

## A4.31 Ascidian/Brachiopod communities on Atlantic sheltered upper circalittoral rock

### Summary

This habitat type occurs on the wave-sheltered, circalittoral bedrock and boulders subject to weak tidal streams and is characterised by ascidian communities that in the case of the associated biotope A4.313 have brachiopods present. Pressures and threats specific to this habitat have not been identified however characteristic species are known to have a high intolerance to substratum loss, smothering, increases in water flow rate, abrasion, physical disturbance and displacement.

No conservation and management measures that specifically target this habitat have been identified however it is present within some Marine Protected Areas and can therefore benefit from associated measures such as those which limit activities such as dredging, the use of bottom towed gears, coastal development and placement of mariculture facilities. The location of the associated biotope 'A4.314 *Neocrania anomala* and *Protanthea simplex* on sheltered circalittoral rock' should also be taken into account in ecological impact assessments and subsequent licensing of activities.

### Synthesis

Detailed information on the abundance and extent of this habitat is lacking but survey information reveals that it has a widespread distribution (e.g. west coast of Ireland, west coast of Scotland and the Gullmarsfjorden, Sweden) but very localised occurrence for the associated biotopes with brachiopods. There is a lack of information on the overall quantity and quality of this habitat including any historical or recent trends however, examples of the habitat have been observed and recorded in shallow (<50m) locations for many (>30) years and remain characteristic of those locations.

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 area covered 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

A4.314 *Neocrania anomala* and *Protanthea simplex* on sheltered circalittoral rock a regionally restricted associated biotope which is most likely confined to a few fjordic sea loch and sheltered marine inlets in Scotland and in Scandinavia.

### Habitat Type

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#### Code and name

A4.31 Ascidian/Brachiopod communities on Atlantic sheltered upper circalittoral rock



Ascidian/Brachiopod communities on sheltered upper circalittoral rock. This photo specifically represents the EUNIS Level 5 biotope: *Neocrania anomala* and *Protanthea simplex* on sheltered circalittoral rock. Loch Duich, Scotland (© K.Hiscock).

## Habitat description

This habitat type occurs on the wave-sheltered, circalittoral bedrock and boulders subject to weak tidal streams. The biotopes within this complex are characterised by brachiopod and ascidian communities.

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. for protected features within Natura 2000 sites, where reference values have been determined and applied on a location-specific basis.

Characteristic species:

Ascidians often recorded in this complex are *Ciona intestinalis*, *Ascidia mentula*, *Ascidia virginea*, *Clavelina lepadiformis* and, occasionally, the football seasquirt *Diazona violacea*. The brachiopods *Neocrania anomala* and often *Terebratulina retusa* are also characteristic of the sub-biotopes within this complex as recorded in Scottish sea lochs. The polychaete *Pomatoceros triqueter*, the saddle oyster *Pododesmus patelliformis*, the cup coral *Caryophyllia smithii* and encrusting red algae are frequently recorded on the rocky substrata. Echinoderms such as the brittlestars *Ophiothrix fragilis*, *Ophiocarina nigra* and *Ophiura albida*, the starfish *Asterias rubens*, *Crossaster papposus* and *Henricia oculata*, the crinoid *Antedon bifida* and the urchin *Echinus esculentus* are all found in this complex. Other species present include the squat lobster *Munida rugosa*, the hermit crab *Pagurus bernhardus*, the soft coral *Alcyonium digitatum*, the anemone *Protanthea simplex* and the hydroid *Kirchenpaueria pinnata*. Off the coast of Portugal this habitat is characterised by the brachiopod *Megerlia truncata*. Colonies of sponges *Geodia barretti*, *Geodia* cf. *macandrewii*, *Petrosia ficiformis*, *Phakellia* sp., colonies of zooids *Parazoanthus anguicomus*, Polychaeta Serpulidae, sea urchins *Echinus acutus*, *Echinus melo*, *Echinus esculentus* and *Sphaerochinus granularis* and the crinoid *Antedon bifida* have all been recorded within and among the brachiopod. Mobile species present include the fishes *Serranus cabrilla*, *Diplodus cervinus* and *Pollachius pollachius*.

## Classification

EUNIS (v1405):

Level 4. A sub-habitat of 'Atlantic circalittoral rock' (A4.3).

Annex 1:

1160 Large shallow inlets and bays

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

There is insufficient information on the characteristics of this habitat or on its distribution and extent to determine whether it is typical of North East Atlantic region, however, the associated Level 5 biotopes include outstanding examples of regionally restricted and significant habitats and associated communities. A4.314 *Neocrania anomala* and *Protanthea simplex* on sheltered circalittoral rock is characteristic of fjordic sealoch circalittoral reef habitats on the west coast of Scotland (and most likely Sweden and Norway).

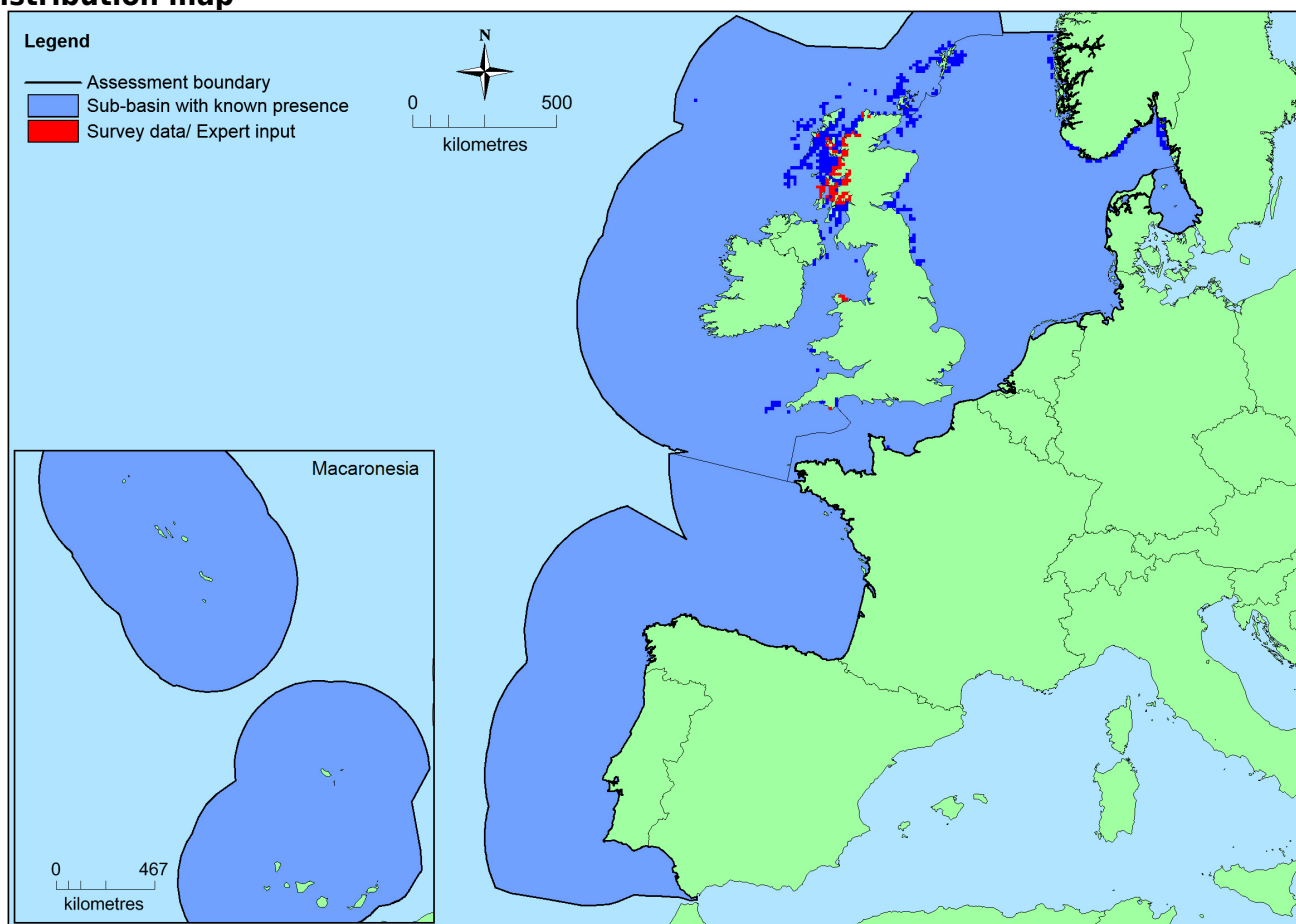
**Geographic occurrence and trends**

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 Kattegat: Present Greater North Sea: Present Macaronesia: Present	Unknown Km <sup>2</sup>	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	1,210,154 Km <sup>2</sup>	483	>2,100 Km <sup>2</sup>	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+	>1,210,154 Km <sup>2</sup>	>483	>2,100 Km <sup>2</sup>	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 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. There are also shortcomings with the modelled distribution as this habitat is generally not found on open coasts. Survey data suggests that the key biotope (A4.314) is mainly restricted to sea lochs on the west coast of Scotland and it would also be expected to occur in fjordic habitats in Sweden and Norway.

### 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). 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 full extent and quantity of this habitat in the North East Atlantic region is unknown and there is currently insufficient information to determine any historical, current or future trends. However, examples of the habitat have been observed and recorded in shallow (<50m) locations for many (>30) years and remain characteristic of those locations.

- 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. Distribution records include the west coast of Ireland, the west coast of Scotland, the Shetland Islands and Gullmarsfjorden, Sweden.

- 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. Distribution records include the west coast of Ireland, the west coast of Scotland, the Shetland Islands and Gullmarsfjorden, Sweden.

## Trends in quality

There is currently insufficient information to determine any historical, current or future trends in quality of this habitat.

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

## Pressures and threats

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Characteristic species of this habitat such as *Antedon bifida*, *Nemertesia ramosa*, large solitary ascidians and *Clavelina lepadiformis* have a high intolerance to substratum loss, smothering, increases in water flow rate as well as abrasion and physical disturbance and displacement. However, they are species that re-colonise rapidly. Of more concern are the biotopes characterised by brachiopods which are localised and the brachiopod species may take some time to recover from disturbance/loss.

Activities which increase turbidity such as dredging and the use of bottom towed gears, or which alter hydrographic conditions such as harbour constructions have the potential to damage this habitat. Activities which introduce poisons (as pesticides) and increase nutrient levels (for instance, waste food and faeces from fish farms) have the potential to damage species associated with this habitat.

## List of pressures and threats

### Biological resource use other than agriculture & forestry

Marine and Freshwater Aquaculture

Intensive fish farming, intensification

### Pollution

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

Nutrient enrichment (N, P, organic matter)

## Natural System modifications

Human induced changes in hydraulic conditions  
Siltation rate changes, dumping, depositing of dredged deposits

## Conservation and management

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No conservation and management measures that specifically target this habitat have been identified however it is present within some Marine Protected Areas and can therefore benefit from associated measures such as those which limit potentially damaging activities e.g. by zoning fishing activities, setting limits of activities such as dredging which increase turbidity, not allowing fish farms nearby and regulating coastal development. The location of the associated biotope ' A4.314 *Neocrania anomala* and *Protanthea simplex* on sheltered circalittoral rock' should also be taken into account in ecological impact assessments and subsequent licensing of activities.

### List of conservation and management needs

#### Measures related to marine habitats

Other marine-related measures

#### Measures related to spatial planning

Other spatial measures  
Establish protected areas/sites

### Conservation status

Annex 1:

1160: MATL U2, MMAC FV

1170: MATL U2, MMAC FV

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

The overall capacity for this habitat to recover after it has been severely damaged is unknown. Characteristic species such as *Antedon bifida*, *Nemertesia ramosa*, large solitary ascidians and *Clavelina lepadiformis* have a high intolerance to substratum loss, smothering, increases in water flow rate as well as abrasion and physical disturbance and displacement. However, they are species that re-colonise rapidly. Of more concern are the associated biotopes characterised by brachiopods which are localized as the brachiopod species may take some time to recover from disturbance/loss. The MarLIN sensitivity review suggests that the associated biotope ' A4.314 *Neocrania anomala* and *Protanthea simplex* on sheltered circalittoral rock' has a 'moderate' capacity for recovery following damage by some physical and other pressures/activities.

### Effort required

## Red List Assessment

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### Criterion A: Reduction in quantity

Criterion A	A1	A2a	A2b	A3
EU 28	Unknown %	Unknown %	Unknown %	Unknown %

Criterion A	A1	A2a	A2b	A3
EU 28+	Unknown %	Unknown %	Unknown %	Unknown %

Examples of the habitat have been observed and recorded in shallow (<50m) locations for many (>30) years and remain characteristic of those locations. However, the full extent of this habitat in the North East Atlantic region is unknown and there is currently insufficient information to determine any historical, current or future trends in quantity. It is therefore assessed as Data Deficient under Criteria 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 <sup>2</sup>	Unknown	Unknown	No	>50	Unknown	Unknown	No	No
EU 28+	>50,000 Km <sup>2</sup>	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<sup>2</sup> 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



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)

### Assessors

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### Contributors

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### Reviewers

K.Hiscock.

### Date of assessment

13/08/2015

### Date of review

11/01/2016

## References

Connor, D.W., Allen, J.H., Golding, N. *et al.* 2004. The Marine Habitat Classification for Britain and Ireland Version 04.05 JNCC. [online] Peterborough: ISBN 1 861 07561 8. Available at: [http://jncc.defra.gov.uk/pdf/04\\_05\\_introduction.pdf](http://jncc.defra.gov.uk/pdf/04_05_introduction.pdf). (Accessed: 30/08/2014).

European Environment Agency. 2014. EUNIS habitat type hierarchical view. Available at: <http://eunis.eea.europa.eu/habitats-code-browser.jsp>. (Accessed: 22/08/2014).

Hill, J.M. 2001. *Antedon spp.*, solitary ascidians and fine hydroids on sheltered circalittoral rock. *Marine Life Information Network: Biology and Sensitivity Key Information Sub-programme*. [online] Plymouth: Marine Biological Association of the United Kingdom. Available at: <http://www.marlin.ac.uk/habitats/detail/313>. (Accessed: 27/10/2015).

Jackson, A. 2005. *Neocrania anomala* and *Protanthea simplex* on sheltered circalittoral rock. In Tyler-Walters H. and Hiscock K. (eds) *Marine Life Information Network: Biology and Sensitivity Key Information Reviews*. [online] Plymouth: Marine Biological Association of the United Kingdom. Available at: <http://192.171.193.68/habitat/detail/5>. (Accessed: 10/10/2015).



Monteiro, P., Bentes, L., Oliveira, F., et al. 2013. *Atlantic Area Eunis Habitats. Adding new habitat types from European Atlantic coast to the EUNIS Habitat Classification*. Faro: MeshAtlantic, CCMAR-Universidade do Algarve, Faro, p.72.

Seasearch 2002. Cape Wrath Survey May 2002. Summary Report. Available online: <http://www.seasearch.org.uk/downloads/CapeWrathSummary.pdf>. (Accessed: 10/10/2015).