A3.2x Mytilid-dominated Pontic moderately exposed upper infralittoral rock, blocks and boulders with Fucales

Summary

The habitat is present in the Black Sea, as well as the Sea of Marmara on rocky habitats in the infralittoral zone subject to moderately exposed wave action, typically covered in Fucales. Eutrophication was the main historic pressure on this habitat. Additional pressures include: coastal development and changes in sea temperature (due to climate change and coastal development). Conservation and management measures relevant to this habitat include: maintaining physical and biological integrity, improving water quality, coastal development controls, pollution event response plans, survey and monitoring programs, public awareness, protection of habitats and species and designation of MPAs.

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

A3.2x Mytilid-dominated Pontic moderately exposed upper infralittoral rock, blocks and boulders with Fucales

There are currently no photographs of this habitat available.

Habitat description

Rocky habitats in the infralittoral zone subject to moderately exposed wave action. This habitat includes a range of rock sizes, from complete uninterrupted bedrock to fragmented rocks and boulder fields. Rocks are typically covered with Fucales. *Cystoseria* species are the most common species encountered; Mytilids are a constant component and Corrallines are also occasionally present. The habitat occurs from low water depths, where illumination is a key environmental factor. The moderately exposed nature of the habitat allows species less tolerant of high energy environments to colonise and become established.

Indicators of quality:

Both biotic and abiotic indicators have been used to describe habitat quality including: 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; 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:

Mytilus galloprovincialis, Mytilaster lineatus, Cystoseira barbata f. *hoppii*, *Ulva rigida, Polysiphonia subulifera / P.opaca, Cystoseira crinita*, and *Cladostephus spongiosus – Corallina elongata* communities.

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-tidal habitat of 'Pontic infralittoral rock' (A3.2)

Annex 1:

1130 Estuarie

1160 Large shallow inlets and bays

1170 Reefs

8330 Submerged or partically submerged sea caves

MAES:

Marine- Marine inlets and transitional waters

Marine- Coastal

MSFD:

Shallow sublittoral rock and biogenic reefs

EUSeaMap:

Shallow photic rock or biogenic reef

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.

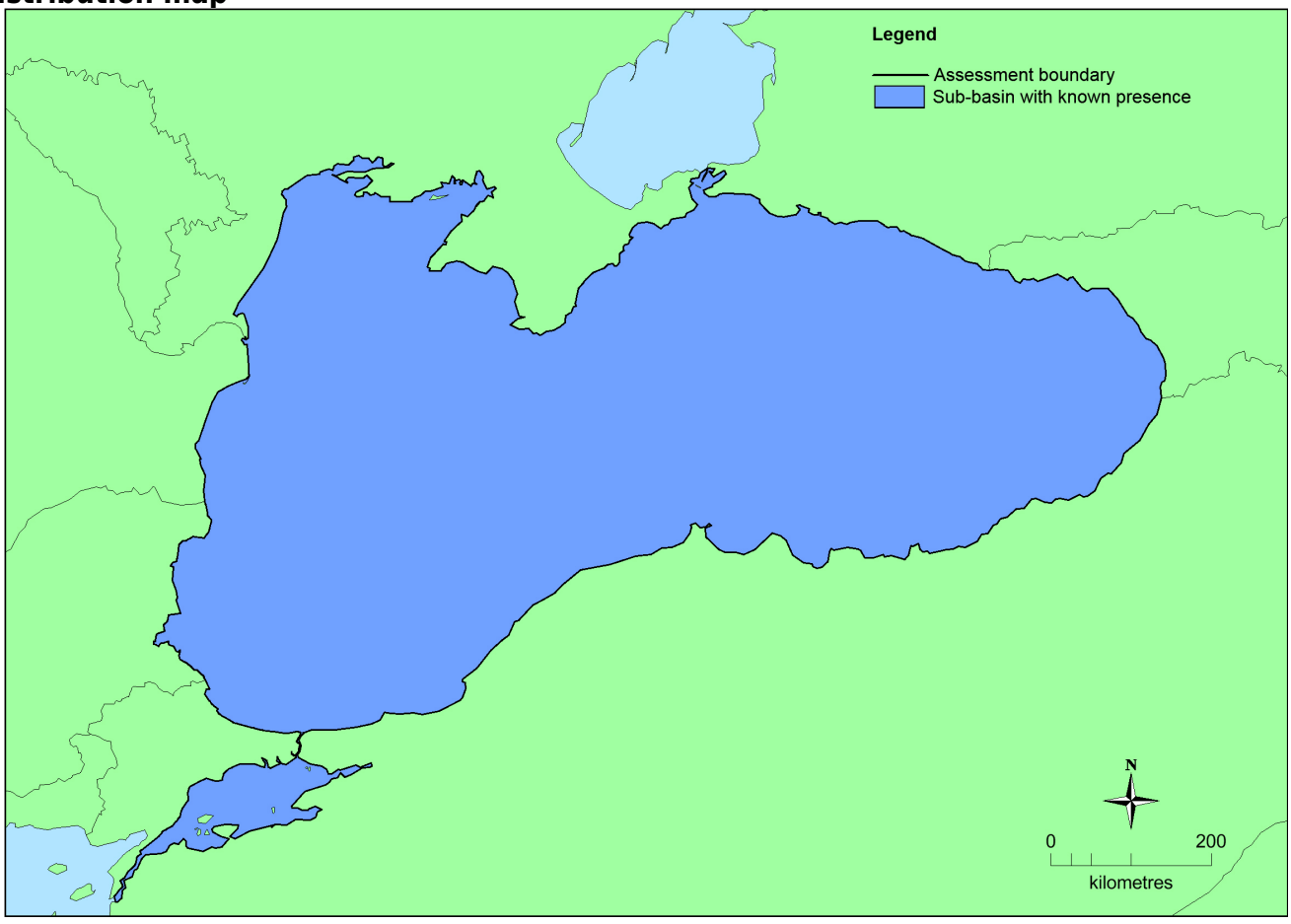
Geographic occurrence and trends

Region	Present or Presence Uncertain	Current area of habitat	Recent trend in quantity (last 50 yrs)	Recent trend in quality (last 50 yrs)
Black Sea	Black Sea: Present Sea of Marmara: 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



There is insufficient data to produce a map of the distribution of this habitat. However the sub-basins of which this habitat is likely to occur have been indicated.

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 EU28 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 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) was the most significant historic pressure on the habitat. Between the mid-1970s and the mid 1980s, widespread and severe eutrophication occurred in the Black Sea, especially on the north-west shelf, caused by agricultural run-off to rivers entering the sea, and coastal industrial development. Reduced light penetration due to eutrophication caused declines in extent and quality of the fucales component of the habitat. Anoxic and hypoxic conditions also caused mortalities of the mytilid element of the habitat. After peaking in the 1980s, eutrophication has since reduced due to tighter controls on pollution in the catchment of the Danube and other rivers which enter the north-west Black Sea as well as industrial decline after the dissolution of the Soviet Union. However, this pressure remains a threat in the current and future periods, especially along coastal parts of non-EU countries which are not bound by legislation such as the Water Framework Directive or Marine Strategy Framework Directive.

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 defences, may alter the hydrological regime which will in turn affect the character and viability of the habitat.

Changes in temperature are a threat to the habitat of current and future importance. Extreme temperatures in both summer and winter can cause die back of *Cystoseria* sp. canopies (Berov, 2010). Due to the slow growth rate and colonisation of the key species this can result in long-term declines.

Chemical pollution is a further threat of current and future importance which at its most severe can result in high mortality rates of key species and a reduction in extent. Lower mortality rates will result in a reduction of 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

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; coastal development controls; contingency plans to be followed in the event of a major pollution incident; survey and monitoring programmes; raised public awareness of ecological value and vulnerability; measures to reduce global warming and sea level rise; enhanced legal protection for occurrences of the habitat and key species (e.g. additions to the EU Habitats Directive, establish a unified list of Black Sea species and habitats requiring conservation measures, etc.)

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:

1160: MBLS U1, MMED XX

1170: MBLS U1, MMED XX

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 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^2	Unknown	Unknown	unknown	unknown	Unknown	Unknown	unknown	unknown
EU 28+	unknown Km^2	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	unknownnknown %	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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