia* sp), the yellow cup coral *Dendrophylia cornigera* and *D. ramea* and molluscs, among others. It is known that the biological structures of some species such as *L. glaberrima* act as a nursery area for commercial species and large predators (e.g. catsharks *Scyliorhinus canicula* and large groupers).

The most significant damage of this type of fishing is the mechanical damage of the colonies, their smothering by the resuspension of nearby soft sediments. *Corallium rubrum* is still collected illegally using dredging devices. Sea floor drilling activities for oil exploration, land pollution, sedimentation and thermal anomalies have also been indicated as potential threats to the communities of this habitat. Basic knowledge on the habitat and its distribution in the Mediterranean, on species assemblages and biology (distribution, abundance, habitat preferences, life-cycles) and monitoring data on trends is needed to improve spatial planning in general, and strategic planning of human activities when there are competing demands in particular. Designation of Marine Protected Areas (MPAs) and Fisheries Restricted Areas (FRAs) especially the establishment of closed areas over part of the distribution of this habitat to protect juvenile and spawning fish and fragile benthic communities, regulation of artisanal fishing activities, such as benthic long lines, trammel and gillnets.

Synthesis

This is a very poorly studied habitat type that hosts several endangered species. There are only a few reports of its distribution with a description of the composing communities along some EU Mediterranean countries and almost none from non-EU countries. The scarcity of the information across the Mediterranean means it has not been possible to determne if a reduction in the quality of the habitat is widespread and the is no quantifiable data on quality. This habitat has therefore been assessed as Data Deficient for both EU 28 and the EU 28+.

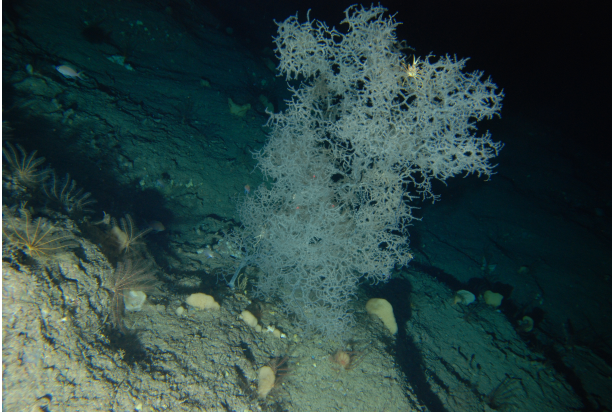| Overall Category & Criteria			
EU 28		EU 28+	
Red List Category	Red List Criteria	Red List Category	Red List Criteria
Data Deficient	-	Data Deficient	-

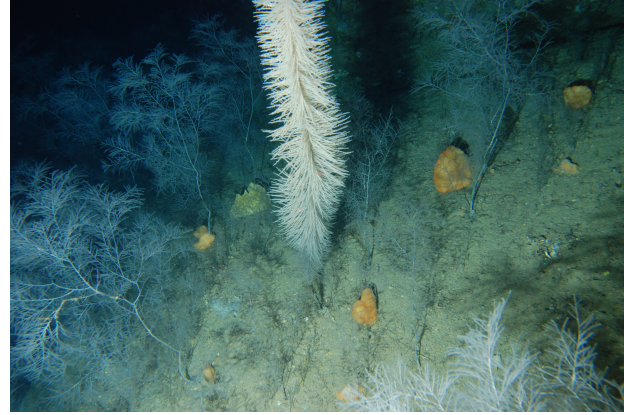## Sub-habitat types that may require further examination

None.

Habitat Type

Code and name

A4.27. Communities of Mediterranean lower circalittoral rock

Leiopathes glaberrima at Santa Lucia Seamount, Eastern Ligurian Sea (© S.Canese/ISPRA).

Parantipathes larix and *Antipathella subpinnata (*Ellis & Solander, 1786) at Montecristo Ridge, Central Tyrrhenian Sea (© S.Canese/ISPRA).

Habitat description

This habitat is composed of hard substrata in areas with low hydrodynamics. It typically occurs on the edge of the continental shelf, on the rocks near the break of the slope and in some areas after the shelfbreak. Because of the depth, macroscopic vegetation is absent. This is the assemblage of the lower circalittoral zone, which characterises the Mediterranean rocky reef, also linking the circalittoral coralligenous and the bathyal habitats.

The characteristic and dominant element of the biotic community of this habitat is represented mainly by erect large sponges such as *Poecillastra compressa, Phakellia ventilabrum, Tylodesma inornata,* and *Haliclona* (Halichoclona) *magna,* yellow cup coral *Dendrophylia cornigera*, the black corals *Antipatharia* sp (*Parantiathes larix, Antipathella subpinnata*), and the brachiopodes *Cistella cuneate, Gryphus vitreus* and *Mergerlia truncata.*

Indicators of quality:

Standard biotic and abiotic indicators have been used to describe marine habitat quality. Both biotic and abiotic indicators have been used to describe marine habitat quality. These include the presence of particular species, water quality parameters, levels of exposure to a particular exposure as well as more integrated indices which describe habitat function and structure, such as trophic index, or successful stages of development in habitats that have a natural cycle of change over time.

There are no known commonly agreed indicators of quality for this habitat, although particular parameters may be set in certain situations, e.g. protected features with Natura 2000 sites, where reference values may have been determined and applied on a location-specific basis.

Characteristic species:

Although other species are also found in relatively abundance in this habitat type, the most characteristic ones in this circalittoral lower habitat are the following:

Sponges: *Tylodesma inornata, Acanthella acuta, Axinella polypoides, A. damicornis, A. verrucosa, Petrosia ficiformis, Petrosia dura, Suberites carnosus* and one of the biggest and probably long-living and fragile species, *Haliclona* (Halichoclona) *magna.*

Cnidarians: *Corallium rubrum*, *Viminella flagellum, Ellisella paraplexauroides, Paramuricea clavata, Paramuricea macrospina, Callogorgia verticillata, Acanthogorgia hirsuta, Villogorgia bebrycoides, Muriceides lepida, Chironephthya mediterranea, Alcyonium acaule* and *Paralcyonium spinulosum.*

Bryozoans: *Porella cervicornis*.

Regarding mobile fauna, several species can be found, including many echinoderms such as *Cidaris cidaris, Ophiacantha setosa, Echinaster sepositus, Echinus melo, Holothuria forskali* and *Antedon*

mediterranea; the Crustacean Decapoda *Munida rugosa* and the lobster *Palinurus elephas* as well as *P. mauritanicus.*

Classification

EUNIS (v1405):

Level 4. A sub-habitat of A4.2 Circalittoral rock and other hard substrata

Annex 1:

1170 Reefs

MAES.

Shelf

MSFD:

Shelf sublittoral rock and biogenic reef

Barcelona Convention:

IV.3.3. Community of the shelf-edge rock (Open-sea rocks – OR)

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

Yes

Regions
Mediterranean

Justification
The habitat contains different endemic species from the Mediterranean that are part of the structural community of this habitat.

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)
Mediterranean Sea	Adriatic Sea: Present Aegian-Levantine Sea: Present Ionian Sea and the Central Mediterranean Sea: Present Western Mediterranean Sea: Present	Unknown Km^2	Unknown	Decreasing

Extent of Occurrence, Area of Occupancy and habitat area

	Extent of Occurrence (EOO)	Area of Occupancy (AOO)	Current estimated Total Area	Comment
EU 28	1,851,450 Km^2	3,642	644,686 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.
EU 28+	2,020,962 Km^2	5,000	650,861 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
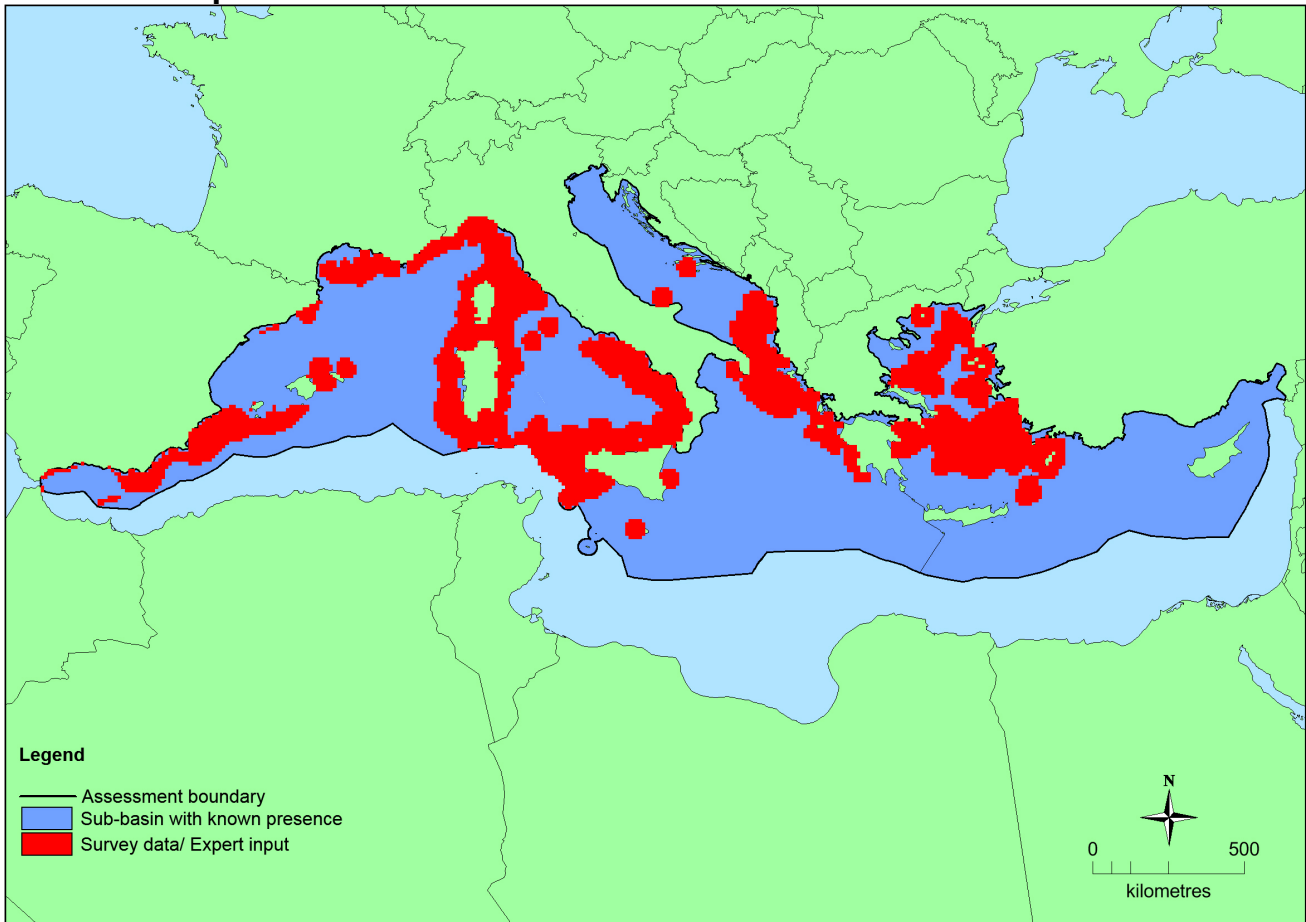
This map has been generated using data from IUCN and EMODNET (2010). EOO and AOO have been calculated on the available data presented in this map however these should be treated with caution as expert opinion is that this may not indicate the full distribution of the habitat.

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

The habitat is widely present in the Mediterranean Sea in both EU 28 and EU 28+ countries. An estimation of its percentage distribution within the EU 28 is unavailable until more accurate estimates of its distribution is provided.

Trends in quantity

The extent of this whole habitat is still poorly known, and the few studies conducted recently have mostly focused on the description of the benthic assemblages. Therefore, the average current trend in quantity of this habitat type is unknown.

- 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
  The habitat has an EOO larger than 50,000 km^2.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  The habitat is widespread along the Mediterranean coast and the EOO exceeds 50,000km^2.

Trends in quality

A reduction of habitat quality can be inferred based on the disappearance of three-dimensional black coral forests, other structural anthozoans and erect massive sponges which result in the loss of its associated biodiversity. For instance, studies conducted in the eastern Mediterranean show the direct link between the coral abundance (e.g. *Leiopathes glaberrima*) and fish richness, with a decline in species of the latter as the population of the former is decreased.

ROV surveys conducted on the known black coral forests of the Mediterranean (in circalittoral and deeper rocky areas) and by-catch data from the literature estimate a decline of one third of the populations of *L. glaberrima* in the last 30 years, as well as a population reduction of *Antipathella subpinnata* and *Antipathes dichotoma* of around 20%. Nonetheless, the declining populations of these species are also present at deeper habitats.

The overall current trend in quality for the EU 28 is assumed to be decreasing on the basis of the information above, while it remains unknown for the EU 28+.

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

Pressures and threats

Few studies have been dedicated to the impact of demersal fishing activities on circalittoral hard-bottom communities, especially in the Mediterranean basin. Long lining, however, is generally practiced in these untrawlable areas and is being reported to impact black corals (*Antipatharia* species) which are part of the communities that shape this habitat. The most significant damage of this type of fishing is the mechanical damage of the colonies, their smothering by the resuspension of nearby soft sediments. Damaged colonies are also more susceptible to the colonisation of epibiont organisms that slowly increase their mortality. Signs of trawling activities on these habitats with silt bottoms (e.g. Bourcard Canyon) have also been seen by ROV (Medseacan campaign).

Corallium rubrum is still collected illegally using dredging devices such as the Saint Andrew cross, breaking and entangling the coral and causing massive habitat destruction. Black corals have also been commercially exploited for jewelery for centuries, and Mediterranean fishing (trawling, gill net, bottom longlines and traditional recreational fishing gears) has been reported in the past from France, Cyprus, Croatia and Malta.

Sea floor drilling activities for oil exploration, land pollution, sedimentation and thermal anomalies have also been indicated as potential threats to the communities of this habitat.

List of pressures and threats

Mining, extraction of materials and energy production

Exploration drilling
Production drilling

Biological resource use other than agriculture & forestry

Demersal longlining
Benthic or demersal trawling
Benthic dredging
Removal for collection purposes
Other (i.e. drift nets)

Conservation and management

Basic knowledge on the habitat and its distribution in the Mediterranean, on species assemblages and biology (distribution, abundance, habitat preferences, life-cycles) and monitoring data on trends is needed to improve spatial planning in general, and strategic planning of human activities when there are competing demands in particular.

Designation of Marine Protected Areas (MPAs) and Fisheries Restricted Areas (FRAs) in sites where this habitat occurs or extension of existing ones, should be established to create a representative network of Mediterranean MPAs. This will also help monitoring and regulating the fishing effort, especially the establishment of closed areas over part of the distribution of this habitat to protect juvenile and spawning fish and fragile benthic communities.

Regulation of artisanal fishing activities, such as benthic long lines, trammel and gillnets, on rocky areas inhabited by threatened species that are the main component of this habitat should be enforced. This should be particularly encouraged where the habitat occurs near the shore (i.e. western Corsica, the Ligurian Sea) because the habitat is even more exposed and the control of fishing should be easier to manage.

Additionally, assessment for the further inclusion of massive Mediterranean sponges which are associated with this habitat, in the Annex II of the Barcelona Convention should be proposed.

List of conservation and management needs

Measures related to marine habitats

Other marine-related measures

Measures related to spatial planning

Establish protected areas/sites
Legal protection of habitats and species

Measures related to special resouce use

Other resource use measures
Regulating/Managing exploitation of natural resources on sea

Conservation status

Annex 1:

1170 Reefs: MMED, XX

There are no direct conservation measures in place for this habitat but some of the associated anthozoan

and sponge species are included under different international instruments.

Black corals (*Antipathes* species) are included in some international conventions: the entire Order Antipatharia (under the denomination *Antipatharia* spp.) is listed in CITES Appendix II, regulating the trading of these species. Because of this, black corals (under the erroneous term *Antipathes* sp. plur., probably referring to all antipatharian species) were then included also in Annex III of Berna Convention (1982) listing all species whose exploitation needed to be regulated, however were not included in Annex II (listing endangered or threatened species).

Today, the Barcelona Convention includes *Antipathella subpinnata*, *Antipathes dichotoma*, *Antipathes fragilis* (under verification as probably is a synonymy of *A. subpinnata)* and *Leiopathes glaberrima* in the Annex II of the Protocol (COM/2013/0743).

Antipatharians are considered threatened or Near Threatened in the IUCN Mediterranean Red List. *Dendrophyllia cornigera* is listed as Endangered and *D. ramea* is listed as Vulnerable by IUCN. Both are also included under the Annex II of CITES and Annex B of EU Regulation Trade wild fauna and flora species.

The sponge *Axinella polypoides* is included in the Annex II of Barcelona Convention.

The Red Coral (*Corallim rubrum)*, is listed as Endangered in the IUCN Mediterranean Red List and it is included under the Annex III of Barcelona Convention, Bern Convention and Annex V of Habitat Directive (92/43/CEE), to regulate its exploitation.

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

In general, capacity for recovery is unknown. It is suspected however, that the recovery from damage caused by fisheries of some of the main fauna such as *D. cornigera* or black corals would probably take several hundreds to thousands of years. This is due to the slow growth rate and low dispersal ability that influence the low recovery ability of some of these species. Recovery capacity for erect sponges is unknown.

Effort required

200+ 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 %

There is no information on any past trends for this habitat type and insufficient data to predict future trends in quantity. 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	Unknown	Unknown	Unknown	>50	Unknown	Unknown	Unknown	Unknown
EU 28+	>50,000 Km^2	Unknown	Unknown	Unknown	>50	Unknown	Unknown	Unknown	Unknown

The habitat is present in the eastern and western Mediterranean Sea. EOO and AOO values exceed the thresholds for a threatened category. However, there is no information available on whether there is a continuing decline in the spatial extent or the biotic and abiotic quality, on whether a threatening process will likely cause continuing declines, and on the number of locations. This habitat has therefore been assessed as Data Deficient under criteria 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%
EU 28+	Unknown %	Unknown%	Unknown %	Unknown%	Unknown %	Unknown%

There is insufficient data from many Mediterranean regions to ascertain the degree of reduction in the abiotic and/or biotic quality of the habitat. Therefore, the habitat type is assessed as Data Deficient under Criterion 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 the habitat type 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	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	DD	DD	DD	DD	DD	DD	DD	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)

Assessors

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Reviewers

García Criado, M.

Date of assessment

29/01/2016

Date of review

16/03/2016

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