# A5.23 Marine Atlantic infralittoral fine sand

## Summary

This habitat consists of clean sands, where water movement is moderately strong, allowing the sedimentation of sand, but not the finer silt fraction. The habitat typically lacks a significant seaweed component and is characterised by a range of taxa including polychaetes, bivalve molluscs and amphipods. The epifauna are necessarily tolerant to scour by sand.

Disturbance of the substratum by demersal fishing gears and dredging activities may damage or modify infaunal communities, and loss of substrate is likely to be detrimental where the majority of the characterising species are interstitial polychaetes. Polluted sediments may cause a change in the species composition. Beneficial management measures for this habitat include the regulation of fishing methods which damage or disturb seabed communities. More general protection measures include pollution control and regulation, construction development control and contingency plans to be followed in the event of a major pollution incident. Lastly, measures to reduce the impact of climate change, such as changing wave climate, should also be considered.

## Synthesis

Survey information confirms that this habitat has a widespread distribution in the North East Atlantic. There are documented changes in the quality of this habitat and ongoing pressures associated with demersal fisheries and aggregate extraction, but insufficient information to determine the overall trend for the regional sea.

This habitat has a large EOO and AOO, and therefore qualifies as Least Concern under criterion B. However the habitat is assessed as Data Deficient both at the EU 28 and EU 28+ levels because of the lack of information on any overall 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

A5.23 Marine Atlantic infralittoral fine sand

No characteristic photographs of this habitat currently available.

### Habitat description

This habitat is found in clean sands which occur in the shallow sublittoral to at least 30m depth either on the open coast or in tide-swept channels of marine inlets. The substratum may be formed into dunes on exposed or tide-swept coasts, and may be interspersed with cobbles and pebbles in some situations. The habitat includes areas of well-sorted medium and find sands subject to physical disturbance as a result of wave action and occasionally strong tidal streams. It can extend over large areas, for example being found in a wide stretch adjacent to the coast of the Netherlands to depths of 15-20m. The epifauna are

necessarily tolerant to scour by sand. The habitat is characterised by a range of taxa including polychaetes, bivalve molluscs and amphipods.

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:

The habitat typically lacks a significant seaweed component and is characterised by robust fauna, particularly amphipods (*Bathyporeia*) and robust polychaetes including *Nephtys cirrosa* and *Lanice conchilega*. Where there are cobbles and pebbles there may be conspicuous colonies of hydroids particularly *Hydrallmania falcta* and to a lesser extent *Sertularia cupressina* and *S.argentea*. The magelonid polychaete *Magelona mirabilis* may be frequent in more sheltered, less tides-wept areas, whilst in coarser sediments the opportunistic polychaete *Chaetozone setosa* may be commonly found. In locations with large populations of semi-permanent tube-building amphipods and polychaetes such as in moderately exposed or sheltered inlets and voes in shallow water, the fauna is typically dominated by *Corophium crassicorne* and other amphipods such as *Ampelisca* spp. can be common. Mobile species which may be present include *Pagurus bernhardus, Cancer pagurus*, sand eels *Ammodytes* sp.

## Classification

EUNIS (v1405):

Level 4. A sub-habitat of 'Atlantic shallow/infralittoral sand' (A5.2).


Annex 1:

1110 Sandbanks slightly covered by seawater all the 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

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

<u>Regions</u>
Atlantic

<u>Justification</u>
There are extensive areas of infralittoral sand habitat in the North East Atlantic region and it can also cover extensive areas where it occurs.
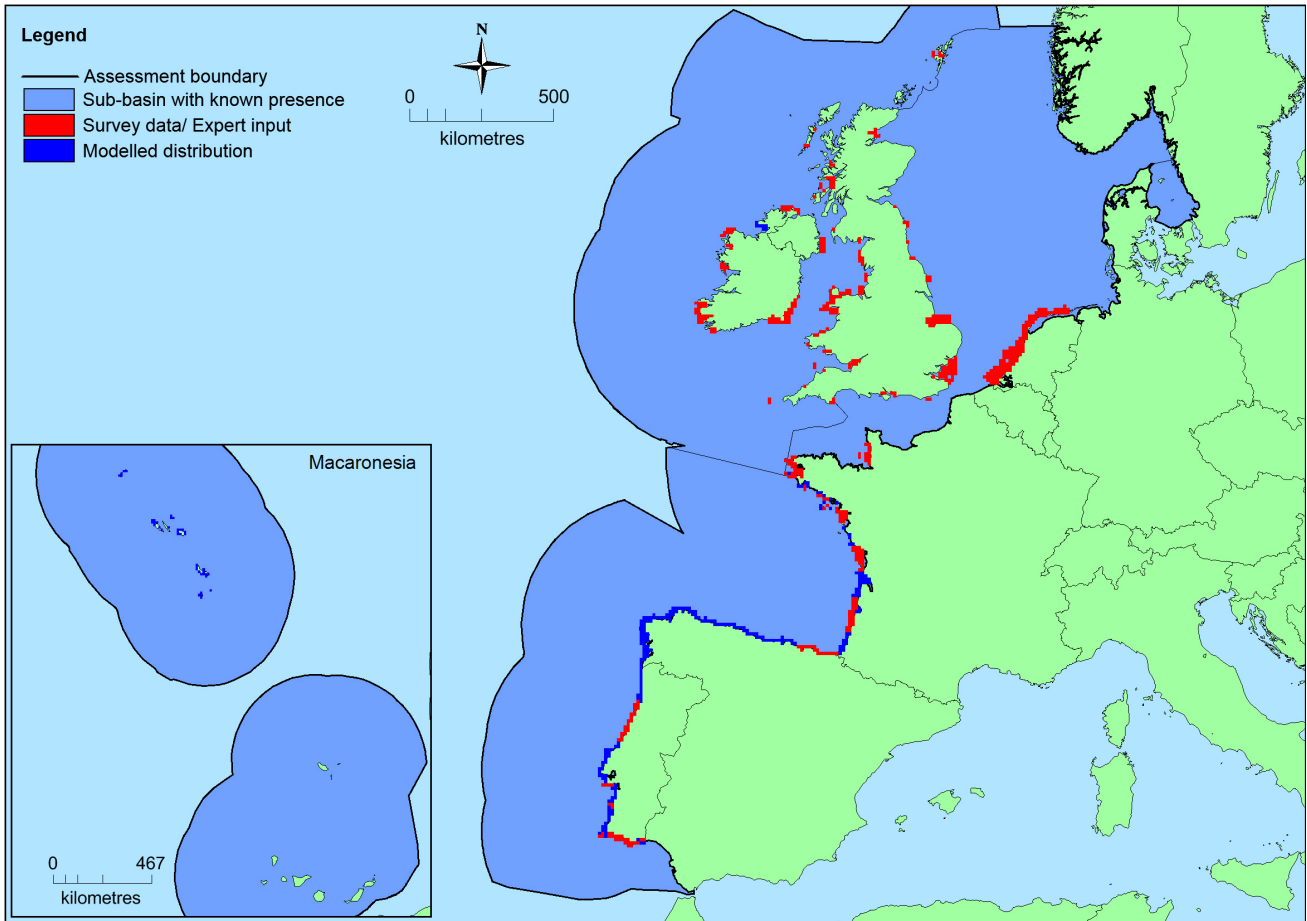
## Geographic occurrence and trends

| Region | Present or Presence Uncertain | Current area of habitat | Recent trend in quantity (last 50 yrs) | Recent trend in quality (last 50 yrs) |
|---|---|---|---|---|
| *North-East Atlantic* | Bay of Biscay and the Iberian Coast: Present<br>Celtic Seas: Present<br>Greater North Sea: Present<br>Macaronesia: Present<br>Kattegat: 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 |
|---|---|---|---|---|
| *EU 28* | 4,163,089 Km$^2$ | 972 | >5,176 Km$^2$ | The area estimate for this habitat has been derived from a synthesis of EUNIS seabed habitat geospatial information for the European Seas but is recognised as being an underestimate. |
| *EU 28+* | >4,163,089 Km$^2$ | >972 | >5,176 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

**Legend**
— Assessment boundary
■ Sub-basin with known presence
■ Survey data/ Expert input
■ Modelled distribution

N

0        500
kilometres

Macaronesia

0        467
kilometres

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 North East Atlantic (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?

This habitat occurs in the EU 28+ (e.g. Norway, Isle of Man, Channel Islands). The percentage hosted by the EU 28 is likely to be between 85-90% but there is insufficient information to establish the exact figure.

## Trends in quantity

It is difficult to establish the quantity of this habitat as it often has a patchy distribution, grading into other soft sediment habitats, or interspersed amongst rocky areas. There are numerous small scale documented changes associated with coastal developments and coast protection schemes. For example loss of shallow sand habitat off the Netherlands coast associated with the Maasvlakte 2 project, and addition of sand off the coast of Zuid-Holland as part of coast protection works.

Even where the extent of this habitat or its associated biotopes has been mapped in detail (e.g. as part of resource assessments for sand and gravel extraction or within marine protected areas) there is a lack of information on trends.

- 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*
This habitat does not have a small natural range as EOO>50,000km$^2$.

- 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 EOO>50,000km$^2$ or an intrinsically restricted area as it develop under a variety of conditions.

## Trends in quality

Most sedimentary benthic systems on the continental shelf of Europe are believed to have been modified by fishing activities, particularly bottom trawls and dredging, in the last 100 years, however there is insufficient information to determine historical trends specifically for this habitat type. This habitat is present in the North Sea which is one of the best studied marine systems in the World, yet for the benthos there are no available data to truly assess the pre-fishing state. There are some time-series on marine benthos but they are very localised in their spatial coverage. There is also a small amount of quantitative historic data dating back to the 1920s from the central North Sea. However, mechanised fishing has been developed in this area for at least the past 80 years and it is possible that communities were already disturbed in the 1920s. Fishing continues to be a threat to this habitat however it is difficult to determine overall current trends for the North East Atlantic.

Changes in species composition associated with this habitat can be an indication of changes in quality but any trends need to distinguish such changes from natural events such as changes due to seasonal variations in faunal abundance which typically occur due to variations in recruitment events, as well as seasonal changes in the levels of plankton production in surface waters which affects the food supply of the benthos in this habitat.

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

## Pressures and threats

Commercial shell and fin-fisheries can potentially have a large effect on the integrity of infralittoral sand. The affects of fishing will depend on the type of gear used with demersal fisheries having the most direct effect. Megafaunal species are in general more vulnerable to fishing affects than macrofaunal species because they are slow growing and thus slowly recover from disturbance. Removal of non-commercial-sized fish can affect the nursery function of the habitat. Dredging of sand will disturb the benthic community and possibly reduce the number and diversity of benthic species and affect larval recruitment.

Infralittoral sediments will be less at risk from oil spills than intertidal sediments unless dispersants are used in clean-up operations or if wave action allows sediment mobility and thus oil to be incorporated into the sediments.

### List of pressures and threats

**Biological resource use other than agriculture & forestry**

Fishing and harvesting aquatic resources
Professional active fishing
Benthic or demersal trawling
Benthic dredging

### Pollution

Marine water pollution
    Oil spills in the sea
    Toxic chemical discharge from material dumped at sea
    Synthetic compound contamination

### Natural System modifications

Human induced changes in hydraulic conditions
    Removal of sediments (mud...)
    Dredging/ Removal of limnic sediments
    Modification of hydrographic functioning, general

### Climate change

Changes in abiotic conditions
    Water flow changes (limnic, tidal and oceanic)
    Wave exposure changes

## Conservation and management

Beneficial management measures for this habitat include the regulation of fishing methods which damage or disturb seabed communities. More general protection measures include pollution control and regulation, construction development control and contingency plans to be followed in the event of a major pollution incident. Lastly, measures to reduce the impact of climate change, such as changing wave climate, should also be considered.

### List of conservation and management needs

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

Restoring/Improving water quality

#### Measures related to marine habitats

Other marine-related measures

#### Measures related to spatial planning

Establish protected areas/sites

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

Regulation/Management of fishery in marine and brackish systems

### Conservation status

Annex 1:

1110: MATL U2, MMAC U1

1160: MATL U2, MMAC FV

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

The life history characteristics of the species, particularly the polychaetes, suggest that the associated communities would probably recovery fairly rapidly. For instance, settlement of *Lanice conchilega* which has been reported to be more successful in areas with existent adults than areas without, have been observed to re-establish mature populations in three years. Reproductive data concerning *Magelona*

*mirabilis*  is scarce but it displays characteristics typical of an r-selected species, i.e. high reproductive rate, short life span and high dispersal potential.

**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 are insufficient data for an assessment of criterion A. This habitat is therefore considered to be 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 |

This habitat has a large natural range in the North East Atlantic region. The precise extent is unknown however as EOO >50,000km$^2$ and AOO >50, this exceeds the thresholds for a threatened category on the basis of restricted geographic distribution. Trends are unknown. The 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 criteria B1(c) B2 (c) and B3 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% |

Experts consider there to be insufficient data on which to assess 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.

### 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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### Reviewers
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### Date of assessment
25/08/2015

### Date of review
15/04/2016

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