A5.14 Communities of Mediterranean upper circalittoral coarse sediments

Summary

This habitat is characterised by tide-swept circalittoral coarse sand, gravel and shingle generally in depths of over 15-20 m. It may be found in tidal channels of marine inlets, along exposed coasts and offshore. This biotope, as with shallower coarse sediments, may be characterised by robust infaunal polychaetes, mobile crustacea and bivalves, and by a few ubiquitous robust and/or fast growing ephemeral species which are able to colonise pebbles and unstable cobbles and slates which are regularly moved by wave and tidal action. Bottom currents are moderate to strong.

Fishing with demersal gears disturbs muddy and sandy bottoms, causing dramatic changes in the structure of both the physical support system and the related biological assemblages. To these effects can be added the increase in the amount of suspended nutrients and organic matter. Eutrophic processes may be enhanced leading to hypoxia in sensitive soft bottom areas and the quantity of hydrogen sulphide released from sediments may increase. The re-suspension of sediment enriched in organic matter can eliminate macrophytes, benthos and demersal fish approaching their hypoxia tolerance limit; the changed ecosystem structure favours species adapted or tolerant to hypoxic conditions. Sand mining is also a pressure on this habitat in some locations.

Beneficial measures include strengthening fisheries restrictions especially bottom trawling in a network of Marine Protected Areas (MPAs); decreasing the sources of eutrophication which would prevent further degradation of the habitat; and monitoring trends.

Synthesis

This habitat has a large EOO and therefore qualifies as Least Concern under criterion B1. However the habitat is assessed as Data Deficient both at the EU 28 and EU 28+ levels because of the lack of information on trends in quantity and quality and the fact that its overall distribution and AOO is unknown.

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

A5.14 Communities of Mediterranean upper circalittoral coarse sediments

No characteristic photographs of this habitat currently available.

Habitat description

This habitat is characterized by tide-swept circalittoral coarse sand, gravel and shingle generally in depths of over 15-20 m. It may be found in tidal channels of marine inlets, along exposed coasts and offshore. As with shallower coarse sediments, it may be characterised by robust infaunal polychaetes, mobile crustacea and bivalves, and by a few ubiquitous robust and/or fast growing ephemeral species which are able to

colonise pebbles and unstable cobbles and slates which are regularly moved by wave and tidal action. Bottom currents are moderate to strong.

Indicators of quality:

There are no commonly agreed indicators of quality for this habitat, thus both standard biotic and abiotic indicators may be used to describe marine habitat quality. In certain geographical areas this habitat may be under impact of fisheries activities, particularly trawling and dredging, thus the presence of characteristic commercially exploited species may indicate a quality of the habitat. Hence, presence and abundance of indicated characteristic species can also be used as an indicator of habitat quality.

Characteristic species:

Characteristic species are red algae species of the family *Corallinaceae;* Bivalves*: Atrina pectinata, Venus casina, Dosinia exoleta, Donax variegatus, Glycymeris glycymeris, Laevicardium crassum;* Echinoderms*: Spatangus purpureus;* Hydrozoans*: Lytocarpia myriophyllum;* Polychaetes*: Sigalion squamosus, Armandia polyophthalma;* Ophiuroids: *Ophiopsila annulosa;* Echinoids*: Spatangus purpureus; and* Crustaceans*: Anapagurus breviaculeatus, Thia scutellata.*

Classification

EUNIS (v1405):

Level 4. A sub-habitat of sublittoral coarse sediment (A5.1)

Annex 1:

1110 Sandbanks slightly covered with seawater all the time

1160 Large shallow inlets and bays

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Shallow sublittoral coarse sediment

Shallow sublittoral mixed sediment

EUSeaMap

Shallow coarse or mixed sediments

IUCN:

9.4 Subtidal sandy

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

Unknown

Justification

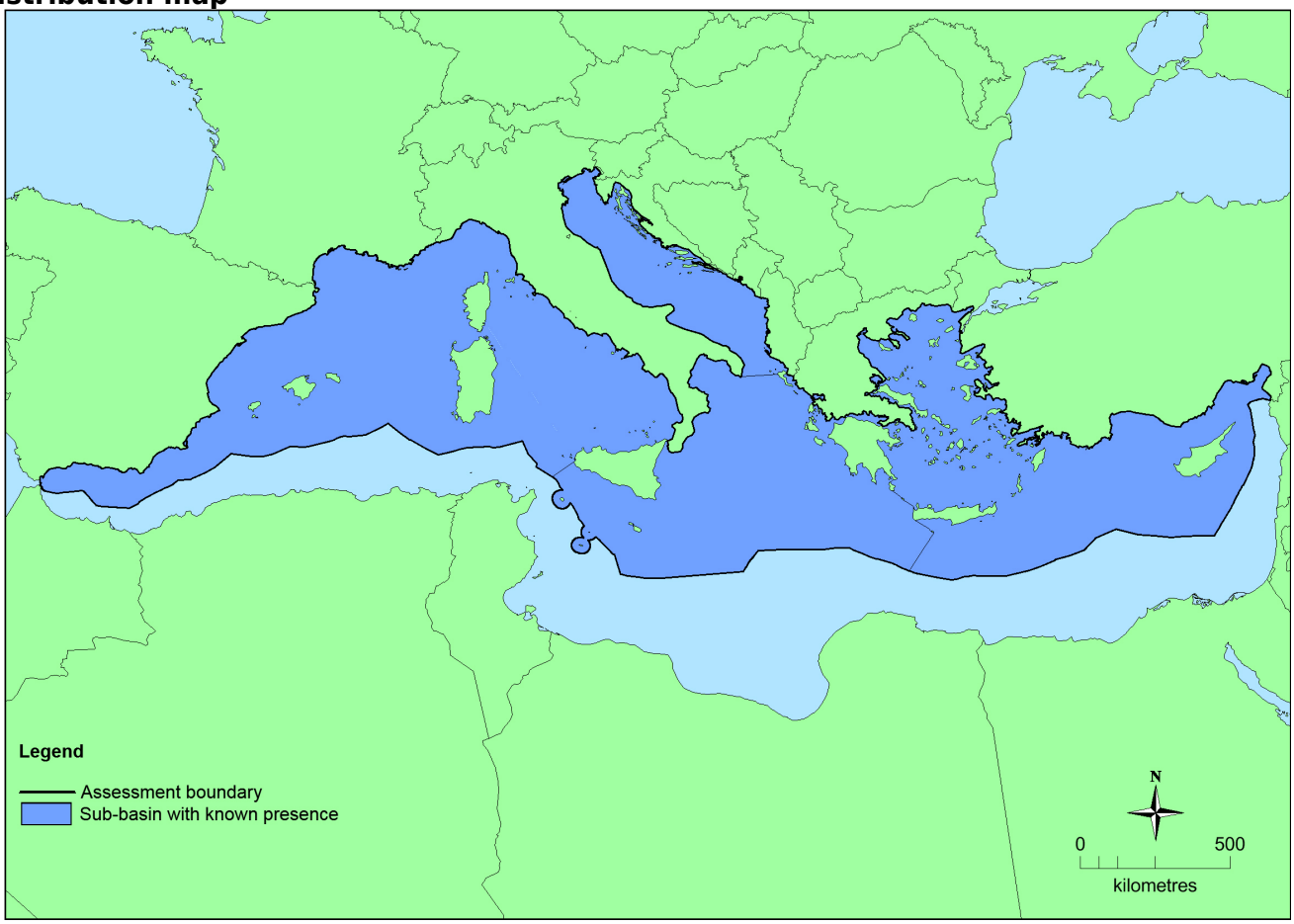
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
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	>50,000 Km^2	Unknown	Unknown Km^2	
EU 28+	>50,000 Km^2	Unknown	Unknown Km^2	

Distribution map



This habitat is known to occur in all sub-basins in the Eastern and Western Mediterranean but there is insufficient data to produce a map of the distribution of this habitat.

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

It is unknown how much of this habitat is hosted by the EU 28 in the Mediterranean.

Trends in quantity

Studies revealed that about 45% of the sediments that would be delivered by rivers to the Mediterranean annually are either retained behind dams or extracted from river beds for sand and gravel, leading to an overall deficit of sediments on the coast. On the other hand, in the north Adriatic Sea nutrient load has been increasing since at least 1900 and it markedly intensified after 1930, with a doubling of nutrient loads in the Po river between 1968 and 1980. In the north Adriatic Sea, more than 190 km of artificial structures, mainly groynes and breakwaters, seawalls and jetties, have been built along 300 km of naturally low sedimentary shores. This hardening has caused severe losses and alterations of shallow sedimentary habitats and has introduced new artificial habitats, with dramatic effects on native habitats and assemblages.

Although it is evident that changes or even a decrease in the quantity of the habitat might have or is occurring, the information at present is insufficient to ascertain if the habtiat is decreasing or it is stable due to alterations in its overall distribution.

- 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 EOO largely exceeds 50,000 km^2. Therefore this habitat does not have a small natural range.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  No
  Justification
  The EOO largely exceeds 50,000 km^2. Therefore this habitat does not have a small natural range.

Trends in quality

Aquaculture and demersal fishing activities are known to have negative effects this habitat type potentially leading to significant decreases in density, richness and diversity in comparison to control areas, and by a shift towards populations of few proliferating species. Although it is stable in some areas, expert opinion is that overall the quality of this habitat is considered to be decreasing across the Mediterranean.

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

Pressures and threats

The major threat in the circalittoral zone is bottom fishing. Fishing with demersal gears disturbs muddy and sandy bottoms, causing dramatic changes in the structure of both the physical support system and the related biological assemblages. It has been noted that trawls and dredges scrape or plough the seabed, resuspend sediment, change grain size and sediment texture, destroy bedforms, and remove or scatter non-target species. To these effects can be added the increase in the amount of suspended nutrients and organic matter. Eutrophic processes may be enhanced leading to hypoxia in sensitive soft bottom areas (as in the northern Adriatic) and the quantity of hydrogen sulphide released from sediments may increase. The re-suspension of sediment enriched in organic matter can eliminate macrophytes, benthos and demersal fish approaching their hypoxia tolerance limit; the changed ecosystem structure favours species adapted or tolerant to hypoxic conditions. Trawling and dredging can also play a role affecting the

intensity and duration of naturally occurring seasonal hypoxic crises in some places. In the north Adriatic Sea the first signs of hypoxia started around 1960 and developed into severe anoxic events over the past decades. Sand mining is also a pressure on this habitat is some locations.

List of pressures and threats

Mining, extraction of materials and energy production

Sand and gravel extraction

Urbanisation, residential and commercial development

Discharges

Biological resource use other than agriculture & forestry

Marine and Freshwater Aquaculture
Fishing and harvesting aquatic resources

Pollution

Marine water pollution

Conservation and management

Beneficial measures include strengthening fisheries restrictions especially bottom trawling in a network of MPAs; decreasing the sources of eutrophication which would prevent further degradation of the habitat; and monitoring trends.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

Restoring/Improving water quality

Measures related to spatial planning

Establish protected areas/sites
Legal protection of habitats and species

Measures related to hunting, taking and fishing and species management

Regulation/Management of fishery in marine and brackish systems

Measures related to urban areas, industry, energy and transport

Urban and industrial waste management

Conservation status

Annex 1:

1110 MMED XX

1160 MMED XX

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

The capacity of this habitat to recover after being severely damaged is unknown.

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 %

Although this habitat is subject to pressures that may reduce its extent, trends are unknown at the present time. This habitat has therefore been assessed as Data Deficient under criteria 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	Unknown	Unknown	Yes	Yes	Unknown	Unknown
EU 28+	>50,000 Km^2	Yes	Yes	Unknown	Unknown	Yes	Yes	Unknown	Unknown

This habitat has a large EOO and it is known that there are declining trends in quality. This habitat has therefore been assessed as Least Concern under criteria B1a,b. AOO and number of locations are unknown for this habtiat therefore it is assessed as Data Deficient for all other criteria 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%

This habitat has been subject to declines in quality in some sites but there is a lack of information to determine overall trends or quantify any decline. This habitat has therefore been 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, this habitat type is assessed as Data Deficient.

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	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	DD	DD	DD	DD	LC	LC	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)

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