



maerl beds

SCOTTISH
NATURAL
HERITAGE





Where is maerl found?

The wide variety of plants and animals associated with maerl is in part due to the wide geographical range over which the beds are found - from the Mediterranean to Scandinavia.

Around the UK, they are found in scattered locations off southern and western coasts, and north to Shetland. Scotland is home to several of the most extensive maerl beds in Europe. They are particularly well developed around the islands and sea lochs along the west coast and around Orkney and Shetland. There are a few maerl beds in Northern Ireland and in England and Wales, maerl beds are present in Dorset, the Fal Estuary in Cornwall and in Milford Haven, Pembrokeshire.

The distributions of the three main maerl species in the UK are not entirely clear because of problems with identification.

Phymatolithon calcareum occurs throughout British waters and is the most abundant species; *Lithothamnion glaciale* has a northern distribution; and *Lithothamnion corallioides* has a southern distribution.

biodiversity

what's it all about?

Biodiversity encompasses all living things: the rich variety of species, habitats and ecological systems that make up the living Earth. We share the planet with an uncounted number of other organisms living in an incredible variety of places - we need to protect and sustain the widest variety of them for our sake as well as theirs. Biodiversity is fundamentally important to our well-being, cultural heritage and to our very existence.

Conserving and enhancing biodiversity is now recognised as being a local, national and global responsibility. The UK was one of 159 countries that signed the Convention on Biological Diversity after the Rio Earth Summit in 1992. This required each country to produce a national Biodiversity Action Plan to set out how it intends to conserve and protect its biological resources for the future.



What is maerl?

At first sight, a piece of maerl may look like some form of hard coral; with your eyes closed it feels like a spikey stone or a strange piece of jewellery. So you may be surprised to find that it's actually a seaweed. The term 'maerl' covers several species of free-living red seaweeds that are capable of incorporating calcium carbonate (chalk) into their skeletal structure giving them a hard feel. The three main species in the UK are *Phymatolithon calcareum*, *Lithothamnion glaciale* and *Lithothamnion corallioides*. Maerl grows as unattached twig-like nodules on the sea bed and, where conditions are favourable, can form extensive beds. These beds will typically have a thin layer of pink, living maerl on top, overlying a build-up of dead, white fragments which may be several metres deep.



maerl beds

- It is everywhere and affects all of us.
- Biological activity is a key component in the maintenance of the Earth as an environment fit for life.
- Biodiversity provides us with many resources including fuel, food, clothes, homes, medicines and a source of inspiration and well-being.
- We have a duty to ensure our actions do not compromise this biodiversity and that it is left unspoiled for future generations.

The UK plan sets out targets for the conservation, restoration and enhancement of our biodiversity. It comprises Habitat Action Plans, Species Action Plans and Local Biodiversity Action Plans.

The Habitat Action Plans include those habitats that are threatened, rapidly declining or rare, are important for priority species or marine communities, or where the UK has special legal obligations for protection. For the marine environment habitats are also included where the UK holds over 40% of the northeast Atlantic resource. This leaflet describes one of the marine habitats, maerl beds, for which a Habitat Action Plan has been written.

Maerl beds form a very fragile habitat, a delicate three-dimensional structure, that requires specific conditions in which to grow. Beds are often found in shallow, sheltered areas where there is some water flow, overlying a substrate of sand, mud or gravel. Such situations are found in the narrows and rapids of sea lochs, or the straits and sounds between islands. Water movement is important as it helps prevent the settlement of silt on the maerl which may lead to smothering. Maerl is very slow-growing and some of the dead material at the base of the beds that accumulates beneath the top living layer may have been there since the end of the last ice age, 8000 years ago!

The biodiversity of maerl beds

Maerl beds are an important habitat for a wide variety of marine animals and plants. They are home to a myriad of species ranging from small colourful sponges and jelly-like sea squirts to crabs, squat lobsters and clams. Many species of marine algae grow attached to the maerl bed surface. Some of the species of red seaweed are particularly associated with growing on maerl beds. Beneath the live surface of the maerl bed the old dead fragments create a home for many species of worms, molluscs and small shrimp-like crustaceans. Whether they live on or in amongst the live maerl, or burrow in the coarse dead fragments, these organisms can all find shelter and food within the maerl bed.

Common sunstar



Fort Luinge, Muckton, Lochailin

The conservation of maerl beds is being provided for in three ways. Firstly, the two maerl-forming species, *Lithothamnion corallioides* and *Phymatolithon calcareum*, are listed on Annex V of the EC Habitats Directive which requires appropriate management measures to be put in place for the direct exploitation of listed species. Secondly, maerl is a qualifying feature of a number of Special Areas of Conservation designated under Annex II of the Habitats Directive, for example the Sound of Arisaig cSAC. Finally, maerl beds are the subject of a habitat action plan as part of the UK Biodiversity Action Plan.

Maerl beds form a fragile and complex ecosystem and they are at risk from any activity that breaks them up, causes physical disturbance or smothering. Effects are likely to be immediate but more importantly, the nature of maerl is such that recovery will take a very long time. The aim of the UKBAP action plan is to provide a focus for the co-ordinated management of the wide variety of activities that affect maerl beds.

Maerl beds are a protected habitat



Fishing (whether with trawls, beam trawls, scallop dredges and hydraulic dredges) has the potential to cause significant disturbance to maerl habitat.

However, as we learn more about the role maerl plays in the inshore ecosystem we are realising that maerl may actually be of great importance to the same fisheries that impact upon them. We know, for example, that maerl is important for the settlement of juvenile scallops and other bivalves and may also be a nursery habitat for juvenile fish. Therefore, protecting maerl habitat is not only good for its own sake, but is also beneficial for these fisheries.



Direct **exploitation** of maerl occurs when it is used in agriculture and horticulture and for a water filtration medium. Such exploitation results in complete removal of the

feature from the sea bed. The slow growth of individual nodules and their accumulation in beds over a millennial timescale means that there is no possibility of maerl keeping pace with dredging for this purpose. Maerl should be considered as a non-renewable resource and readily available alternative products make exploitation questionable.



Maerl requires clear, clean, flowing water. There are a wide variety of factors that influence **water quality**, ranging from increased nutrients from sewage and

agricultural run-off. Measures to reduce these inputs will benefit maerl and the wider environment. Similarly, the discharge of nutrients and particulate matter from fish farms is a risk and the careful siting of farms is important to reduce impacts.



Maerl beds will be affected by **civil engineering** operations that stop or reduce the flow of water in coastal areas. Bridges, causeways and road building have all impacted

on maerl beds in the recent past. Care needs to be taken to avoid important maerl beds and to design structures in a way that maintains tidal flow.



Sailors can also play their part by taking care when deploying and lifting of **anchors** in maerl beds. More importantly, the establishment of **moorings** in maerl beds should

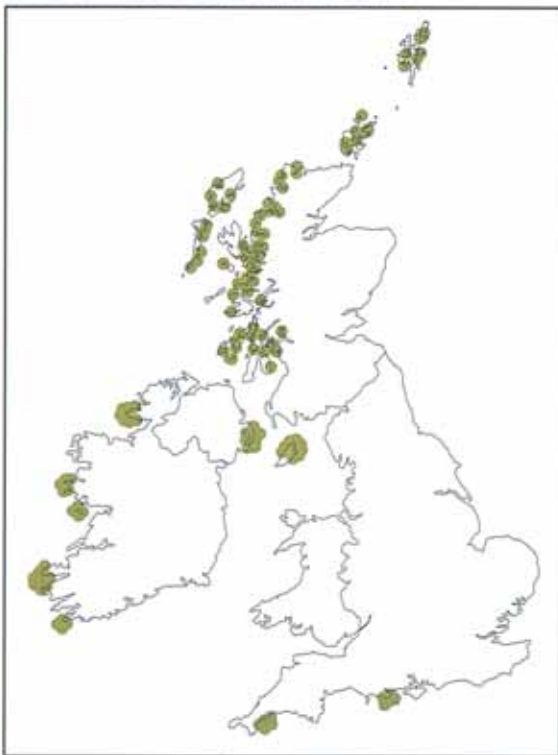
be avoided because of the damage that is caused by mooring chains as they drag on the sea bed at low water.



Maerl beds may be hidden from sight under the water, but responsibility for their welfare rests with all of us. By taking care of these beds, and managing them in a

sustainable way, we'll ensure they are there for future generations to benefit from and enjoy. If you are concerned about the impact an activity you wish to carry out will have on a maerl bed, or you would like to have more information about maerl in your area, please contact your local SNH, English Nature or Countryside Council for Wales office for advice.

DISTRIBUTION OF MAERL BEDS



Sources: Mermaid/MNCR database and www.marlin.ac.uk

BAP Information note series.

Useful websites for further information:

www.ukbap.org.uk

www.nbn.org.uk

www.marlin.ac.uk

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