# A5.6z Circalittoral biogenic habitats in the Mediterranean - oyster beds

## Summary

This habitat is comprised of circalittoral oyster beds on rocky and soft bottoms where the predominant species is *Neopycnodonte cochlear*. They make large mass aggregations on the bottom and support the development of other life forms such as cnidarians, bryozoans and sponges. Circalittoral biogenic habitats in the Mediterranean such as oyster beds have not been studied in any detail. There is limited information about the occurence of the keystone species such as *N. cochlear* that form this beds and no information is available about the existence and spatial extent of such beds.

Threats to this habitat include the exploration of the seabed and the activities for the extraction of oil and gas can affect the habitat of the oyster beds (formations). Benthic trawling, water pollution and invasive non-native species can also potentially harm this habitat. Conservation measures could inlcude management of demersal fisheries, the establishment of protected areas, regulation of oil and gas licencing and disposal activities to avoid these habitats. This habitat would also benefit from further studies on the existence and spatial extent.

## Synthesis

This circalittoral biogenic habitats has not been studied in any detail in the Mediterranean. Much is unknown about its spatial extent, biotic/abiotic characteristics and associated biodiversity. There is also a lack of information regarding trends. This habitat has therefore been assessed as Data Deficient for both the EU 28 and EU 28+.

| 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

A5.6z Circalittoral biogenic habitats in the Mediterranean - oyster beds

No characteristic photos of this habitat are currently available.

### Habitat description

Circalittoral oyster beds on rocky and soft bottoms comprised mainly by the *Neopycnodonte cochlear*. These make large mass aggregations on the bottom and support the development of other life forms such as cnidarians, bryozoans and sponges. In the Mediterranean, two species of the genus Neopycnodonte exists. *Neopycnodonte cochlear* and *Neopycnodonte zibrowii*. *N. cochlear* is found in waters with depths of 40-400 meters while *N. zibrowii* is found in deeper waters and so not included further in this assessment. This habitat  can also be found in underwater caves, in even shallow waters, indicating that the dim light is the modulator of the distribution. In the circallitoral zone, *N. cochlear* can cover large areas of the bottom, both muddy and rocky. Often, shells can be found growing on disgarded fishing gears, when fleets use to

fish in areas where deepsea oyster exists. There are three distinct habitat components; the interstices within the oyster matrix; the biodeposits beneath the bed; and the substratum afforded by the oyster shells themselves. A diverse range of epibiota and infauna often exists in these parts of the habitat.

Indicators of quality:

Both biotic and abiotic indicators have been used to describe marine habitat quality. These include the presence of particular species, water quality parameters, levels of exposure to a particular exposure as well as more integrated indices which describe habitat function and structure, such as trophic index, or successful stages of development in habitats that have a natural cycle of change over time.

There are no known commonly agreed indicators of quality for this habitat, although particular parameters may be set in certain situations, e.g. protected features with Natura 2000 sites, where reference values may have been determined and applied on a location-specific basis. Presence, density and size range of the oyster *N. cochlear* can be used as an indicator of quality.

Characteristic species:

Oyster *N. cochlear*., Porifera, bryozoans like *Pentapora sp*., *Myriapora sp*., Crustacean and Cnidarian like *Parazoanthus spp*., *Dendrophyllia spp*, *Desmophyllum spp*. etc are some of the characteristic species that can be found in this formations. Molluscs and Decapods also occur.

## Classification

EUNIS (v1405):

Level 4:. A sub-habitat of A5.6: Circalittoral biogenic habitat.

Annex 1:

1170 Reefs

MAES:

Marine – Coastal

Marine - Shelf

MSFD:

Shelf sublittoral rock and biogenic reef

Shallow sublittoral rock and biogenic reef

EUSeaMap:

Shallow photic rock and biogenic reef

Shallow aphotic rock and biogenic reef

IUCN:

9.2. Sub-tidal rock and rocky reefs

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

Unknown

Justification

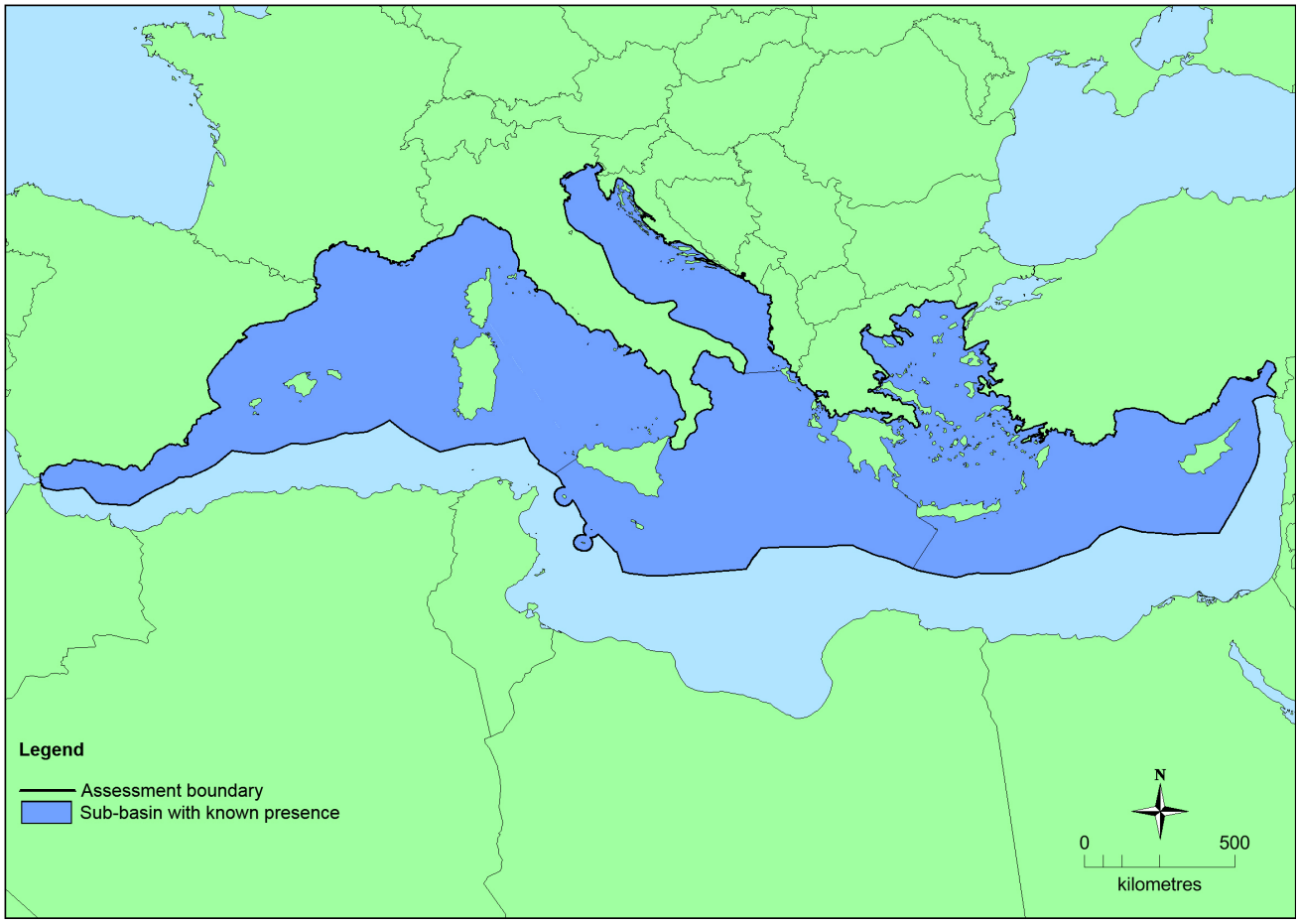
## Geographic occurrence and trends

| Region | Present or Presence Uncertain | Current area of habitat | Recent trend in quantity (last 50 yrs) | Recent trend in quality (last 50 yrs) |
|---|---|---|---|---|
| *Mediterranean Sea* | Adriatic Sea: Present<br>Aegian-Levantine Sea: Present<br>Ionian Sea and the Central Mediterranean Sea: Present<br>Western Mediterranean 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 $Km^2$ | This habitat is present in all the sub-basins and is common. EOO and AOO are considered likely to exceed the thresholds for a threatened category on the basis of restricted geographic distribution alt |
| *EU 28+* | Unknown $Km^2$ | Unknown | Unknown $Km^2$ | This habitat is present in all the sub-basins and is common. EOO and AOO are considered likely to exceed the thresholds for a threatened category on the basis of restricted geographic distribution alt |

### Distribution map




This habitat is known to occur in all sub-basins in the Eastern and Western Mediterranean but 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 EU 28 in the Mediterranean.

### Trends in quantity

There is no information related to the spatial extent of this habitat therefore trends in quantity are unknown.

- 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*
  There is no information related to the spatial extent of this habitat
- Does the habitat have a small natural range by reason of its intrinsically restricted area?
  Unknown
  *Justification*
  There is no information related to the spatial extent of this habitat

### Trends in quality

There is no information related to the spatial extent of this habitat, the hosted biodiversity and other metrics related to the ecological status. Trends in quality are therefore unknown.

- Average current trend in quality

EU 28: Unknown
EU 28+: Unknown

## Pressures and threats

The exploration of the seabed and the activities for the extraction of oil and gas can affect the habitat of the oyster beds (formations). Benthic trawling has proven that large portion of the bycaught invertebrates are made by the keystone species such as *Neopycnodonte cochlear*. Marine water pollution and invasive non-native species can also potentially harm this habitat.

### List of pressures and threats

**Mining, extraction of materials and energy production**

Exploration and extraction of oil or gas
Production drilling
Jack-up drilling rig
Drill ship

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

Professional active fishing
Benthic or demersal trawling

**Pollution**

Marine water pollution

**Invasive, other problematic species and genes**

Invasive non-native species

## Conservation and management

Important measures for the protection of this habitat should start with the identification and mapping of the beds. Up to now, the knowledge of these beds comes from oceanographic cruises that collect benthic samples in specific locations (stations), from bycatch of the benthic trawls and artisanal fisheries as well as from information that is provided by museum collection and shell collectors. Management of demersal fisheries, including the establishment of protected areas, regulation of oil and gas licencing and disposal activities to avoid these habitats will be beneficial.

### List of conservation and management needs

**Measures related to spatial planning**

Establish protected areas/sites
Establishing wilderness areas/allowing succession
Legal protection of habitats and species

**Measures related to hunting, taking and fishing and species management**

Regulation/Management of fishery in marine and brackish systems

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

Urban and industrial waste management

**Measures related to special resouce use**

Regulating/Managing exploitation of natural resources on sea

### Conservation status

Annex 1:

1170: MMED XX

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

Unknown

### Effort required

## 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 to determine any trends in quantity of this habitat in the past, present or future. This habitat has therefore been 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* | unknown $Km^2$ | Unknown | Unknown | unknown | unknown | Unknown | Unknown | unknown | unknown |
| *EU 28+* | unknown $Km^2$ | Unknown | Unknown | unknown | unknown | Unknown | Unknown | unknown | unknown |

There is insufficient data to determine the EOO and AOO of this habitat or any trends in quantity/ quality of this habitat in the past, present or future. This habitat has therefore been assessed as Data Deficient under criteria B 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% |

There is insufficient data to determine any trends in quality of this habitat in the past, present or future. Therefore this habitat has been assessed as Data Deficient under 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 probablity of collapse of this habitat type. Therefore, it is assessed as Data Deficient under criteria E.

### 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
D. Poursanidis.

### Contributors
S.Gubbay and N.Sanders.

### Reviewers
N. Dankers

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## References

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