

A2.42 Communities of Mediterranean mediolittoral mixed sediment

Summary

Shores of mixed sediments range from muds with gravel and sand components to mixed sediments with pebbles, gravels, sands and mud in more even proportions. By definition, mixed sediments are poorly sorted and there is no easily defined boundary between areas of mixed sediment with stable cobbles and boulders, and boulder fields which fall into the rocky shore category. Stable large cobbles or boulders may be present which support epibiota such as furoids and green seaweeds which are more commonly found on rocky and boulder shores. Mixed sediments which are predominantly muddy tend to support infaunal communities which are similar to those of mud and sandy mud shores.

This habitat is especially prone to impacts from coastal pollution, coastal zone development, contamination of sediments and biota, and episodic perturbations such as associated with aggregate removal or beach cleaning. There are various legal provisions and policies which relate to this habitat such as the ICZM Protocol of the Barcelona Convention but nothing specific. Beneficial measures include improving water quality and regulating both direct and indirect effects of coastal development. The engagement of stakeholders in the planning of the management process, and the analysis of social and economic costs and benefits of different management options will be essential to the successful implementation of conservation actions.

Synthesis

Approximately two-thirds of the Mediterranean coastline is currently urbanized, and in the most industrial regions this increases to 75%. This pressure is predicted to continue and although it has resulted in declines in quantity and quality of this habitat, the decline cannot be quantified.

This habitat is widespread throughout the Mediterranean Sea, with a large EOO and AOO, and therefore it qualifies as Least Concern under Criterion B, however because of lack of information on trends it has been assessed as Data Deficient for both the EU 28 and 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

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No characteristic photographs of this habitat currently available.

Habitat description

Shores of mixed sediments range from muds with gravel and sand components to mixed sediments with pebbles, gravels, sands and mud in more even proportions. By definition, mixed sediments are poorly sorted. It is likely that there are broad transition areas between areas of mudflat or sandy mudflat, and mixed sediment biotopes where the sediment consists mainly of mud but has significant proportions of

gravel and sand mixed in. Gravel mud may occur in patches on mudflats. Similarly, there is no easily defined boundary between areas of mixed sediment with stable cobbles and boulders, and boulder fields which fall into the rocky shore category. Stable large cobbles or boulders may be present which support epibiota such as fucoids and green seaweeds which are more commonly found on rocky and boulder shores.

Mixed sediments which are predominantly muddy tend to support infaunal communities which are similar to those of mud and sandy mud shores. Habitats with sheltered gravel sandy mud, which are subject to reduced salinity, mainly on the mid and lower shore, may have abundant communities of polychaetes.

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.

Characteristic species:

Polychaetes: *Aphelochaeta marioni*, *Capitella capitata*, *Cirriformia tentaculata*, *Sphaerosyllis taylori*, *Pygospio elegans*; bivalves: *Cerastoderma edule*, *Abra nitida*; oligochaetes: *Tubificoides pseudogaster*; crustaceans: *Aora gracilis*, *Melita palmata*, *Microprotopus maculatus*, *Corophium volutator*.

Classification

EUNIS (v1405):

Level 4. A sub-habitat of littoral mixed sediment (A2.4)

Annex 1:

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:

Not mapped,

IUCN:

12.3 Shingle and/ or pebble shoreline and/ or beaches

Barcelona Convention (RAC/SAC)

II.3.1. Biocenosis of mediolittoral coarse detritic bottoms.

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

Unknown

Justification

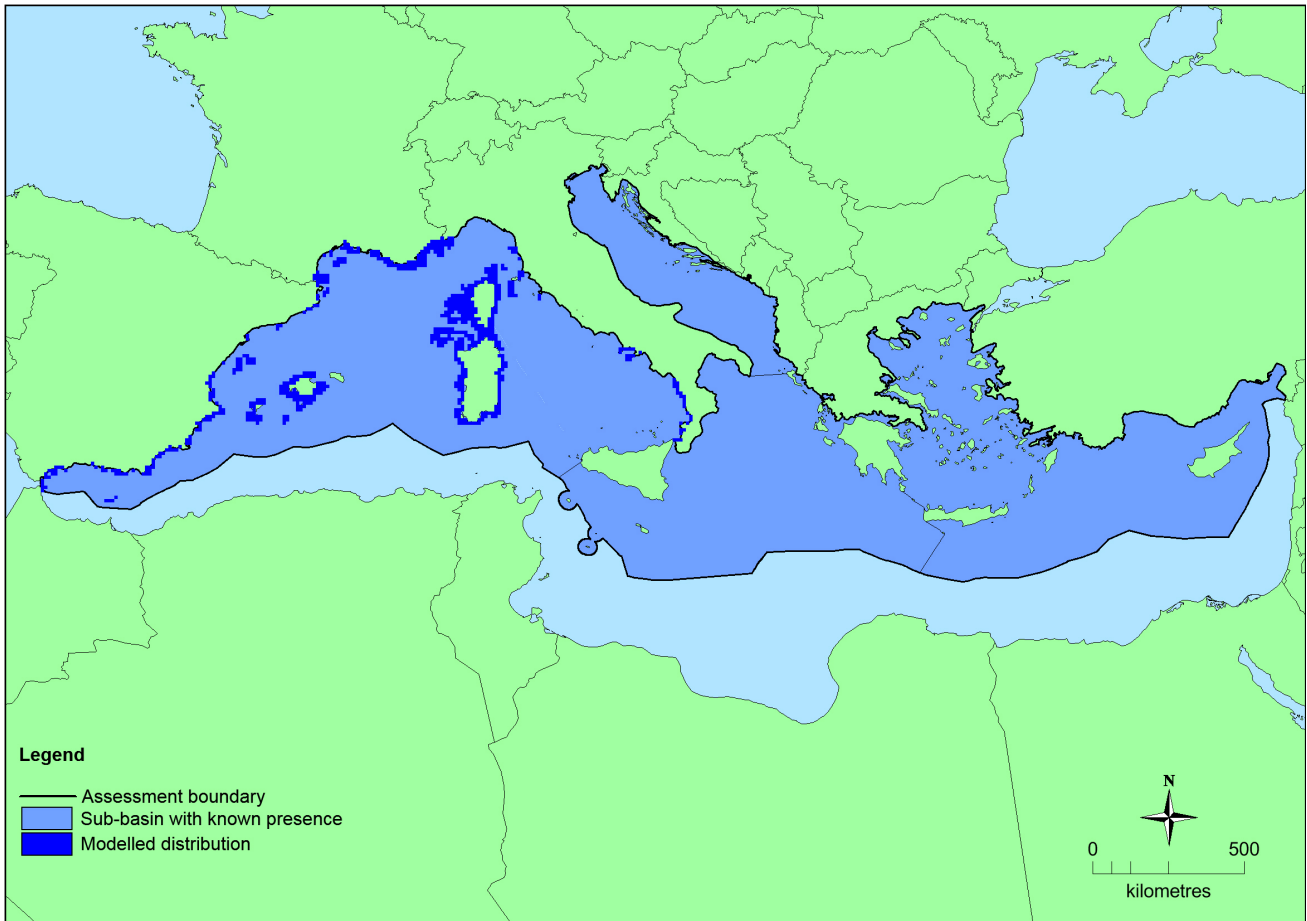
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>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	Decreasing

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>	928,625 Km ²	710	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>	>928,625 Km ²	>710	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



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 western Mediterranean (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?

Unknown although this habitat does occur in the EU 28+.

Trends in quantity

Approximately two-thirds of the Mediterranean coastline is currently urbanized, in the most industrial regions this increases to 75%. This urbanization has especially impacted soft sediment shores hence it is reasonable to presume that this habitat has suffered a decline in quantity over the last 50 years.

The majority of the Mediterranean coast is dominated by concrete: more than 1,500km of coastline is artificial of which 1,250km is developed for harbours and ports. In some regions, the growth of cities, tourism and industry mean that up to 90% of the coastline has been developed. A survey carried out in Italy by the World Wildlife Fund in 1996 revealed that 42.6% of the entire Italian coast was subject to intensive human occupation and only 29% was undeveloped.

The urbanization of the coast is predicted to continue with increases of between 10-20% considered likely for most Mediterranean countries over the next 50 years.

The overall current trend is therefore considered to be decreasing.

- 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

This habitat does not have a small natural range as the EOO of this habitat exceeds 50,000 km².

- 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 the EOO of this habitat exceeds 50,000 km².

Trends in quality

Human activities have had significant negative impacts on all littoral habitats in the Mediterranean with threats acting in isolation as well as combine at multiple scales, leading to changes in the abundance and diversity of species associated with habitats such as this. Thus, the quality of this habitat is believed to have declined although the extent to which this has occurred is difficult to quantify.

- Average current trend in quality

EU 28: Decreasing

EU 28+: Decreasing

Pressures and threats

Littoral habitats in the Mediterranean are subject to a variety of pressures and threats. The main ones are coastal pollution and nutrient enrichment (from urban, agricultural, industrial activities), coastal zone development, and contamination of sediments and biota caused by anti-foulants and atmospheric inputs of hazardous compounds and dredging and dumping of wastes. Coastal development can also alter the flow regime. Mixed sediment habitats can be expected to be subject to these same pressures

List of pressures and threats

Agriculture

Use of biocides, hormones and chemicals

Fertilisation

Urbanisation, residential and commercial development

Urbanised areas, human habitation

Industrial or commercial areas

Discharges

Pollution

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

Nutrient enrichment (N, P, organic matter)

Marine water pollution

Soil pollution and solid waste (excluding discharges)

Conservation and management

There are various legal provisions and policies which relate to this habitat such as the ICZM Protocol of the Barcelona Convention. Beneficial measures include improving water quality and both direct and indirect effects of coastal development. Direct engagement of stakeholder in the planning of the management process, analysis of social and economic costs and benefits of different management options will be essential to the successful implementation of conservation actions.

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

Manage landscape features

Measures related to urban areas, industry, energy and transport

Urban and industrial waste management

Specific management of traffic and energy transport systems

Managing marine traffic

Measures related to special resource use

Regulating/Management exploitation of natural resources on land

Regulating/Managing exploitation of natural resources on sea

Conservation status

Annex 1:

1160: MMED XX

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

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 %

The habitat has probably suffered large declines in surface area over the last 50 years but the scale of the decline cannot be quantified. 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	No	>50	Yes	Yes	No	No
EU 28+	>50,000 Km ²	Yes	Yes	No	>50	Yes	Yes	No	No

This habitat has a large natural range in the Mediterranean. The precise extent is unknown however as EOO >50,000km² and AOO >50 this exceeds the thresholds for a threatened category on the basis of restricted geographic distribution. Expert opinion is that there are continuing declines in both quantity and quality of this habitat. The patchy, localised 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 criterion 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 %	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 a lack of information to determine any trends in quality of this habitat although indications of decline have been reported from some areas. This habitat has therefore been assessed as Data Deficient under criteria C/D.

Criterion E: Quantitative analysis to evaluate risk of habitat collapse

Criterion E	Probability of collapse
EU 28	Unknown
EU 28+	Unknown

No quantitative analysis has been carried out to assess the risk of ecosystem collapse for this habitat. It is therefore 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)

Assessors

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