

The Green Guide to Anchoring and Moorings



RVA **BRITISH MARINE**
A joint environmental programme



Credit: iStock - PhotoGoricki

Supported by:



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Introduction

The Royal Yachting Association has partnered with Natural England along with others including the Marine Conservation Society, Ocean Conservation Trust and Plymouth City Council, as part of a four year EU LIFE funded project known as the LIFE Recreation ReMEDIES Project. ReMEDIES stands for Reducing and Mitigating Erosion and Disturbance Impacts affecting the Seabed.



The project aims to:

- improve the condition of at-risk Special Areas of Conservation (SACs) in five project sites across the South of England including highly vulnerable seagrass and Maerl bed habitats
- reduce the impact and disturbance by recreational activities, including those from recreational boating, such as mooring and anchoring
- evaluate the project's results and share successful methods with projects managing similar habitats under threat across Europe.

The five project sites:

- Essex Estuaries
- Fal and Helford
- the Isles of Scilly
- Plymouth Sound and Estuaries
- Solent Maritime

As part of this project The Green Blue, as the environmental programme for the Royal Yachting Association and British Marine, is helping to raise awareness of the importance of seagrass and Maerl habitats, and actively inspire the boating community within the five project sites and beyond to adopt best practice to minimise any impacts on protected habitats.

The project will:

- work on practical ways to manage the habitat for rare protected species, such as seahorses, stalked jellyfish and seaweeds
- be the first to collect seed and replant seagrass at this scale in England
- raise awareness amongst the boating community and encourage best practice to help care for seabed habitats
- provide Advanced Mooring Systems to reduce harm to these seabed habitats in agreement with the local boating community.

Why are seagrass and Maerl beds important?

As recreational boaters it is essential to be aware of protected seabed habitats around the coastline, understand why they are important and adopt best practice to help minimise any impacts from boating activities, such as anchoring and mooring.

What is seagrass?

Seagrass (*Zostera* species) is a threatened habitat of principle importance in the UK. Seagrass covers 0.1 – 0.2% of seabed globally and is one of the most rapidly declining habitats on earth and scarce in UK seas. It is the only flowering plant in the ocean and grows in shallow water up to 10 metres in depth. It has a root system (unlike seaweed), produces seed and requires clean, well lit waters to grow.

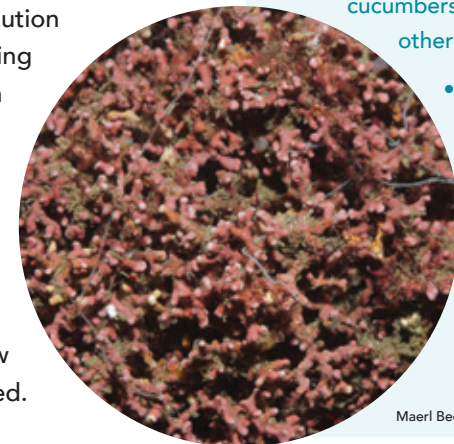
Credit: Fiona Crouch

Why is seagrass important?

- Estimated to be worth around £15,000 per hectare per year in ecosystem services (the direct and indirect benefits that ecosystems provide for human survival and wellbeing).
- Key breeding, feeding and resting sites for an array of protected species such as seahorses, cuttlefish, stalked jellyfish and rare seaweeds.
- An important nursery ground for fish which provides stock for a fifth of the world's 25 largest fisheries. At least 9 commercially important fish spend juvenile years in seagrass beds, the most abundant of which are plaice, pollock and herring.
- Healthy seagrass beds store 10-15% of global ocean carbon, helping to keep significant amounts of carbon from the atmosphere which would otherwise contribute towards climate change.
- 1m² of seagrass can produce (roughly) 10 litres of oxygen a day.
- It helps to fix nitrogen into nitrates through bacteria in its roots, making this nutrient more readily available to animals which eat seagrass and other plants.
- Helps anchor and stabilise sediment reducing coastal erosion playing an important role in buffering coastlines from storms.

What is Maerl?

Maerl (*Phymatolithon calcareum*) is a red seaweed which forms a calcium carbonate skeleton. It has a very limited distribution across the UK, growing at a maximum depth of 20m. It is slow growing (<1mm/yr.) and very fragile, making it vulnerable to any impacts or disturbance and slow to recover if damaged.



Maerl Bed. Credit: Keith Hiscock

Why is Maerl important?

- Important nursery grounds for bivalves (e.g. scallops), sea cucumbers, anemones and other small sea creatures.
- Stores carbon, helping to tackle climate change.
- Creates a very diverse habitat, supporting an abundance of marine species.

Impacts on seabed habitats



Credit: Government of Bermuda

Seabed habitats can be impacted by a variety of threats including climate change, nutrient overloading from land runoff and recreational activities, including boating. This guide focuses on the threats from recreational boating activities including anchoring and moorings and the best practice and technologies that can be used to minimise these.

Anchoring with Care

Make sure that anchoring causes as little damage as possible to the seabed by following these simple steps:

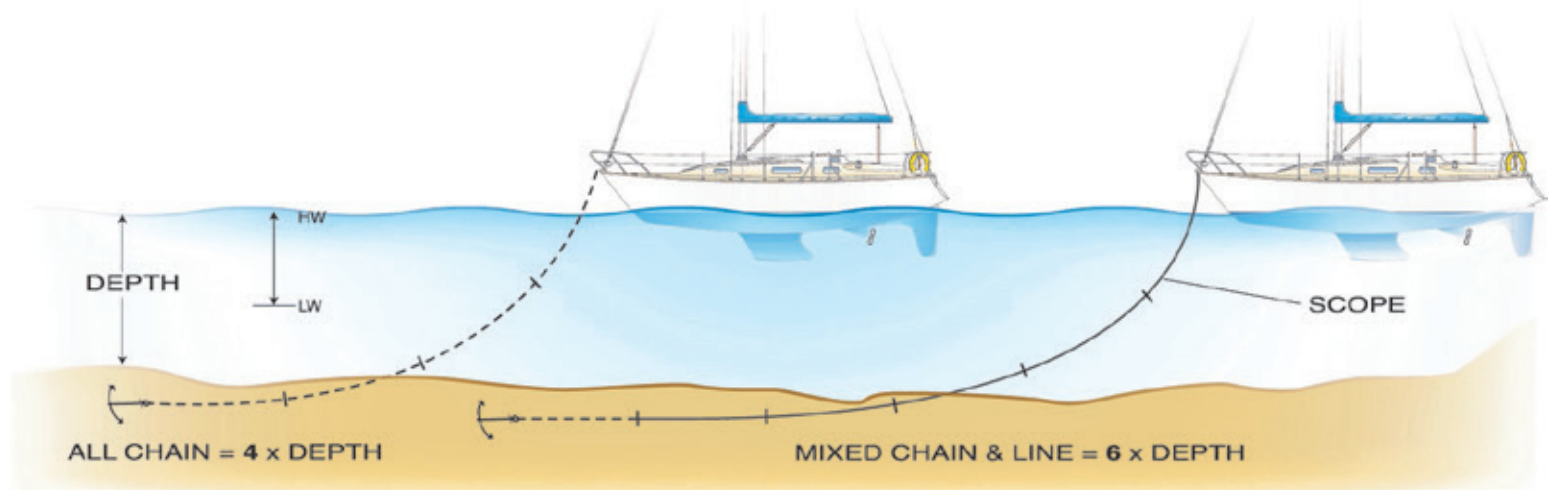
- Find out if there are protected seabed habitats in the area you are planning to anchor. Visit the 'Anchoring with Care' guidance at www.thegreenblue.org.uk for information on the location of seagrass and Maerl habitats in UK coastal waters.
- Choose an anchorage away from sensitive habitats wherever possible (i.e. away from seagrass, Maerl, reefs, shellfish beds, fine muds etc.).
- Consider using an existing mooring rather than anchoring within a seagrass bed.
- Choose the correct anchor for type of seabed to avoid drag.
- Try to target bare sand away from the edge of seagrass beds when deploying the anchor and consider the pivot area of your anchor chain to ensure it avoids encroaching into the protected habitat.
- Flake out the correct amount of chain (4 x max depth at high water) or if using a chain and warp (6 x maximum depth at high water) to help keep the length of chain to a minimum and minimise unnecessary additional chain abrasion on the seabed.

Impacts from Anchoring

Impacts from anchoring include:

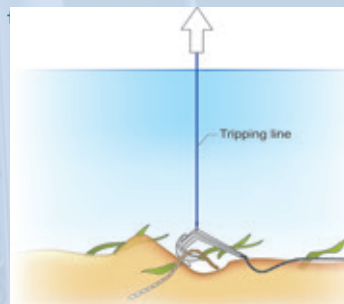
- Direct impact to seagrass fronds and roots as the anchor embeds into the seabed.
- Dragging of an anchor can uproot and degrade seagrass and Maerl.
- Anchor chain can scour and abrade the seabed and therefore damage any existing habitats as it pivots around the anchor point with tide and change in wind direction.

Credit: RYA/PeteGalvin



Anchoring with Care

- Even if you think the anchor is holding well, check it periodically to make sure it is not dragging by identifying reference points on land.
- If your anchor is dragging, raise it and re-anchor. If it continues to drag, choose a different anchorage to make sure it holds.
- Raise your anchor correctly when leaving a site:
 - check to see how the boat is lying. If the boat is pulling back away from the anchor, you may need to slowly motor towards the anchor as the crew pulls in the slack and raises the anchor.
 - good crew communication is essential to avoid overrunning and fouling the prop.
 - pull the chain in slowly and move the bow of boat until over the anchor itself. Use a trip line to help pull the anchor upwards for smoother extraction and to minimise fouling and impact on



- bring the anchor and chain on-board, remove any biofouling and stow it away.

Navigating with Care

It is also important to plan your route through inshore waters with care to avoid damaging your boat, your pride and the seabed!

- Know your depth and draft – smaller craft can reach shallower waters where seagrass and Maerl beds can be found.
- Check the tides – if in doubt slow down and use extra caution when boating on a low tide to ensure you avoid coming into contact with, or running aground on, seabed vegetation.
- If you run into seabed vegetation, stop immediately and lift your engine.

Paddle away until clear. Never use your engine to force your way through, it will damage the habitat and your engine!

- If you run aground on seabed vegetation, wait for the tide to lift you off again. Excessive use of the throttle in an effort to shift the boat will cause significant damage to seabed vegetation.
- Use designated slipways to land and launch your boat to avoid the hull, your feet and trailer wheels coming into direct contact with sensitive habitats in shallow waters and along the shoreline.

Credit: RYA



TIP
Mark your chain at 1m and 5m intervals to enable crew to accurately count the correct amount of chain to be deployed.

What are Traditional Swing Moorings?'

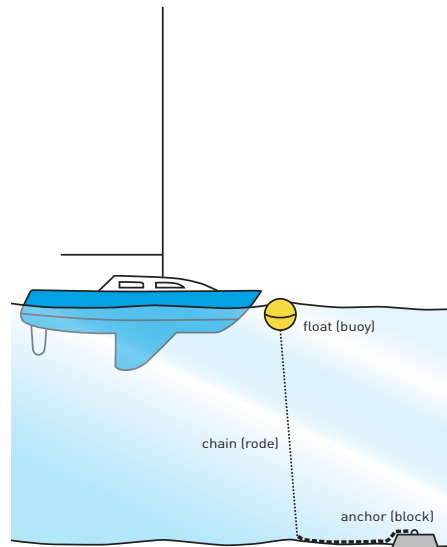
Traditional swing moorings are most commonly used in UK waters.

These moorings consist of an anchor, chain (rode) and a float which can be seen in Diagram A.

Any part of a mooring that interacts with the seabed has the potential to damage any habitats that exist there.



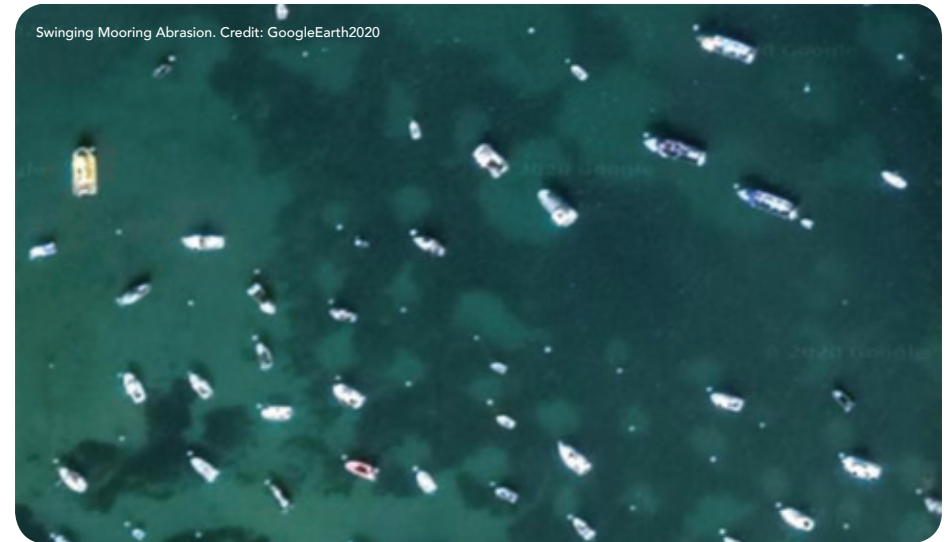
A: Traditional swing mooring



Impacts from Traditional Mooring Systems

The mooring anchor, while covering a minimal area of seabed, is a static object and so potential impacts are limited to the area directly beneath it. The heavier chain part of the rode is designed to hold the vessel attached to the mooring in situ independent of the state of the tide.

As the tide rises and falls, differing amounts of chain will lie across the seabed, and will be pulled around in a circle as the tide and wind direction changes. This can cause abrasion of any substrate the chain comes into contact with. Seagrass and Maerl habitats are particularly susceptible to damage in this way.



What are Advanced Mooring Systems?

In order to minimise the impacts that traditional swing moorings can have on seabed habitats Advanced Mooring Systems (AMS), also known as environmentally friendly moorings, have been designed to have less impact on the seabed. AMS aim to minimise interaction with the seabed to prevent abrasion and therefore the potential to damage sensitive habitats. AMS also have a measurable mooring load potential if incorporating a helical screw pile.

There are no current legislative requirements to use AMS, although licensing authorities, mooring providers and users are keen to explore the use of this technology further as a potential tool to help reduce impacts from boating activities

(replacing conventional moorings and as an alternative to anchoring) on sensitive seabed habitats.

Some of these AMS are being installed and monitored within five sites in the South of England as part of the LIFE Recreation ReMEDIES project.

Credit: Kate Fortnam



Types of Advanced Mooring Systems

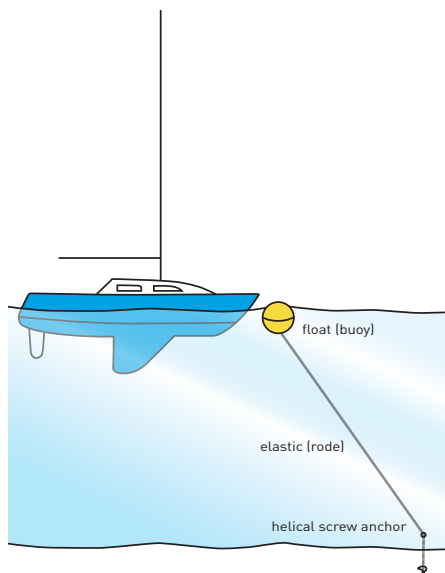
There are various AMS designs that exist, with changes often made to the rode (such as through using an elastic component that does not lie along the seabed) or the anchor (through using for example a helical screw pile component rather than a block).

The constituent parts of a typical simplified traditional mooring are shown in Diagram A (p.10). Some AMS focus on individual constituents, particularly the rode, whereas others provide a 'complete' product (Diagram B), or a modification of a more traditional mooring (Diagram C).

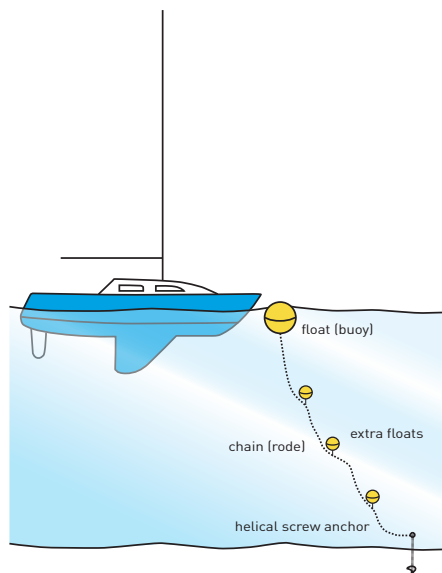
Figure 2: Traditional mooring (A), AMS with elastic rode and helical anchor (B), and AMS with chain floats (C)

There is no 'one size fits all' AMS. The suitability of the components chosen varies depending on local factors including water depth, tidal range, and wave energy. Early successes for AMS were noted in Australia and the USA, but initial designs did not necessarily translate straight across to the differing (environmental) scenarios in the UK. However as time has gone on, and new products and adaptations made, there are now AMS that are suitable for swing moorings in many UK locations.

B: AMS – With elastic rode and helical screw or concrete block anchor



C: AMS – Chain with floats and helical screw or concrete anchor



Credit: TheGreenBlue/FarrahFortnam

Find out more

LIFE Recreation ReMEDIES Project

www.gov.uk/government/publications/life-recreation-remedies-project

Contact: LifeRemedies@naturalengland.org.uk

The Royal Yachting Association

www.rya.org.uk

Contact: environment@rya.org.uk

The Green Blue

www.thegreenblue.org.uk

Contact: info@thegreenblue.org.uk

Marine Conservation Society

www.mcsuk.org/ocean-recovery/seagrass

Ocean Conservation Trust

www.oceanconservationtrust.org/seagrass

AMS Manufacturers

Seaflex

www.seaflex.net

ABC Anchors

www.abcanchors.co.uk

Hazelett Marine

www.hazelettmarine.com

The Green Blue is an environmental awareness programme created by British Marine and the Royal Yachting Association to promote the sustainable use of coastal and inland waters by recreational boating.

We help boat users, clubs, training centres and boating businesses to reduce their impact on the natural environment.

The Green Blue:

- Identifies and raises awareness of key environmental issues.
- Provides tailored information, guidance and resources to support recreational boating in adopting best practice.
- Delivers environmental awareness talks, presentations, workshops, event stands, educational activities and instructor training.
- Discovers and raises awareness of more environmentally sustainable products and services.



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