

A5.23 Faunal communities in Mediterranean infralittoral fine sand

Summary

Infralittoral fine sands in the Mediterranean play a substantial role in maintaining the balance of sandy beaches. Its epifauna and infauna may be rich and diverse, and the habitat supports some commercial species, such as shellfish. Organic enrichment from natural and anthropogenic sources is a common pressure to this environment that can lead to a change in the species assemblage. Physical damage (sediment extraction, siltation) resulting from fishing practices, dredging to remove aggregates and introduction or spread of non-indigenous species can also affect the habitat.

There are few studies on the characterization of infralittoral communities in these soft bottom Mediterranean environments and information regarding the trends and condition of this habitat are scarce. There are no current specific conservation actions in place for this habitat. The broad distribution of this habitat makes it likely to occur in protected areas. The designation of reference sites for long monitoring trends and the continuation of those already existing will assist to examine the trends in this habitat. Moreover, improving spatial and strategic planning of human activities, in particular to promote the wiser use of habitats where there are competing demands (e.g. fishing, sand and gravel extraction) is necessary in order to ensure the good conservation status of this habitat in the Mediterranean Sea.

Synthesis

This is a widespread habitat in the Mediterranean Sea, however there is very little information on its distribution, impacts and reductions in quantity and quality. The habitat has a large Extent of Occurrence (EOO) and Area of Occupancy (AOO), and therefore qualifies as Least Concern under Criterion B. However, the habitat is assessed as Data Deficient for both the EU 28 and the EU 28+ because of a 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.

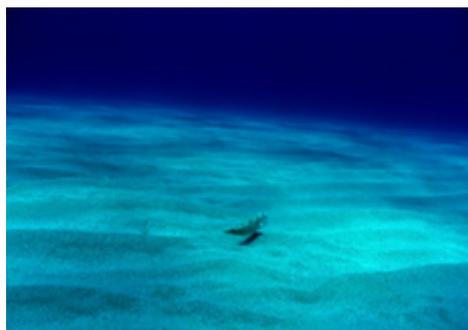
Habitat Type

Code and name

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Infralittoral fine sediments (Cabrera Island, Spain) (© E. Ballesteros).



Infralittoral fine sediments (Spain) (© S. Pinedo).

Habitat description

This habitat is formed on clean sands of shallow waters (between 4 and 25 m depth) on open coasts, subjected to moderate wave action, which allows for the accumulation of organic matter and fine sediments (<63 µm). These bottoms are dominated by deposit feeders, but filter feeders and carnivores are also present. Invertebrate assemblages found in this habitat correspond to those described as 'Littoral Fine Sand assemblages' (dominated by *Spisula subtruncata*), but are very close to muddy assemblages (Littoral Sandy Mud and Terrigenous Coastal Mud). Although this habitat typically lacks a significant seaweed or seagrass component, the presence of *Cymodocea nodosa* or *Posidonia oceanica* is frequent.

Several sub-habitats have been described. These are a sub-habitat of *Spisula subtruncata*, characterized by the bivalves *Spisula subtruncata* and *Lucinella divaricata*; a sub-habitat of *Nephtys hombergii* which is a transitional assemblage to circalittoral habitats; and a sub-habitat with *Lentidium mediterraneum* which is commonly associated to sandy flat areas shallower than 4 m depth, in estuaries and embayments.

Indicators of quality:

Most of the species included in the description of the habitat are bioindicators of environmental quality. The majority of bivalves are very sensitive to eutrophication and population changes in abundance and composition might indicate a change on habitat quality.

Characteristic species:

Molluscs: *Spisula subtruncata*, *Lucinella divaricata*, *Donax trunculus*, *Tellina fabula*, *Thracia papyracea*, *Dosinia lupinus*, *Loripes lucinalis*, *Lentidium mediterraneum*, *Corbula gibba*, *Cerastoderma glaucum*, *Tellina tenuis*.

Crustacea: *Apseudopsis latreillii*, *Siphonoecetes dellavallei*, *Lembos* sp., *Bathypoeia guillamsoniana*, *Ampelisca brevicornis*, *Periculoides longimanus*, *Urothoe intermedia*, *Pseudocuma longicorne*, *Ampelisca diadema*, *Diogenes pugilator*, *Portumnus latipes*.

Fish: *Gymnammodytes cicerelus*, *Arnoglossus laterna*, *Xyrichtys novacula*.

Annelida: *Owenia fusiformis*, *Paradoneis armata*, *Spio decoratus*, *Prionospio caspersi*, *Mediomastus fragilis*, *Magelona mirabilis*, *Peresiella clymenoides*, *Ditrupa arietina*, *Notomastus aberans*, *Chone duneri*, *Nephtys hombergii*, *Aponuphis bilineata*, *Scolelepis squamata*, *Scoletoma impatiens*, *Lumbrineris latreilli*, *Spiochaetopterus costarum*.

Sipunculida: *Aspidosiphon* sp.

Echinodermata: *Spatangus purpureus*, *Echinocardium mediterraneum*.

Nematoda: different species.

Classification

EUNIS (v1405):

Level 4: A sub-habitat of A5.23 Infralittoral fine sand

Annex 1:

1110 Sandbanks slightly covered by sea water all time

1160 Large shallow inlets and bays

MAES

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Shallow Sublittoral Sand

EUSeaMap:

Shallow sands

IUCN:

9.4. Subtidal sandy

9.5. Subtidal Sandy-mud

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

Unknown

Justification

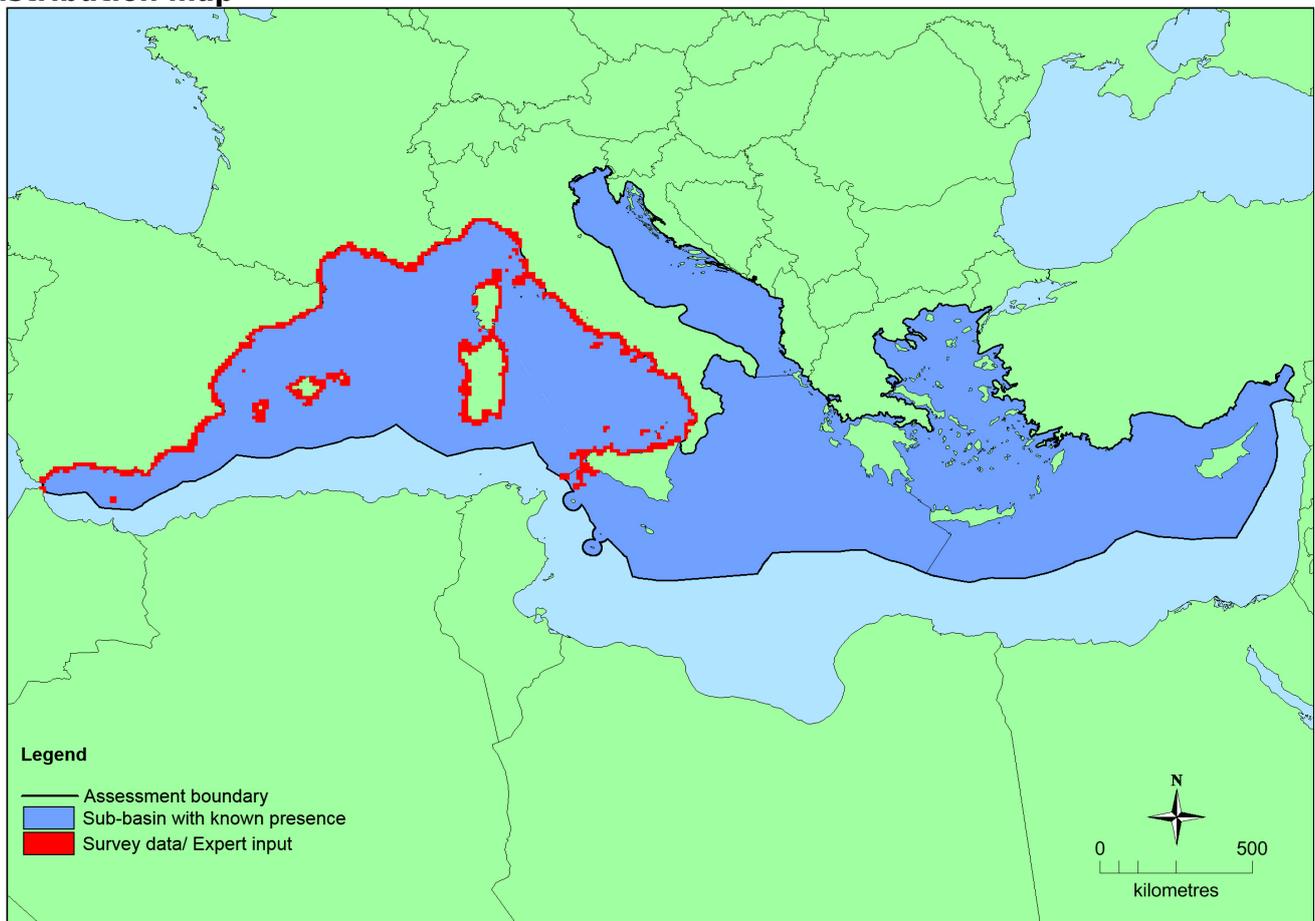
Geographic occurrence and trends

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	Unknown	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>	>50,000 Km ²	892	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>	>50,000 Km ²	>50	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 based IUCN based on EMODNet Database. 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?

Limited information on this habitat type is available, and much of its current distribution in the eastern Mediterranean is unknown or unavailable, although it is known to be widespread throughout the Mediterranean Sea. An estimation of its percentage distribution within the EU 28 is unavailable until more accurate estimates of its distribution are provided.

Trends in quantity

This habitat is common along the Mediterranean shores. Although no detailed information exists for the south and eastern Mediterranean, it is known to be widely distributed. Research and long-term monitoring data are available only for a few localities (e.g. Gulf of Lion). There are no reports about the trends on this habitat from individual countries and specific information regarding the trends of the different sub-habitats is missing. Therefore, the average current trend in quantity at the EU 28 and the EU 28+ levels 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 km².

- 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 EOO is larger than 50,000 km².

Trends in quality

Long-term data series from monitoring of this habitat are scarce. In Banyuls-sur-Mer (northwestern Mediterranean Sea), temporal changes in macrofaunal composition between 1967–1968, 1994 and 2003 have been observed (i.e. increase of the polychaete *Ditrupa arietina* within the *Spisula subtruncata* and *Nephtys hombergii* communities, and the decrease of the polychaetes *Scoloplos armiger* and *Notomastus latericeus* in the *S. armiger* community). Similarly, in the Gulf of Lion, influenced by the Rhône River, major changes in the composition of the benthic macrofauna forming this habitat have also been observed (e.g. dramatic increase of the serpulid polychaete *Ditrupa arietina*). In Greece, no trends can be determined due to the patchiness of data and lack of continuous long-term data. In addition, sites that are monitored here are usually located at areas influenced by anthropogenic impacts. Therefore, the average current trend in quality remains unknown.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

The habitat is directly affected by various anthropogenic impacts resulting from urban, industrial, agricultural, aquaculture and other coastal activities. Fishing and aggregate dredging activities can also alter the composition of the biological communities and its productivity.

Fishing may affect the physical integrity of the sediment system whilst dredging activities, spoil disposal and aggregate extraction would affect the sediment and hydrographic regime through a variety of effects. Other disturbances to the species (e.g. litter, extraction of species, species introduction) should also be considered.

List of pressures and threats

Biological resource use other than agriculture & forestry

Intensive fish farming, intensification

Suspension culture

Bottom culture

Benthic dredging

Pollution

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

Pollution to surface waters by industrial plants

Nutrient enrichment (N, P, organic matter)

Conservation and management

There are no current specific conservation actions in place for this habitat. The broad distribution of this habitat makes it likely to occur in protected areas, however detailed information is missing. A wide survey to assess the distribution of this habitat is needed in order to better evaluate its conservation and management. The designation of reference sites for long monitoring trends and the continuation of those already existing will assist to examine the trends in this habitat.

Moreover, improving spatial and strategic planning of human activities, in particular to promote the wiser use of habitats where there are competing demands (e.g. fishing, sand and gravel extraction) is necessary in order to ensure the good conservation status of this habitat in the Mediterranean Sea.

List of conservation and management needs

Measures related to marine habitats

Other marine-related measures

Measures related to spatial planning

Other spatial measures

Measures related to hunting, taking and fishing and species management

Regulation/Management of fishery in marine and brackish systems

Conservation status

Annex 1:

1110: MMED XX

1160: MMED XX

This habitat is listed as an endangered natural habitat type in the Resolution no. 4 (Council of Bern Convention, 1996): Sublittoral soft seabeds (code 11.22).

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

In high-energy environments where this habitat occurs, the impact of human activities may be considered transitory and negligible and therefore recovery might be relatively fast.

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 %

There is a lack of information on trends in quantity of this habitat in most countries where it occurs. It 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	No	>50	Unknown	Unknown	No	No
EU 28+	>50,000 Km ²	Unknown	Unknown	No	>50	Unknown	Unknown	No	No

The habitat has a patchy distribution in the Mediterranean Sea, but it is estimated that both the EOO and the AOO exceed the thresholds for a threatened Category. There is no information available on whether there is a continuing decline in the spatial extent or the biotic and abiotic quality and on whether a threatening process will likely cause continuing declines. This habitat has therefore been assessed as Least Concern under Criterion B1 and B2 and 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%

The current trend regarding the biotic and abiotic quality of the habitat is unknown as little research and monitoring has been conducted on it. Nonetheless if pressures stop, the habitat might recover naturally. In France, a decrease on the biotic quality of the habitat has been reported but for most of the EU 28 and EU 28+ the information is unknown. Based on this, the habitat type is 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

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+

Overall Category & Criteria			
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

M. García Criado.

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Date of review

17/03/2016

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