

A4.21 Echinoderms and crustose communities on moderate energy Atlantic upper circalittoral rock

Summary

This habitat occurs on wave-exposed circalittoral bedrock, in depths where the light becomes insufficient for macroalgae development. The associated communities mainly consist of echinoderms, faunal and algal crusts (red encrusting algae) giving it a sparse appearance. On vertical faces there may be dense aggregations of the cup coral *Caryophyllia smithii*, large expanses of encrusting red algae or, in conditions of moderate exposure, the soft coral *Alcyonium digitatum*. The polychaete *Pomatoceros triqueter* can be locally abundant, and may in some cases cover far more rock surface than *A. digitatum*, especially on vertical faces. Clumps of robust hydroids such as *Abietinaria abietina* and *Nemertesia antennina* occur occasionally.

Abrasion from bottom towed gears and proximity to maintenance and capital dredging operations are the main pressures that are likely to impact the structure and functioning of this habitat. Beneficial management measures would include regulation of fishing methods to reduce physical damage and incidental siltation, coastal development, and dredging and dumping of dredge spoils. Such measures have been introduced independently as well as under the framework of Marine Protected Areas and integrated coastal management plans.

Synthesis

There are a lack of quantitative data on extent and condition of this habitat. Although it is known to be widespread, exceeding thresholds of EOO and AOO for Red Listing, there is insufficient information to provide an overall estimate of historical, recent and possible future trends in quantity and quality.

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 area and 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

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Echinoderm crustose community, Weasel Loch, St Abbs, Scotland, (© K. Hiscock).



Echinoderm crustose community Weasel Loch, St Abbs, Scotland (© K.Hiscock).

Habitat description

This habitat occurs on wave-exposed, moderately strong to weakly tide-swept, circalittoral bedrock and boulders. Echinoderms, faunal and algal crusts (red encrusting algae) dominate, giving a sparse appearance. It occurs from depths, where the light becomes insufficient for macroalgae down to about 100 meters although occasionally also encountered in deeper water.

On vertical faces there may be dense aggregations of the cup coral *Caryophyllia smithii*, large expanses of encrusting red algae or, in conditions of moderate exposure, the soft coral *Alcyonium digitatum*. The sea fan *Swiftia pallida* can be present on silty substratum and the anemone *Urticina feline* and the sponge *Ciocalypta penicillus* at the sand-rock interface. The polychaete *Pomatoceros triqueter* can be locally abundant, and may in some cases cover far more rock surface than *A. digitatum*, especially on vertical faces. Clumps of robust hydroids such as *Abietinaria abietina* and *Nemertesia antennina* occur occasionally.

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:

Echinoderms *Echinus esculentus*, *Asterias rubens*, *Henricia sanguinolenta*, *Ophiothrix fragilis*, *Antedon bifida*, the anemones, *Cortynactis viridis*, *Metridium senile* and *Sagartia elegans*, the ascidians *Clavelina lepadiformis*, *Ciona intestinalis* and *Ascidia mentula*, the soft coral *Alcyonium digitatum*. Also the cup coral *Caryophyllia smithii*, mollusc *Calliostoma zizyphinum*, the edible crab *Cancer pagurus* and occasional hydroids such as *Abietinaria abietina* and *Nemertesia antennina*. At the sand/rock interface *Urticina feline*, *Ciocalypta penicillus* and the polychaete *Pomatoceros triqueter*.

Classification

EUNIS (v1405):

Level 4. A sub-habitat of 'Atlantic circalittoral rock' (A4.2)

Annex 1:

1170 Reefs

MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal

MSFD:

Shallow sublittoral rock and biogenic reef

EUSeaMap:

Shallow photic rock or biogenic reef

IUCN:

9.2 Subtidal rock and rocky reefs

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

Unknown

Justification

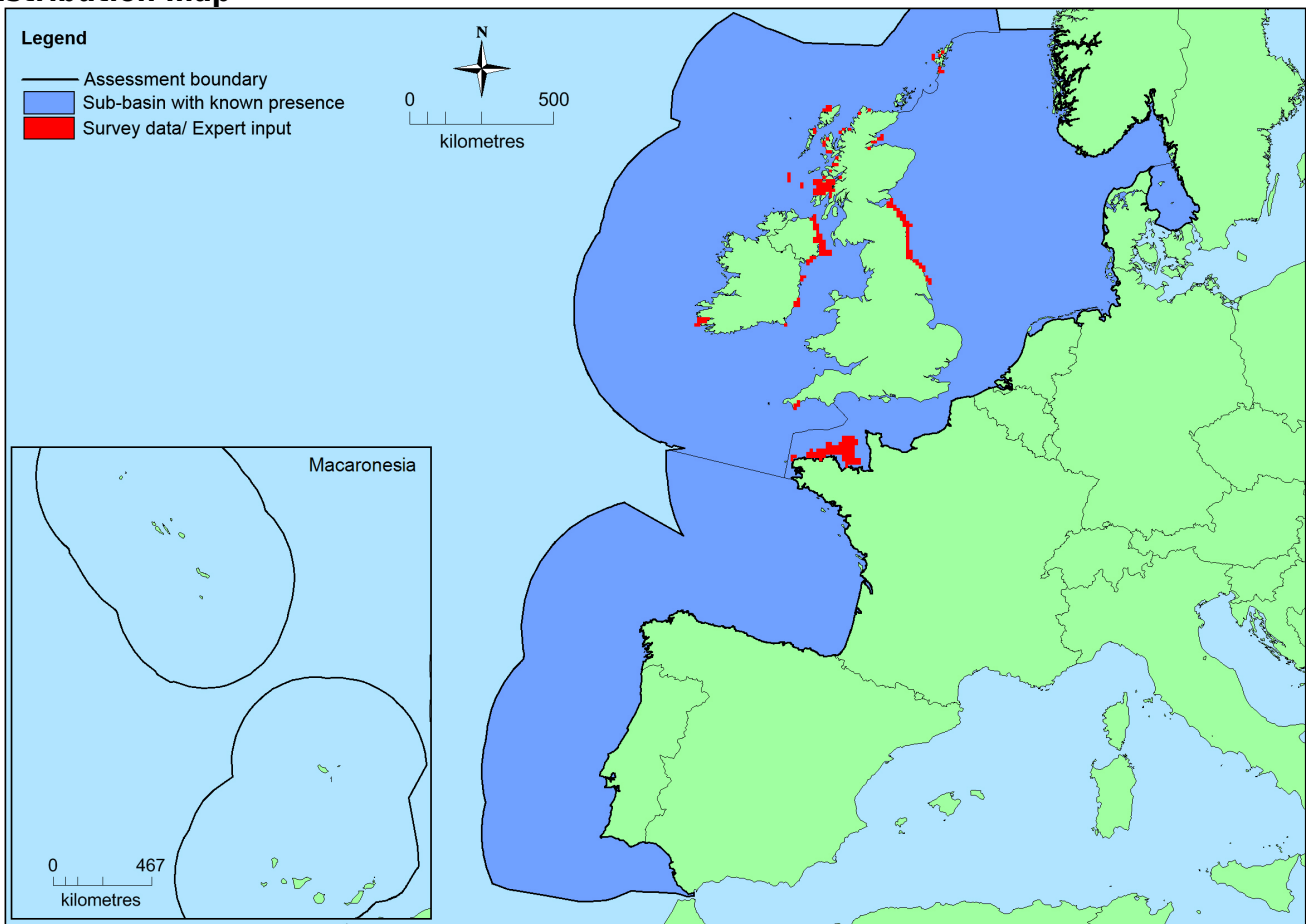
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>North-East Atlantic</i>	Bay of Biscay and the Iberian Coast: Present Celtic Seas: Present Greater North Sea: Present Kattegat: Present Macaronesia: 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
<i>EU 28</i>	604,383 Km ²	324	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>	>604,383 Km ²	>324	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 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

The trends in quantity of this habitat are 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
This habitat has a large natural range in the North East Atlantic region.
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
No
Justification
This habitat has a large natural range in the North East Atlantic region.

Trends in quality

The trends in quality for this habitat are unknown.

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

Pressures and threats

This habitat is vulnerable to abrasion from bottom towed gears, usually as a consequence of fishing at sediment-rock boundaries. Nearby maintenance and capital dredging may have indirect effects through changes in sediment and hydrological regimes. A potential change in the hydrological regimes, may affect the salinity, oxygen and temperature levels, which in turn will affect the overall distribution of the marine organisms. The deposition and dumping of dredged deposits will result in the increase of water turbidity and smothering. Similarly, coastal construction and coastal protection works, can increase smothering, lead to anoxia, change hydrological regimes, lead to the bio-accumulation of dangerous chemicals, and overall, negatively impact this habitat.

List of pressures and threats

Biological resource use other than agriculture & forestry

- Fishing and harvesting aquatic resources
 - Professional active fishing

Pollution

- Marine water pollution

Natural System modifications

- Human induced changes in hydraulic conditions
 - Removal of sediments (mud...)
 - Siltation rate changes, dumping, depositing of dredged deposits
 - Sea defense or coast protection works, tidal barrages

Conservation and management

Beneficial management measures for this habitat would include regulation of fishing methods to reduce physical damage and incidental siltation, coastal development, and dredging and dumping of dredge spoils. This may be promoted in management schemes for Marine Protected Areas or integrated coastal management schemes. Measures to maintain water quality would also be beneficial.

List of conservation and management needs

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

Anex 1:

1170: MATL U2, MMAC FV

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

The capacity for this habitat to recover once severely damaged is 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 overall trends in quantity of this habitat in the North East Atlantic. 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	>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 >50,000km² 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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Contributors

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Reviewers

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