A2.41 *Hediste diversicolor* dominated variable salinity Atlantic littoral gravelly sandy mud

Summary

This habitats occur principally in estuaries, rias and sea lochs, in areas protected from wave action and strong tidal streams. Although potentially limited in the area it covers, records from locations as widely separated as the UK (e.g. Severn estuary and Blackwater estuary), southern Ireland (e.g. Cuskinny Bay) and the Ria de Pontevedra and Ria de Vigo in North West Spain confirm that it does not have a narrow geographical distribution. The habitat consists of gravelly sandy mud dominated by abundant ragworms *Hediste diversicolor.* Coastal development, bait digging, organic enrichment, and the introduction of non-native species, are potential threats to the structure and functioning of this habitat.

Management and conservation measures recommended for this habitat include: protection within Marine Protected Areas ; introduction of integrated coastal management ; water quality improvement programmes; regulation of fishing methods which damage, or disturb seabed communities; control of dredging and improved management of coastal development and construction of hard coastal defence structures. Control of invasive species should also be considered.

Synthesis

This habitat has a widespread distribution (EOO >50,000 km^2) and although not reported to occur in many locations (AOO <50) it is unlikely that the available data cover its full distribution. This habitat has therefore been assessed as Data Deficient both at the EU 28 and EU 28+ levels because of the lack of information on its extent and on any 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

A2.41 *Hediste diversicolor* dominated variable salinity Atlantic littoral gravelly sandy mud

No characteristic photographs of this habitat currently available.

Habitat description

Sheltered muddy gravel habitats occur principally in estuaries, rias and sea lochs, in areas protected from wave action and strong tidal streams. The infaunal community is dominated by abundant ragworms *Hediste diversicolor* with bivalves, polychaetes and crustaceans species also present depending on the characateristics of the sediment (mud, sand and gravel component) and position on the shore.

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 infaunal community is dominated by abundant ragworms *Hediste diversicolor*. Other species of infauna vary depending on the associated biotope. They include polychaetes such as *Pygospio elegans, Streblospio shrubsolii*, and *Manayunkia aestuarina*, oligochaetes such as *Heterochaeta costata* and *Tubificoides* spp., the mud shrimp *Corophium volutator*, the spire shell *Hydrobia ulvae*, the baltic tellin *Macoma balthica* and the peppery furrow shell *Scrobicularia plana.*

Classification

EUNIS (v1405):

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

Annex 1:

1130 Estuaries

MAES:

Marine - Marine inlets and transitional waters

MSFD:

Littoral Sediment

EUSeaMap:

Not mapped

IUCN:

9.5 Subtidal Sandy-Mud

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

Unknown

Justification

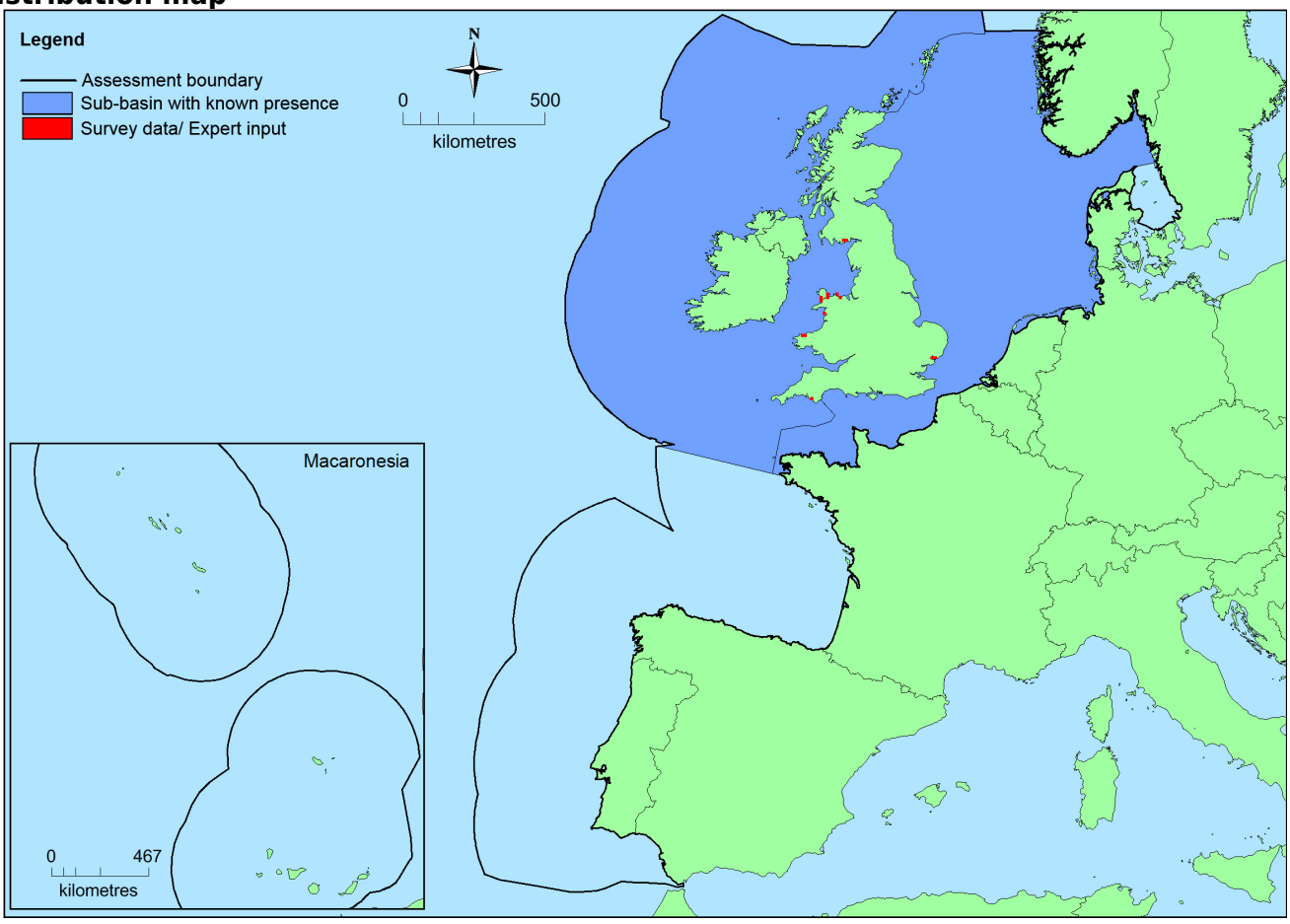
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
North-East Atlantic	Celtic Seas: Present Greater North Sea: Present Bay of Biscay and the Iberian Coast: Uncertain Kattegat: Uncertain	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	119,151 Km^2	>19	Unknown Km^2	Based on a limited data set. AOO is known to be an underestimate.
EU 28+	>119,151 Km^2	>19	Unknown Km^2	Based on a limited data set. AOO is 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. Only UK records for the distribution of this habitat were available from EMODnet. This habitat is likely to be much more widely distributed.

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

Unknown.

Trends in quantity

There extent of this habitat has been mapped in detail in some locations but there is insufficient information to provide an overall estimate of historical, recent and possible future trends in quantity of this habitat for the North East Atlantic.

- 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 full extent of this habitat is not known however existing records, which include the Severn Estuary in the UK , Cuskinny Bay in southern Ireland, and the Rias Baixas in North West Spain show that it 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 full extent of this habitat is not known however existing records, which include the Severn Estuary in the UK , Cuskinny Bay in southern Ireland and the Rias Baixas in North West Spainshow that it does not have a small natural range.

Trends in quality

Any trends in quality of this habitat are unknown.

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

Pressures and threats

Threats to this habitat include: coastal development, including the construction of marinas and slipways; sediment extraction; the widening and dredging of channels; and the construction of sea defences such as barrages. Such activities may alter tidal flow patterns, affecting the sedimentary conditions across the gravel beds. Bait digging, especially where king rag *Neanthes virens* is common. Intertidal mollusc beds, including *Venerupis senegalensis*, have been the subject of small fisheries in the past. Organic enrichment, especially sewage pollution stress can be a significant issue: severe pollution can lead to anoxic conditions and a decrease in macrobenthic populations and species diversity. Other pressures include: persistent bio-accumulating chemicals (e.g. polychlorinated biphenyls and tri-butyl tin), waste discharges containing heavy metals and chemicals. Introduction of the non-native species *Crepidula fornicata* can dominate the fauna, resulting in the smothering of the sediment surface and leading to anoxia in the sediment. This species is also considered a pest of oyster beds.

List of pressures and threats

Biological resource use other than agriculture & forestry

Leisure fishing
Bait digging / Collection

Pollution

Pollution to surface waters by industrial plants
Nutrient enrichment (N, P, organic matter)
Toxic chemical discharge from material dumped at sea

Invasive, other problematic species and genes

Invasive non-native species

Natural System modifications

Human induced changes in hydraulic conditions
Removal of sediments (mud...)
Estuarine and coastal dredging
Extraction of sea-floor and subsoil minerals (e.g. sand, gravel, rock, oil, gas)
Modification of hydrographic functioning, general
Dykes, embankments, artificial beaches, general

Conservation and management

This habitat occurs in some Marine Protected Areas and may therefore have measures specifically directed at its conservation. Integrated coastal zone management which includes spatial planning measures limiting land claim and other activities that alter the tidal regime would also be beneficial to this habitat. Other recommended management measures include the regulation of activities which damage or disturb seabed communities, of coastal development and of construction of hard coastal defences. Water quality improvement programmes and management of urban and industrial waste to reduce the risk of organic enrichment and toxic contamination that may degrade this habitat are also important measures. Lastly, control of invasive species should also be considered.

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 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 %

The extent of this habitat has been mapped in some locations however there is a lack of information on the overall quantity of this habitat in the North East Atlantic region and no data on trends in quantity. It 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	>19	Unknown	Unknown	No	No
EU 28+	>50,000 Km^2	Unknown	Unknown	No	>19	Unknown	Unknown	No	No

Records for the occurence of this habitat indicate that it does not have a narrow geographical distribution (EOO >50,000km^2). AOO records are recognised as incomplete and there are no data on trends.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.

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

Criterion E	Probability of collapse
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)

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