

## A5.61 Polychaete worm reefs in the Pontic infralittoral zone

### Summary

This biogenic reef habitat is present in the Black Sea and the Sea of Marmara on areas with rocky or mixed sediment substrate. The main pressures impacting this habitat include eutrophication, chemical pollution, siltation, coastal developments, bottom trawling and dredging. Conservation and management measures relevant to this habitat include: measures to maintain physical and biological integrity, improvement of water quality, pollution event response strategies, survey and monitoring programs, raised public awareness, enhanced legal protection, measures to reduce global warming.

### 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

A5.61 Polychaete worm reefs in the Pontic infralittoral zone

There are currently no photographs available of this habitat.

#### Habitat description

A variety of polychaete worm reefs occur in the Black Sea. The habitat forming species are dependent on two variables: depth and exposure to wave action. In more sheltered and freshwater-influenced environments the non-native serpulid tubeworm *Ficopomatus enigmaticus* is the most common reef building species. In moderately exposed environments reefs formed by the serpulid *Vermiliopsis infundibulum* are present. Finally, on lower infralittoral rock serpulids form massive reefs in collaboration with bivalves (i.e. *Ostrea edulis*, *Mytilus galloprovincialis*). These reefs are an important component of the Black Sea ecosystem and are characterised by high biodiversity and fulfill important water filtration role.

Indicators of quality:

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

*Ficopomatus enigmaticus*, *Vermiliopsis infundibulum* and serpulids.

### **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 'Infralittoral biogenic habitat' (A5.6)

Annex 1:

1130 Estuaries

1160 Large shallow inlets and bays

1170 Reefs

8330 Submerged or partially submerged sea caves

MAES:

MSFD:

Shallow sublittoral rock and biogenic reef

EUSEaMap:

Shallow photic rock or biogenic reef

Shallow aphotic rock or biogenic reef

IUCN:

9.2 Subtidal rock and rocky reefs

Other relationships:

Equivalents in other regional seas include-

Polychaete worm reefs in the Atlantic infralittoral zone

Polychaete worm reefs in the Mediterranean infralittoral zone

### **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.

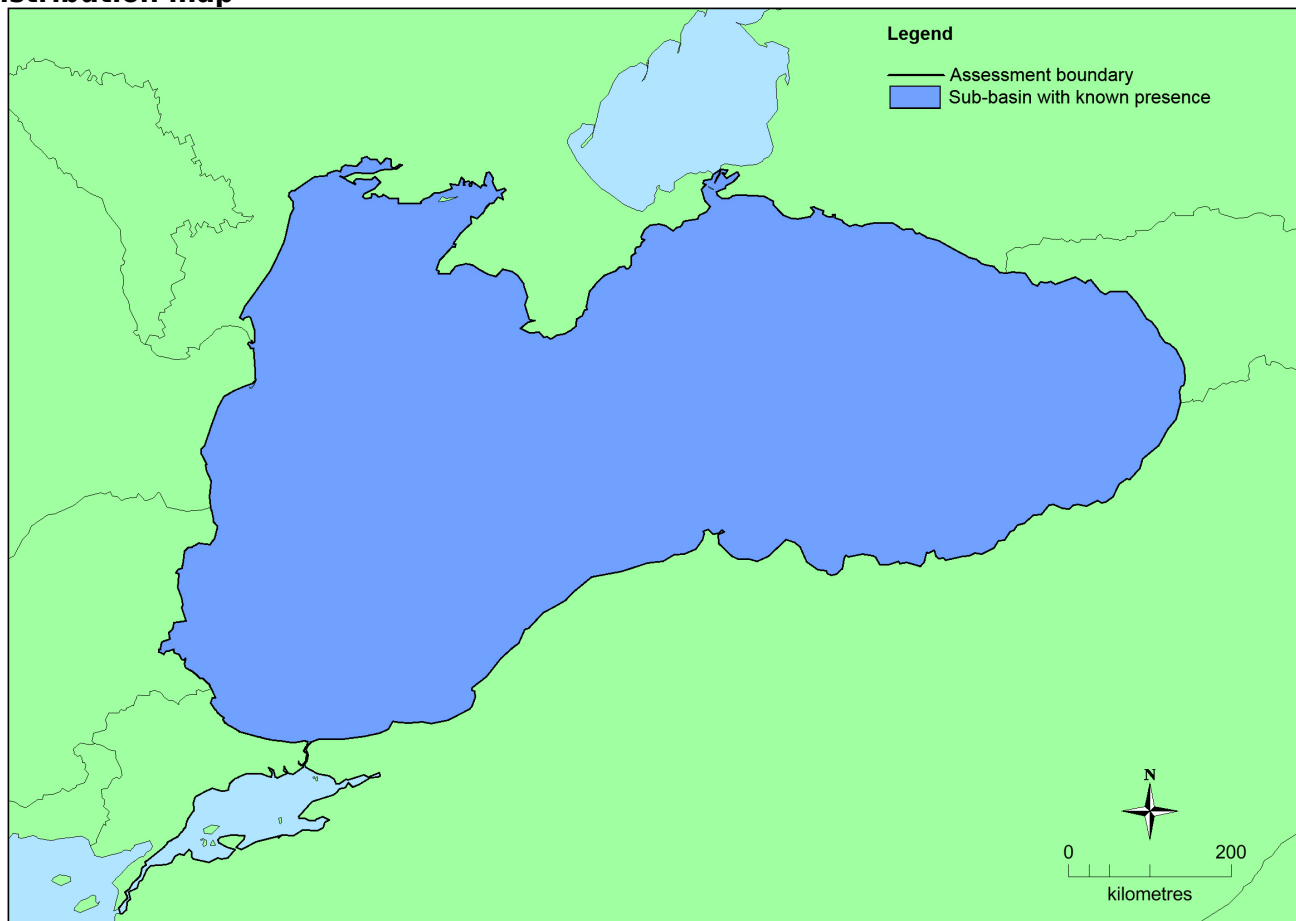
## Geographic occurrence and trends

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
<i>EU 28</i>	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.
<i>EU 28+</i>	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?

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?

-  
*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**

---

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

Demersal trawling and dredging by commercial fisheries is a current and future threat to the habitat. Trawling and dredging can damage the habitat and associated benthic communities both directly and indirectly. Trawl and dredge gear can directly impact the habitat by damaging and/or removing species. Trawling can also act directly to reduce the complexity of the habitat, smoothing out microhabitats, and thereby reducing biodiversity. Indirect impacts of trawling include smothering and alteration of sediment characteristics. Demersal trawling and dredging is prohibited in some states, however, illegal demersal fishing is still an issue in these areas.

Siltation is a current and future threat to the habitat. The resettling of suspended sediment can smother filter feeding organisms as well as inhibit the growth of some species. Siltation is typically caused by navigation channel dredging, demersal trawl and dredge fishing and other activities which disturb bottom sediments.

Chemical pollution is a threat of current and future importance which at its most severe can result in high levels of species mortality. High mortality rates can lead to a reduction in habitat/community extent. Lower mortality rates will result in a reduction in habitat quality. Chemical pollution may also affect growth rate and size of some fauna.

## **List of pressures and threats**

### **Urbanisation, residential and commercial development**

Other urbanisation, industrial and similar activities

## **Biological resource use other than agriculture & forestry**

Fishing and harvesting aquatic resources  
Professional active fishing

## **Pollution**

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

## **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, 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, 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.), and the designation of MPAs.

## **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  
Legal protection of habitats and species

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

Other measures

## **Conservation status**

Annex 1:

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 %
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
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 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
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

J. Ford

### Date of assessment

19/03/2015

### Date of review

22/01/2016

## 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..

Bacescu M., 1977. Les biocenoses benthiques de la Mer Noire. *Biologie des eaux saumatres de la Mer Noire, Premiere partie*: 128-134.

Borisenko A. M. 1946. *Quantitative accounting of benthic fauna of the Tendra Bay, Kara Dag*. 201p

Chernyakov D. A. 1995. *Natural-aquatic landscape complexes of the Tendra and Egorlyk bays and monitoring of their state in Black Sea Biosphere Reserve*

Kiseleva, M. I. 1981. *Benthos of Black Sea mobile substrates*. Naukova dumka, Kiev, pp 165.

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

Micu D, Todorova V., 2007. *A fresh look at the western Black Sea biodiversity*. MarBEF Newsletter No 7, pp 26-28.

Micu, D., Zaharia, T., Todorova, V., Niță, V. 2007. *Romanian Marine Habitats of European Interest*. Punct Ochit Publishers, Constanța, Romania.

- 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.
- Todorova V., Micu D., Klissurov L., 2009. Unique oyster reefs discovered in the Bulgarian Black Sea. *Comptes rendus de l'Académie bulgare des Sciences* 62(7): 871-874. ISSN 1310-1331.
- Moncheva. S., Todorova, V., (eds). 2013. *Initial assessment of the marine environment*. Article 8, 2008/56/EC and NOOSMV (2010). 500p
- Pereladov M. V., 2005. Modern status of the Black Sea Oyster population. Coastal hydrobiological investigations. *VNIRO Proceedings*, 144: 254-273.
- 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).
- Terentyev, A. S. 2011. Macrozoobenthos of coastal part of the Kerch Bay (summer, 2009). Ecology of cities and recreational areas. / *All\_Ukrainian Scientific Conference Proceedings of articles*: 261-263.
- Vershinin, A. 2007. *Life in the Black Sea*. Maccentr, Moscow, Russia.
- Zaika V.E., Boltachev A.R., Zuev G.V., Kovalev A.V., Milchakova N.A., Sergeeva N.G. 2004. Floristic and faunistic changes in the Crimean Black Sea shelf after 1995 - 1998, *Marine Ecological Journal*, 3(2), p. 37-44.
- 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.