

A5.12 Faunal communities in estuarine Atlantic sublittoral coarse sediment

Summary

This habitat consists of clean gravels and occurs in the upper reaches of marine inlets, especially estuaries, where water movement is sufficiently strong to remove the silt content of the sediment. It typically lacks a significant seaweed component and is characterised by a sparse, but very robust brackish- water tolerant fauna. It is vulnerable to hydrocarbon contamination and elevated levels of heavy metals mainly originating from wastewater discharges.

Conservation and management schemes to protect estuarine habitats have been applied at a number of scales ranging from whole estuary systems to small areas within an estuary. Beneficial management measures for this habitat would mainly include water quality improvement programmes to reduce the levels of toxic contaminants or excessive nutrient loading.

Synthesis

The data obtained from EMODnet suggests that this habitat could have an EOO < 50,000 km² and an AOO < 20. However the distribution and extent is known to be substantially incomplete as known occurrences include widely separated locations such as the Gironde estuary, France, the Severn Estuary, UK and Odense fjord, Denmark. There is a lack of information on the extent of this habitat and any trends in quantity or quality over the last 50 years. No future trends have been estimated. For the purposes of Red List assessment it is therefore considered to be 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 are currently available.

Habitat description

This habitat comprises clean gravels that occur in the upper reaches of marine inlets, especially estuaries, where water movement is sufficiently strong to remove the silt content of the sediment. It is one of the rarer habitat types to occur in estuaries. The gravel may be moved and reworked depending on tidal and river currents and may be infilled palaeo-river channels. The habitat typically lacks a significant seaweed component and is characterised by a sparse but very robust brackish water tolerant fauna. The epifauna of this habitat tends to be dominated by mobile predatory species.

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.

Indices developed to assess the ecological status of coastal waters, including estuaries, according to the Water Framework Directive, include physical indicators, water quality indicators and measures of benthic diversity, species richness and abundance. The latter group, which is particularly relevant to benthic habitats, includes a Benthic Quality Index, an Infaunal Trophic Index, a Marine Biotic index based on ecological groups, and the Benthic Opportunistic Polychaetes/Amphipods Index.

Characteristic species:

Robust, free-living fauna specific to the habitat are small polychaetes and small or rapidly burrowing bivalves and amphipods. The epifauna in these habitats tends to be dominated by mobile predatory species such as the crab *Carcinus maenas*. Gobies and *Pomatoschistus* spp. are recorded as occasional.

Classification

EUNIS (v1405)

Level 4. A sub-habitat of 'Atlantic shallow/Infralittoral coarse sediment' (A5.1).

Annex 1:

1130 Estuaries

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Shallow sublittoral coarse 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?

No

Justification

Sublittoral sediments in estuaries are typically dominated by soft sediments therefore this is an unusual rather than characteristic habitat of estuaries or the North East Atlantic region.

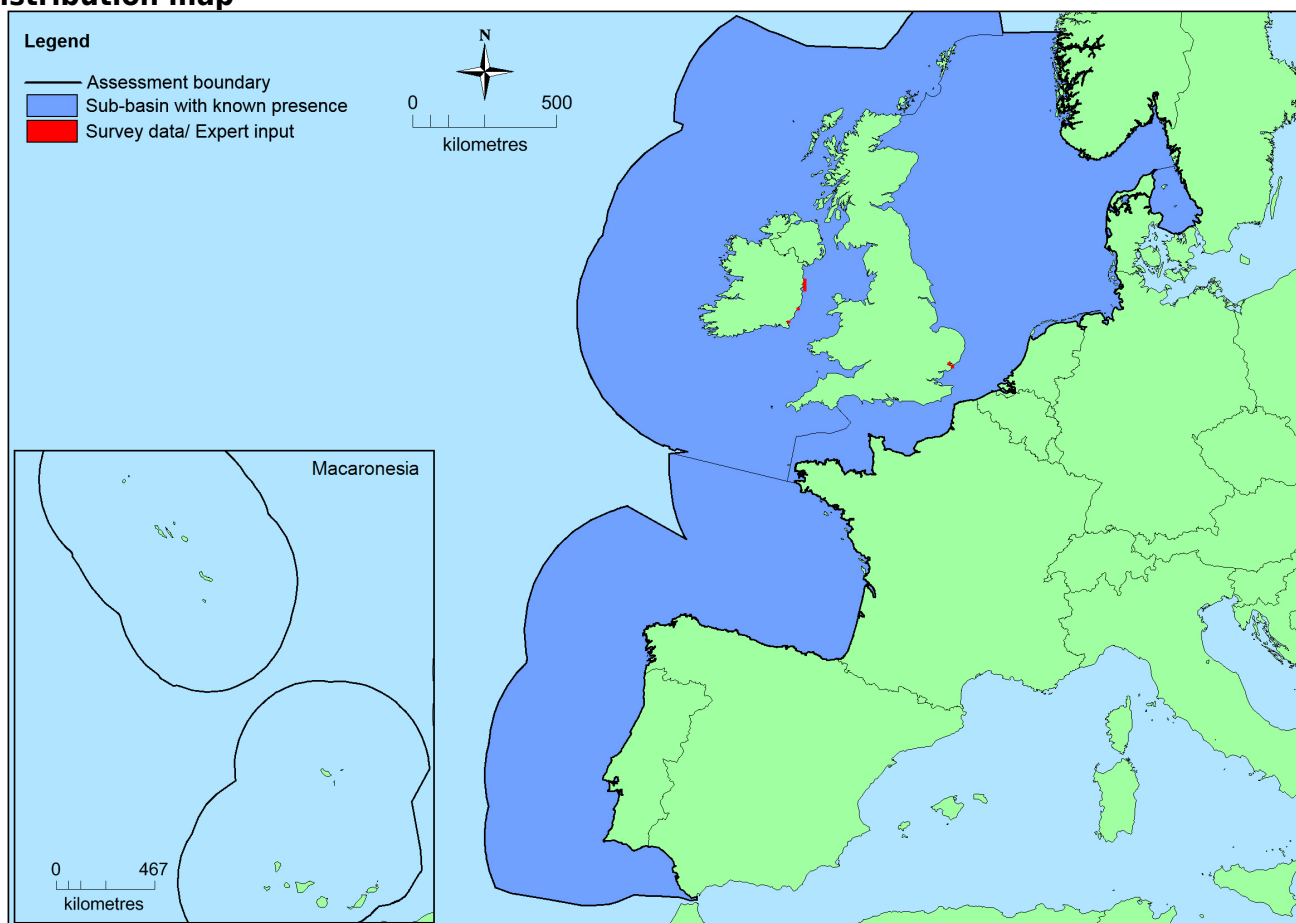
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>North-East Atlantic</i>	Celtic Seas: Present Greater North Sea: Present Bay of Biscay and the Iberian Coast: Present 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
<i>EU 28</i>	>45,297 Km ²	>8	Unknown Km ²	EOO and AOO figures are known to be an underestimate.
<i>EU 28+</i>	>45,297 Km ²	>8	Unknown Km ²	EOO and AOO figures are known to be an underestimate.

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 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?

Unknown.

Trends in quantity

There is insufficient information to determine any historical and recent trends in quantity of this habitat. Future trends have not been estimated.

- Average current trend in quantity (extent)

EU 28: Unknown

EU 28+: Unknown

- Does the habitat type have a small natural range following regression?

Unknown

Justification

Survey records from EMODnet suggest that the EOO is less than 50,000km² however this data set is believed to be substantially incomplete as known occurrences include widely separated locations such as the Gironde estuary, France, the Severn Estuary, UK and Odense fjord, Denmark.

- Does the habitat have a small natural range by reason of its intrinsically restricted area?

Unknown

Justification

Sublittoral sediments in estuaries are typically dominated by soft sediments therefore this habitat does have an intrinsically restricted area. Survey records from EMODnet suggest that the EOO is less than 50,000km² however this data set is believed to be substantially incomplete.

Trends in quality

There is insufficient information to determine any historical and recent trends in quality of this habitat. Future trends have not been estimated.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

Pressures and threats

The predominant threats to this habitat are those that apply to estuaries in general, in particular the degradation of water quality and the damaging effect on habitats and associated communities. These are mainly due to the effects of wastewater inputs and chemical contaminants. High intolerance to hydrocarbon contamination has been recorded for *Carcinus maenas*. In addition, cadmium, mercury, lead, zinc and copper are highly persistent and have the potential to bioaccumulate being very toxic to fish species common to this habitat, such as *Pomatoschistus* spp.

List of pressures and threats

Urbanisation, residential and commercial development

Discharges

Disposal of household / Recreational facility waste

Disposal of industrial waste

Disposal of inert materials

Other discharges

Pollution

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

Pollution to surface waters by industrial plants
 Pollution to surface waters by storm overflows
 Other point source pollution to surface water
 Diffuse pollution to surface waters via storm overflows or urban run-off
 Diffuse pollution to surface waters due to agricultural and forestry activities

Conservation and management

Conservation and management schemes to benefit estuarine habitats have been applied at a number of scales ranging from whole estuary systems to small areas within an estuary. Beneficial management measures for this habitat would mainly include water quality improvement programmes to reduce the risk of toxic contamination or nutrient inputs.

List of conservation and management needs

Measures related to wetland, freshwater and coastal habitats

Restoring/Improving water quality

Measures related to urban areas, industry, energy and transport

Urban and industrial waste management

Conservation status

Annex 1:

1130: MATL U2

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 %

There is insufficient information to determine any trends in quantity of this habitat at the present time. 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	>45,297 Km ²	Unknown	Unknown	yes	>8	Unknown	Unknown	yes	no
EU 28+	>45,297 Km ²	Unknown	Unknown	yes	>8	Unknown	Unknown	yes	no

The data obtained from EMODnet suggests that this habitat could have an EOO < 50,000 km² and an AOO < 20. However the full distribution and extent is currently considered to be incomplete as known occurrences include widely separated locations such as the Gironde estuary, France, the Severn Estuary, UK and Odense fjord, Denmark. There also no data on the present status of this habitat and any trends. The distribution of the habitat is such that the identified threats are unlikely to affect all localities at once. This habitat has been assessed as Vulnerable under criteria B1(c), Endangered under criteria B2 (c), Least Concern under criteria 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	VU	EN	LC	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	DD	DD	DD	DD	VU	EN	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

C. Karamita & G. Saunders.

Contributors

C. Karamita and the North East Atlantic Working Group: S. Gubbay, G. Saunders, H. Tyler-Walters, N. Dankers, F.Otero-Ferrer, J. Forde, K. Fürhaupter, R. Haroun, N. Sanders.

Reviewers

T. Haynes.

Date of assessment

14/12/2015

Date of review

30/03/2016

References

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