# A1.16 Invertebrate-dominated exposed Pontic mediolittoral rock

## Summary

The habitat is present in the Black Sea on areas with rocky shores. There are few species associated with this habitat, and those which are present are typically encrusting, tolerant to dessication, and capable of firm attachment. Eutrophication is the main historic pressure affecting this habitat. Additional pressures include coastal development and chemical pollution. Conservation and management measures relevant for this habitat include: controls on coastal development to maintain physical and biological integrity, and improvement of water quality.

## 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

A1.16 Invertebrate-dominated exposed Pontic mediolittoral rock

No characteristic photograph of this habitat currently available.

### Habitat description

This habitat, which occurs in the exposed mediolittoral rock zone  in the microtidal Black Sea (tide range approx. 0.3 m), is limited to a narrow strip which receives regular but not continuous submersion. In such situations the abiotic conditions (i.e. waves, variations in atmospheric pressure and variations in wind) define the species composition. These conditions mean that there are few associated species and those which are present are typically encrusting, tolerant to desiccation, and capable of very firm attachment. They include barnacles, lichens and small mussels. Crabs may be found in sheltered crevices.

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 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:

Four distinct biotopes comprising different assemblages of invertebrates occur in the mediolittoral rock zone.

1. *Chthamalus stellatus, Melaraphe neritoides, Ligia italica, Mytilaster lineatus* occurs in exposed conditions on tall rocky coasts made up of volcanic or metamorphic rock, mostly on the Southern Bulgarian and Caucasus coasts.

2. *Diadumene lineata* and barnacles (*Chthamalus stellatus, Amphibalanus improvisus* ) is  the one most commonly occurring all around the Black Sea, on all types of rocky coasts.

3.*Patella* spp. occurs only on the Turkish coast of the Black Sea due to the somewhat higher salinity that can be found here.

4. Encrusting corallines (*Lithothamnion, Lithophyllum*) and *Lepidochitona caprearum* are characteristic of rocky coasts made of sedimentary rock (limestone, calcarenite), especially in shaded conditions.

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

EUNIS:(v1405)

Level 4. A sub habitat of 'Pontic littoral rock' (A1.1


Annex 1:

1130 Estuaries

1160 Large shallow inlets and bays

1170 Reefs

8330 Submerged or partially submerged sea caves


MAES:

Marine - Marine inlets and transitional waters

Marine - Coastal


MSFD:

Littoral rock and biogenic reef


EUSeaMap:

Not mapped


IUCN:

12.1 Rocky shorelines

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

Justification
It is unknown whether this habitat presents an outstanding example of the typical characteristics of the Black Sea 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) |
|---|---|---|---|---|
| *Black Sea* | Black Sea: 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 |
|---|---|---|---|---|
| *EU 28* | Unknown Km$^2$ | Unknown | Unknown Km$^2$ | 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$^2$ | Unknown | Unknown Km$^2$ | The habitat is known to occur in the Black Sea but there is insufficient data to accurately calculate EOO and AOO. |

## Distribution map
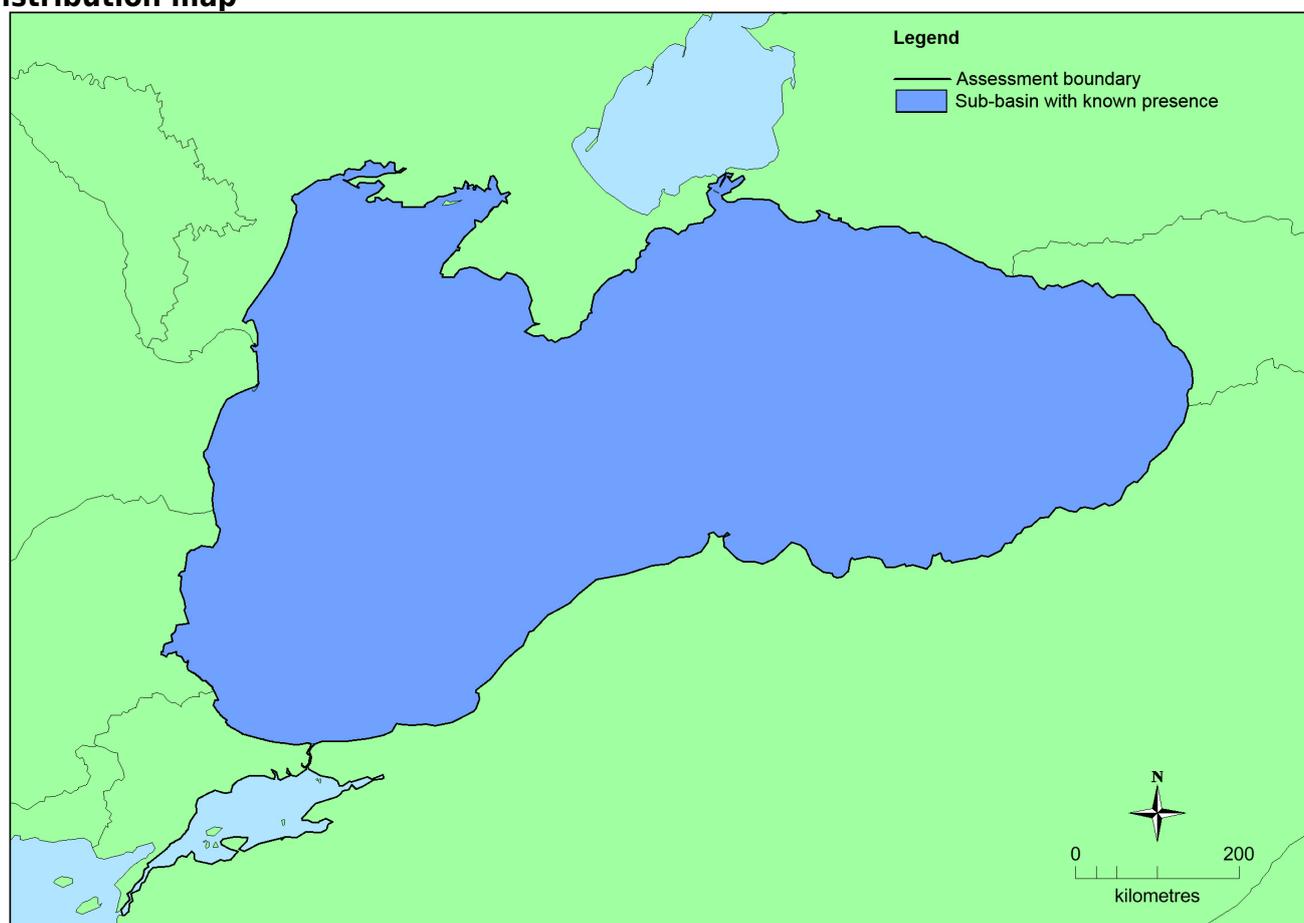


This habitat occurs in the Black Sea but there is insufficient data to produce a map of its distribution or calculate EOO and AOO.

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

It is unknown how much of this habitat is hosted by the EU 28 in the Black Sea.

**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 any decline 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 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 describe or determine any 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 this habitat. Anoxic and hypoxic conditions due to eutrophication caused mass mortalities in faunal 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 due to the prevalence of EC directives throughout the River Danube Basin, it is still a threat. This is especially true in non-EU countries surrounding the Black Sea as they are not bound by the agreements such as the Water Framework Directive (WFD).

The habitat is likely to be sensitive to:

- Coastal developments including the construction of marinas and slipways, sediment extraction, the widening and dredging of channels, creation of artificial beaches, road developments, and sea defenses. These activities may alter the hydrological regime which will in turn affect the character and viability of the habitat.

- Chemical pollution. This is a threat of current and future importance which 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.

**List of pressures and threats**

**Urbanisation, residential and commercial development**

> Other urbanisation, industrial and similar activities

**Pollution**

> Nutrient enrichment (N, P, organic matter)
> Input of contaminants (synthetic substances, non-synthetic substances, radionuclides) - diffuse sources, point sources, acute events

## Conservation and management

In order to maintain physical and biological integrity, conservation and management measures which would benefit this habitat include pollution control and regulation, improvement of water quality management, and controls on coastal development.

### List of conservation and management needs

**Measures related to wetland, freshwater and coastal habitats**

> Restoring/Improving water quality

**Measures related to marine habitats**

> Other marine-related measures

**Measures related to spatial planning**

> Other spatial measures
> Establish protected areas/sites

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

> Urban and industrial waste management

### Conservation status

Annex 1-type:

1160: MBLS U1

1170: 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 % |

| Criterion A | A1 | A2a | A2b | A3 |
|---|---|---|---|---|
| *EU 28+* | unknown % | unknown % | unknown % | unknown % |

There is insufficient data on changes in quantity of this habitat. This habitat has therefore been assessed as Data Deficient under criterion A.

## Criterion B: Restricted geographic distribution

| Criterion B | B1 | | | | B2 | | | | B3 |
|---|---|---|---|---|---|---|---|---|---|
| | EOO | a | b | c | AOO | a | b | c | |
| *EU 28* | unknown Km$^2$ | Unknown | Unknown | unknown | unknown | Unknown | Unknown | unknown | unknown |
| *EU 28+* | unknown Km$^2$ | Unknown | Unknown | unknown | unknown | Unknown | Unknown | unknown | unknown |

This habitat occurs in the Black Sea but there is insufficient data to calculate EOO and AOO. It has therefore been assessed as Data Deficient under criterion B.

## 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 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 | DD | DD | DD | DD | DD | DD | DD | DD | DD | DD | DD | DD | DD |

| | 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 |

| 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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