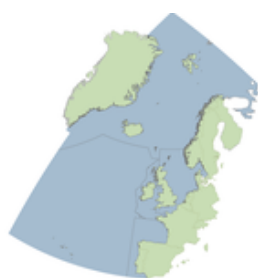


# Status Assessment 2019 - Maerl beds

Maerl beds continue to be threatened and/or declining in Regions II, III and IV. The current status is unknown in Region I. In the current assessment period (2013-2018) maerl beds have been impacted by extraction, fishing, mariculture, dredging, climate change and non-indigenous species. Maerl extraction has been prohibited in France since 2011 and in some parts of the UK.



(/en/ospar-assessments/quality-status-reports/qsr-2023/)

Maerl Beds Status		Distribution		Extent		Condition		Assessment of Status
Region*	I	?	4	?	4	?	4	Unknown
	II	?	4	?	4	↓	4	Poor
	III	?	3	↓	3	↓	3	Poor
	IV	↔	4	↓	4	↓	4	Poor
	V							N/A

Maerl Beds Threat/Impact		Sand and gravel extraction		Fisheries		Mariculture		Dredging for navigational purposes		Introduction or spread of non-indigenous species		Climate change		Assessment of threat or impact***	
Region*	I	?	5	?	5	?	5					?	5	Unknown	?
	II	↓	4	?(H)	4	?(M)	4	?(H)	4	?(H)	4	?(H)	4	Poor	H
	III	↓	4	?(H)	3	?(H)	3	?(H)	3	?(H)	3	?(H)	4	Poor	H
	IV	?(H)	4	?(H)	4	?(M)	4			?(H)	4	?(H)	4	Poor	H
	V													N/A	

⊕ Table Legend

⊕ Table Notes

⊕ Method of Assessment

## Background Information

Maerl beds were added to the OSPAR List in 2004. The habitat was listed as threatened/declining in the Celtic Seas (III) but is known to occur in all OSPAR regions. Maerl beds occur either on the open coast, in tide-swept channels or in sheltered areas of marine inlets with weak currents. Maerl beds have high associated biodiversity, are an important habitat for commercial fish and bivalve species and a source of sand. Maerl is very sensitive to human activities, with extremely slow growth rates, hindering recovery. The 2010 QSR (Hall-Spencer et al., 2010), assessed maerl beds to be continuing to decline in the Celtic Seas (III) mainly as a result of commercial sand and gravel extraction, mariculture and demersal fishing.

Maerl beds have been found throughout the OSPAR area, with new occurrences still being mapped.

The trend in distribution is unknown in Arctic Waters (I), Greater North Sea (II) and Celtic Seas (III) since 2007 but there are known losses in the Scottish part of the Celtic Seas (SNH, 2019a&b) and improved knowledge has shown that previous range (extent) of Maerl in the Northern Irish part of the Celtic Seas was overestimated due to incorrect identification of the species. Taking this into consideration, the current range and population size of Maerl beds in this area is considered to be stable (DAERA, 2019a&b). The distribution trend is stable in the Bay of Biscay and Iberian Coast (IV). Information is sparse for the Wider Atlantic (V).

Future trends (2018-2030)- Predicted to be decreasing in Greater North Sea (II) and Celtic Seas (III) (2018-2030) as there has been historic damage to maerl (extent and / or condition), which is slow to recover. The future trend is unknown in the Spanish part of the Bay of Biscay and Iberian Coast but is predicted to be decreasing in the French part of the region. Demersal fishing pressures are likely to continue in all assessed regions and there are high future threats from ocean acidification and rising temperatures.

Method of assessment: 2b

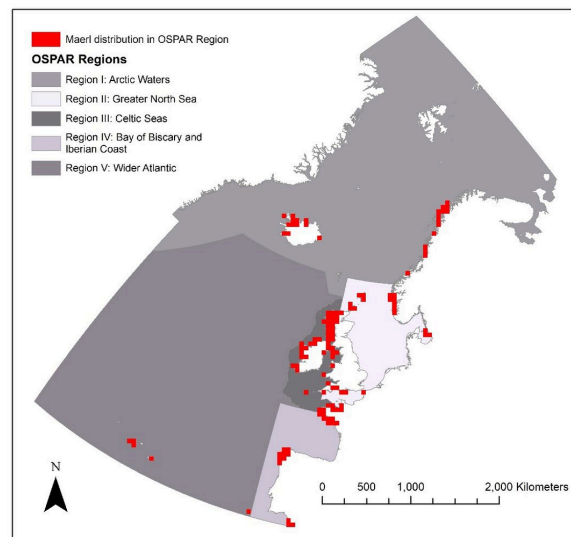


Figure 1 Distribution of 50 km squares containing maerl beds in the OSPAR maritime area, based on OSPAR T&D database (2018) and Article 17 data on Lithothamnium corallioides and Phymatolithon calcareum distribution from Spain.

## Extent (Habitats)

Table 1: Number of 1 x 1 km squares containing maerl records in each member state and OSPAR Region. The OSPAR T&D database (2018) was intersected with grid squares (unless stated otherwise). Please note: that maerl beds are not fully mapped in any of the five regions

Member State	Arctic Waters	Greater North Sea	Celtic Seas	Bay of Biscay and Iberian Coast*	Wider Atlantic	Comments
Denmark	N/A	0	N/A	N/A	N/A	Known to occur in Greater North Sea but not mapped
France	N/A	88	156	36	N/A	
Iceland	27	N/A	N/A	N/A	N/A	
Ireland	N/A	N/A	296	N/A	N/A	
Norway	148	53	N/A	N/A	N/A	
Portugal	N/A	N/A	N/A	0	13	Maerl is known to occur in the Portuguese part of Region IV but has not been fully mapped (Peña et al., 2009)
Spain	N/A	N/A	N/A	800	N/A	
Sweden**	N/A	8	N/A	N/A	N/A	Recent inventories in Sweden suggest that there is more maerl than was known during the submission to OSPAR T&D database (2018.)
UK	N/A	192	759	N/A	N/A	
Total	175	342	1211	836	13	
Source	OSPAR T&D database	OSPAR T&D database	OSPAR T&D database	FR – OSPAR T&D database	Source	OSPAR T&D database
ES- advised by Spain*	OSPAR T&D database		ES- advised by Spain*	OSPAR T&D database		ES- advised by Spain*

\* Please note: FR advised that these figures did not represent how the habitat was split between the two countries and therefore, should not be used to weight the Article 17 results. Therefore, Article 17, 10 x 10 km distribution maps were used to weight the results in the assessments, the figures used are detailed in the audit below.

The total extent of maerl in OSPAR waters is unknown but it has been decreasing in the Celtic Seas (III) since 2007 due to demersal fishing activities in French waters, and other localised declines reported, in UK waters, thought to be due to impacts from demersal fishing gear. The extent is also unknown in Arctic Waters (I), and Greater North Sea (II), but it is known to be decreasing in the French part of both the Greater North Sea (II) and the French and Spanish parts of the Bay of Biscay and Iberian Coast (IV). The extent of the habitat in the Norwegian part of Arctic Waters (I) is thought to have decreased over 50 years (1968-2018) but it is not possible to determine the trend since the last status assessment in 2010. Information is sparse for the Wider Atlantic (V).

Future trends (2018-2030)- see future trends in distribution in the section above.

Method of assessment: 2b

## Condition

Maerl bed condition is currently assessed as good in the Norwegian part of Arctic Waters (I), however, the trend in condition (2010-2019) is unknown in this region. Condition is decreasing in Greater North Sea (II) and Celtic Seas (III). While the extent of maerl beds in Ireland has remained the same, the quality of the beds has declined. Trend in condition is decreasing in the French part of the Bay of Biscay and Iberian Coast (IV). In 2010, there were no reported impacts in the Wider Atlantic (V) and no new information was available for this assessment.

Future trends (2018-2030)- in condition are predicted to be decreasing in Greater North Sea (II) and Celtic Seas (III). This was reported for the Irish part of Celtic Seas (III) and the French part of both regions. The UK was unable to predict future trend in condition, due to lack of knowledge on current condition, however, there is high confidence that the condition has declined in Welsh parts of the Celtic Seas (III), which is predicted to continue (NRW, 2019a&b). The future trend is decreasing in the Spanish part of the Bay of Biscay and Iberian Coast (IV) (for *P. calcareum*) and in the French part of the region. The condition of the of habitat in the Norwegian part of Arctic Waters (I) is predicted to decrease by < 20% over the next 50 years (2018-2068) due to degradation by biotic factors (Gundersen et al., 2018).

Method of assessment: 2b



## Threats and Impacts

The primary threats that were identified in 2010 QSR were commercial extraction, mariculture and fisheries (Hall-Spencer et al., 2010), which have also been identified as key threats in the current assessment (2013-2018). Extraction is a current (2013-2018) and predicted future threat (2019-2030) in the Spanish part of the Bay of Biscay and Iberian Coast (IV), however, is banned in France in Regions II, III & IV and in the UK in Region III. Information on extraction activities were not available for the Danish and Swedish parts of the Greater North Sea (II). The 2010 QSR, noted that extraction was ongoing in the Icelandic part of Arctic Waters (I),

however, there is no updated information on this. Mariculture and fisheries are current (2013-2018) and predicted future threats (2019-2030) in both the Greater North Sea (II), Celtic Seas (III) and Bay of Biscay and Iberian Coast (IV) and were noted as probable threats to Arctic Waters (I) in the status assessment in 2010 QSR.

The current assessment also identified dredging for navigational purposes and introduction of spread of non-indigenous species as current (2013-2018) and predicted future threats (2019-2030) in the Greater North Sea (II) and Celtic Seas (III). Introduction of spread of non-indigenous species was also noted as a current and future threat in the Norwegian part of Arctic Waters (I).

The past and future trends of three key pressures/activities that are of concern to biodiversity (including maerl) in the Swedish part of the Greater North Sea (II) are as follows: tourism and recreational activities are increasing, siltation rate changes, including smothering are stable and changes in suspended solids are decreasing.

In the Norwegian part of Arctic Waters (I), there is not enough evidence to identify past trends in pressures. Ocean acidification has been identified as the most important future threat in the region, which, together with temperature increase is assumed to cause a slow but significant reduction (<20% over 10 years) (Gundersen et al., 2018).

Less significant current and future threats are listed in the audit section below.

## Measures that address key pressures from human activities or conserve the species/habitat

Actions towards the recommendations were summarised below using Implementation reports 2019 (submitted by UK and France) together with information additional information from Contracting Parties. They therefore cover Celtic Seas (III) and the UK, French and Swedish parts of the Greater North Sea (II) and the French parts of the Bay of Biscay and Iberian Coast (IV):

3.1a France and the UK have national legislation for the conservation of maerl beds. Two maerl-forming species, *L. Corallioides* and *P. Calcareum*, are listed in Annex V of the EU Habitats Directive, as such Member States are required to take appropriate management measures to ensure that their exploitation is compatible with maintaining them in Favourable Conservation Status. Additionally, maerl is a key habitat within some of the EU Habitats Directive Annex I habitats and are, therefore, given protection through the designation of SACs. In France in the Natura 2000 site "Belle Ile en mer" a fisheries management measure has been adopted to prohibit scallops dredging on a maerl bed.

3.1b Maerl extraction has been prohibited in France since 2011. In England, the only site where this activity occurred was Falmouth, commercial extraction was banned in 2005 when extraction licenses in Cornwall were removed.

3.1c For UK maerl beds, within protected sites, existing measures for protection are effective, however, this does not extend to the sites with maerl that are not designated for protection. A review is currently taking place to improve protection given to Scottish Priority Marine Features (including maerl), from demersal fishing, in selected areas outside the MPA network. This project is going through a series of public consultations. In France, risk analysis should reduce fisheries induced pressures in Natura 2000 sites. France have plans to implement this in the next phase for the achievement of the "Façade Strategic Documents".

3.1d There are monitoring, surveillance, and mapping programmes in Ireland, France and the UK

3.1e&l The UK collates data collected by citizen scientists and also data used for EIA purposes. France has several monitoring projects in progress. France has a project involving fishermen and scientists to better understand impacts of fishing gears. France is also part of the "citizen awareness raising" action of the integrated LIFE project "MarHa" and an evaluation protocol is under development for an evaluation by the general public (diving centres).

3.1f Known records of maerl beds are submitted to the OSPAR habitat mapping.

3.1g&h The UK has 16 maerl bed protected areas, and has put fisheries measures in place. Further protection is being considered in Scottish waters (see 3.1c) ; In France, Maerl beds occur in 25 MPAs (designated as a protected feature in 10), 9 being part of the OSPAR network (7 of them designated to protect this feature). France will be implementing risk analysis for fishing activities in all Natura 2000 sites, and as mentioned above has prohibited scallop dredging on a maerl bed in a Natura 2000 site and is working to implement the "Façade Strategic Documents". In Sweden, Maerl beds are located within Natura 2000 sites, where management enforcement is implemented.

3.1i, j&k In the UK regulatory measures are in place to mitigate impacts from urban and industrial sewage, regulate coastal human activities, and implement coastal protection. These recommendations are also being implemented in France. In Sweden, there are ongoing processes to regulate fisheries via the CFP and to reduce impact of outdoor sports, leisure and recreational activities.

3.1m Within the UK, competent authorities and other bodies endeavour to work collaboratively to fulfil the aims of this recommendation.

## Conclusion (including management considerations)

The current assessment is in general agreement with the last QSR 2010 status assessment in 2010 (Hall-Spencer et al., 2010) which found maerl to be threatened and declining in the Celtic Seas, with possible declines in other regions. Extent and condition of maerl beds continue to decline in the Celtic Seas, particularly due to fisheries, dredging for navigation, mariculture, introduction of non-indigenous species and climate change. Maerl is also considered to be declining in the Greater North Sea due to the same pressures, although less evidence is available. A ban on commercial extraction in parts of the UK and France have now reduced those pressures in the Greater North Sea, Celtic Seas and parts of the Bay of Biscay and Iberian Coast. New Marine Protected Areas have been created which aim to protect maerl in UK waters. Extent and condition of maerl beds in Bay of Biscay and Iberian Coast is declining particularly due to sand and gravel extraction (in the Spanish part), fisheries, mariculture, introduction and spread of non-indigenous species and climate change. The Norwegian Red List Assessment (Gundersen et al., 2018) concluded that the habitat was data deficient (DD), but did document <20% reduction in total area in the past 50 years and next 50 years. The current status of maerl beds in the Norwegian section of Arctic Waters is unknown but key pressures/human activities are predicted to increase in the future. Future scenarios indicate a complete loss of maerl in the Arctic by 2100, and smaller losses in boreal areas (Brodie et al. 2014).

Further management measures are needed to prevent the loss and damage of maerl beds from human activities. Important measures would include prohibiting direct extraction of maerl where this is not already in place and stopping the use of demersal fishing gears where maerl beds occur. Activities that result in siltation, such aquaculture, dredging, and agricultural land use should be a sufficient distance from the habitats. There are high threats in the future from ocean pH changes and rising temperatures so climate mitigation measures should also be put in place.

## Knowledge gaps

The assessment in Region I, is based on expert judgement and the Norwegian Red List Assessment (Gundersen et al., 2018), which also relied on limited data. The assessment in Regions II, III and IV is based on results from Article 17 2019, which mainly used expert opinion to identify trends in status, based on a mixture of quantitative data, literature, and knowledge of sensitivity, pressures and activities.

The total spatial area covered by maerl in the NE Atlantic is unknown. A few locations have, however been mapped in detail. In order to complete in-depth trend analyses, full seabed mapping of all potential areas would need to be completed and time-series established. Improved knowledge of human activities and pressure/sensitivity studies will increase understanding of the status of maerl beds.

## Context & Guidelines

Guidance on the Development of Status Assessments for the OSPAR List of Threatened and/or Declining Species and Habitats

OSPAR Agreement 2019-05e (<https://www.ospar.org/documents?v=40966>)

## References

### Sheet reference:

POSH2019/Maerl\_Beds\_OSPAR



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