

## A4.71 Pontic circalittoral dark caves and tunnels

### Summary

The habitat is present in the Black Sea on areas of circalittoral rock. It is not present in the Sea of Marmara. Eutrophication is the main historic pressure on this habitat. Additional pressures include: siltation, chemical pollution and plastic pollution. Conservation and management measures relevant to this habitat include: measures to maintain physical and biological integrity, improvement of water quality, pollution event response strategies, and raised public awareness.

### Synthesis

Detailed information on the abundance and extent of this habitat is lacking. Information on the quantity and quality of this habitat including historical or recent trends is unknown. For the purposes of Red List assessment this habitat is considered to be Data Deficient.

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

A4.71 Pontic circalittoral dark caves and tunnels

There are currently no photographs of this habitat available.

#### Habitat description

Caves and overhangs in the circalittoral zone are characterised by a lack of light. This is reflected in the species composition. The amount of wave surge influences the species composition of individual caves. All around the Black Sea this habitat type occurs in Sarmatian limestone cliffs in Russia, Ukraine, Romania, Bulgaria and Turkey. It may also occur in volcanic and metamorphic rocks, like in Bulgaria (Maslen Nos Cape).

Indicators of quality:

Both biotic and abiotic indicators have been used to describe marine habitat quality. These include; the presence of characteristic species and those which are sensitive to the pressures the habitat may face, water quality parameters, levels of exposure to particular pressure as well as 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:

Turf hydrozoans, thin crust sponges like *Antho involvens*, *Haliclona flavescens*, *Haliclona cinerea*,

*Suberites prototypus*, *Clathria cleistocheila* depending on current intensity, anemones *Actinia equina*, red mysid shrimp *Hemimysis pontica*, *Hemimysis serrata*., and rare shrimp species *Palaemon serratus* and *Lysmata seticaudata*

### Classification

This habitat may be equivalent to, or broader than, or narrower than the habitats or ecosystems in the following typologies.

EUNIS (2004):

Level 4. A sub-habitat of level A4- Circalittoral rock

Annex 1:

1170 Reefs

8330 Submerged or partially submerged sea caves

MAES:

Marine - Coastal

MSFD:

Shelf sublittoral rock and biogenic reef

EUSeaMap:

Shallow aphotic 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 knowledge and information on this habitat to state whether it is an outstanding example of this biogeographic region.

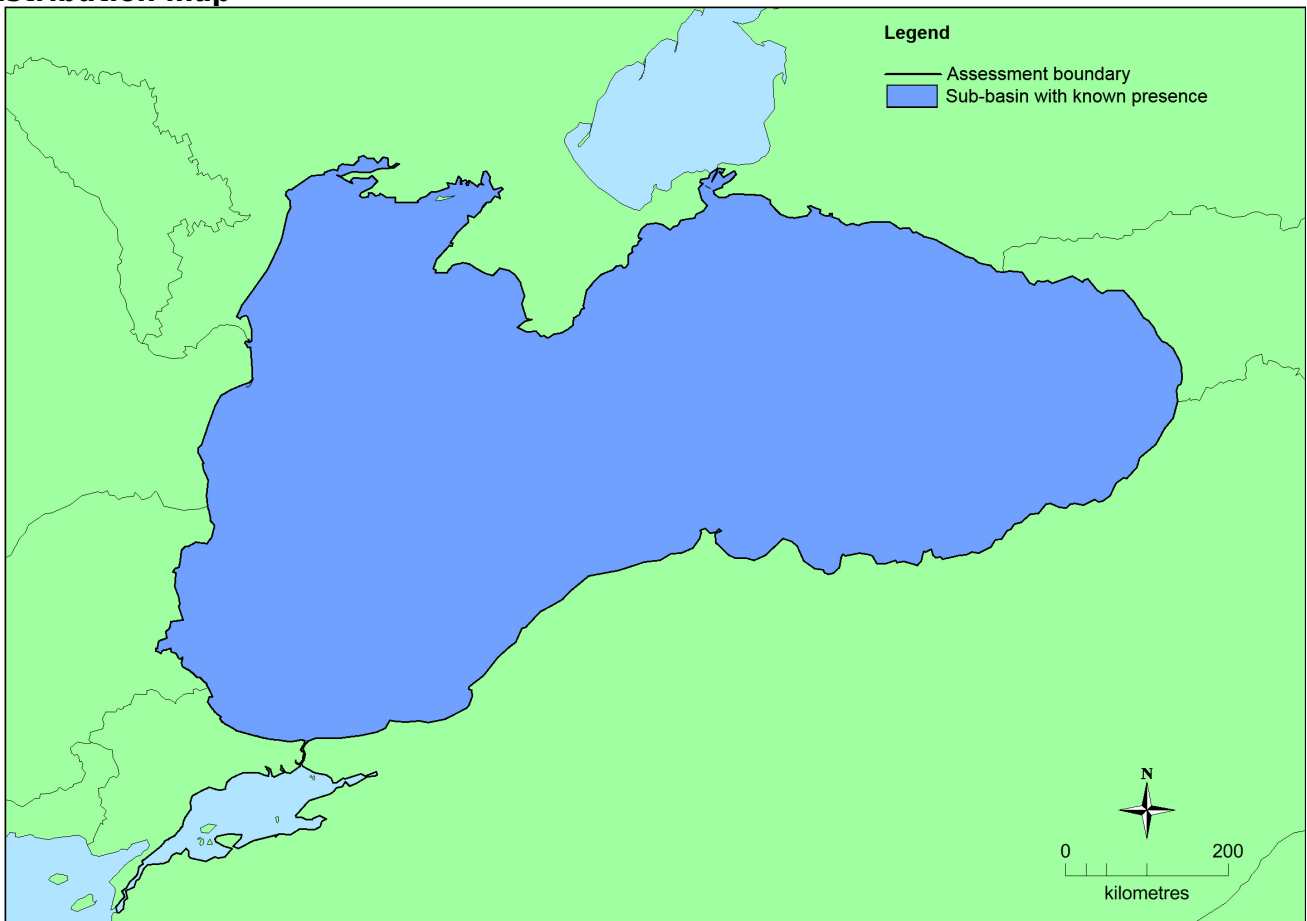
### Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
<i>Black Sea</i>	Black Sea: 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	Unknown Km <sup>2</sup>	Unknown	Unknown Km <sup>2</sup>	The habitat is known to occur in the Black Sea but there is insufficient data to accurately calculate EOO and AOO.
EU 28+	Unknown Km <sup>2</sup>	Unknown	Unknown Km <sup>2</sup>	The habitat is known to occur in the Black Sea but there is insufficient data to accurately calculate EOO and AOO.

### Distribution map



There is insufficient data to produce a map of the distribution of this 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. Ukraine, Russia, Turkey, therefore the percentage hosted by EU 28 is less than 100%. The proportion within EU 28 cannot be estimated as the full extent of this habitat is unknown.

### Trends in quantity

There is insufficient data to accurately assess changes in quantity of the habitat

- 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*

The habitat is known to occur in the Black Sea but there is insufficient data to accurately calculate EOO and AOO. There is insufficient data to accurately assess whether the habitat has undergone a significant decline (>25% of extent) in the last 50 years.

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

Unknown

### *Justification*

There is insufficient data and knowledge on this habitat to state whether it has a small natural range by reason of an intrinsically restricted area.

## **Trends in quality**

There is insufficient data to accurately assess changes in quality of the habitat

- Average current trend in quality

EU 28: Unknown

EU 28+: Unknown

## **Pressures and threats**

---

Eutrophication as a result of nutrient enrichment (N, P and organic matter) is the most significant historic pressure on the habitat. Anoxic and hypoxic conditions due to eutrophication caused mass mortalities in benthic communities. Since the 1990s this pressure has reduced due to tighter controls on pollution in the catchment of the Danube and other rivers which enter the north-west Black Sea. Whilst this pressure is now reduced it is still a continuing threat in the current and future periods. This is especially true for non EU countries surrounding the Black Sea which are not bound by the agreements such as the Water Framework Directive (WFD).

The habitat is likely to be vulnerable and sensitive to:

Siltation. The resettling of suspended sediment can smother filter feeding organisms as well as inhibiting the growth of some species. Siltation is typically caused by dredging, trawling and other activities which disturb bottom sediments.

Chemical pollution at its most severe can result in species mortality. High mortality rates can lead to a reduction in extent. Lower mortality rates will result in a reduction in habitat quality. Chemical pollution may also affect the size and growth rate of some of the associated fauna.

Marine litter that tends to accumulate in caves. This is a threat of current and future importance which at its most severe can lead to mortality. Large floating objects that accumulate in caves will damage the sessile fauna on the walls. Micro particles of plastic can be ingested by faunal species resulting in reduction in quality.

## **List of pressures and threats**

### **Pollution**

Nutrient enrichment (N, P, organic matter)

Input of contaminants (synthetic substances, non-synthetic substances, radionuclides) - diffuse sources, point sources, acute events

Marine macro-pollution (i.e. plastic bags, styrofoam)

### **Natural System modifications**

Siltation rate changes, dumping, depositing of dredged deposits

## Conservation and management

Conservation and management measures which would benefit this habitat include implementing measures to maintain physical and biological integrity, including pollution control and regulation, improvement of water quality management outside EU member states, contingency plans to be followed in the event of a major pollution incident, raised public awareness of ecological value and vulnerability, enhanced legal protection for occurrences of the habitat and key species (e.g. establish a unified list of Black Sea species and habitats requiring conservation measures, etc.), and the designation of MPAs with actual measures that will protect this habitat.

### List of conservation and management needs

#### Measures related to marine habitats

Other marine-related measures

#### Measures related to spatial planning

Establish protected areas/sites

Legal protection of habitats and species

#### Measures related to urban areas, industry, energy and transport

Other measures

### Conservation status

Annex 1:

8330: MBLS U1

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

There is insufficient data and knowledge of this habitat to assess its capacity to recover

### Effort required

10 years
Unknown

## 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 data on changes in quantity of this habitat to undertake an assessment using criterion A.

### Criterion B: Restricted geographic distribution

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28	unknown Km <sup>2</sup>	Unknown	Unknown	unknown	unknown	Unknown	Unknown	unknown	unknown

Criterion B	B1				B2				B3
	EOO	a	b	c	AOO	a	b	c	
EU 28+	unknown Km <sup>2</sup>	Unknown	Unknown	unknown	unknown	Unknown	Unknown	unknown	unknown

The precise extent of the habitat is unknown. Therefore there is insufficient data to produce EOO and AOO figures.

**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 to conduct an assessment using 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 that estimates 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	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD	DD
EU28+	DD	DD	DD	DD	DD	DD	DD	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

S. Beal, G. Komakhidze, D. Micu, V. Mihneva, N. Milchakova, B. Yokes

## Contributors

S. Beal, G. Komakhidze, D. Micu, V. Mihneva, N. Milchakova, B. Yokes

## Reviewers

S. Gubbay

## Date of assessment

19/03/2015

## Date of review

17/12/2015

## References

---

Anon. 2006. *The northwestern part of the Black Sea: biology and ecology*. Kiev: Naukova Dumka. 701pp.

Bacescu, M. C., Muller G. I., Gomoiu, M-T. 1971. . Cercetari de ecologie bentica in Marea Neagra (analiza cantitativa, calitativa si comparata a faunei bentice pontice). *Ecologie Marina* vol. IV. Editura Academiei R.S.R., Bucuresti, 357 pp..

Ereskovsky A.V., Kovtun O.A., Pronin K.K., 2016. Marine cave biota of the Tarkhankut Peninsula (Black Sea, Crimea), with emphasis on sponge taxonomic composition, spatial distribution and ecological particularities. *Journal of the Marine Biological Association of the United Kingdom*, 96(2): 391–406. doi:10.1017/S0025315415001071

Konsulov, A. 1998. *Black Sea Biological Diversity: Bulgaria. Volume 5 of Black Sea environmental series*. United Nations Publications, New York, USA.

Marinov, T. 1990. *The zoobenthos from the Bulgarian Sector of the Black Sea*. Publishing house of the Bulgarian Academy of Sciences, Sofia, pp 195 (in Bulgarian).

Micu, D. 2008. Open Sea and Tidal Areas. In: Gafta D. and Mountford J.O. (eds.) *Natura 2000 Habitat Interpretation Manual for Romania*. EU publication no. EuropeAid/121260/D/SV/RO, 101pp. ISBN 978-973-751-697-8.

Micu, D., Zaharia, T., Todorova, V. 2008. Natura 2000 habitat types from the Romanian Black Sea. In: Zaharia T, Micu D, Todorova V, Maximov V, Niță V. *The development of an indicative ecologically coherent network of marine protected areas in Romania*. Romart Design Publishing, Constanta, Romania.

Moncheva. S., Todorova, V., (eds). 2013. *Initial assessment of the marine environment*. Article 8, MSFD 2008/56/EC and NOOSMV (2010). 500p

Petranu, A. 1997. *Black Sea Biological Diversity: Romania. Volume 4 of the Black Sea Environmental Series*. United Nations Publications, New York, USA.

Salomidi, M., Katsanevakis, S., Damalas, D., Mifsud, R., Todorova, V., Pipitone, C., Fernandez, T. V., Mirto, S., Galparsoro, I., Pascual, M., Borja, Á., Rabaut, M., Braeckman, U. 2010. Monitoring and Evaluation of Spatially Managed Areas. Catalogue of European seabed biotopes. Deliverable 1.2. Available at: <http://www.mesma.org/default.asp?ZNT=S0T10-1P24>. (Accessed: 19/08/2015).

Vershinin, A. 2007. *Life in the Black Sea*. Maccentr, Moscow, Russia.

Zaitsev, Y. P., Alexandrov, B. G. 1998. *Black Sea Biological Diversity: Ukraine. Volume 7 of the Black Sea Environmental Series*. United Nations Publications, New York, USA.