

Blue carbon

Our report in partnership with Rewilding Britain exploring ocean-based solutions for fighting the climate crisis.


What is blue carbon?

Marine ecosystems like seagrass meadows, saltmarshes and mangroves absorb or ‘draw down’ carbon dioxide from the water and atmosphere, just like plants and trees on land. The storage of carbon in marine habitats is called blue carbon. The storage of blue carbon can be in the plants themselves, like seaweed and seagrass; in the seafloor sediment where plants are rooted; or even in the animals which live in the water, including seabirds, fish and larger mammals.

Blue carbon is simply carbon absorbed from the water and atmosphere stored in the world's seas and coasts.



Credit: Georgie Bull

Blue Carbon – Ocean-based solutions to fight the climate crisis 

Why blue carbon matters

We're facing interlinked climate, health and ecological emergencies that require us to make huge changes to the way we live and to reduce our impacts on the planet's natural ecosystems.

As part of the UK's commitment to the Paris Climate Agreement, and to keeping global temperature rises to below 1.5° C, last year (2020) the UK Government announced its aim to cut carbon emissions by 68% compared with 1990 levels over the next decade, with a legislated commitment to meet net zero greenhouse gas emissions by 2050 (and 2045 in Scotland).

In order to reach net zero, the quantity of carbon dioxide taken from the atmosphere and stored in natural solutions must increase. By protecting and rewilding ecosystems in our ocean, blue carbon stores will have increased capacity and ability to store carbon.

- Globally, saltmarshes and seagrass – blue carbon sinks – draw down and store between them 235–450 million tonnes of carbon a year; almost half the emissions from the entire global transport sector.
- Scientists estimate that saltmarsh and seagrass habitats fix and store (or sequester) carbon at two to four times the rate of mature tropical forests. This means the UK's saltmarshes and seagrass beds have the carbon storage potential of between 1,000 and 2,000 km2 of tropical forests.
- The UK's shelf seas cover some 500,000 km2 and are estimated to store 205 million tonnes of carbon in seabed sediments – approximately 50 million tonnes more than held within our entire stock of standing forests – along with coastal seagrass and saltmarsh habitats, UK marine ecosystems store about 220 million tonnes of carbon.

The significant role of the world's forests in reducing carbon emissions has been formally recognised through numerous initiatives and reforestation projects intended to keep carbon locked into the world's forests on land. Unfortunately, equivalent solutions in the ocean are often overlooked. If the UK is to reach its goal of net zero by 2050, blue carbon solutions must be considered in tandem with those on land.

Rewilding our waters

Rewilding Britain defines the concept of 'rewilding' as:

“The large-scale restoration of ecosystems to the point where nature is allowed to take care of itself. Rewilding seeks to reinstate natural processes and, where appropriate, missing species – allowing them to shape the land and sea and the habitats within.

"Rewilding encourages a balance between people and the rest of nature so that we thrive together. It can provide opportunities for communities to diversify and create nature-based economies; for living systems to provide the ecological functions on which we all depend; and for people to reconnect with wild nature."

Marine rewilding is the same idea applied to a marine environment. In some areas, this means ceasing all harmful activity, including damaging commercial fishing methods, such as bottom trawling, aggregate extraction, dredging or oil or gas exploitation and allowing the ecosystem to recover. In others, it may mean giving recovery a helping hand, through active restoration: reseeded an area with seagrass or returning lost species such as oysters.



Credit: James Lynott

Globally, the rewilding of key blue carbon securing marine and coastal ecosystems such as seagrass beds, saltmarshes and mangroves could deliver carbon dioxide mitigation amounting to 1.83 billion tonnes.

5% of the emissions savings we need to make globally.

This figure doesn't include the enormous quantities of carbon stored in fish and other marine life; in marine ecosystems such as coral reefs, seaweeds and shellfish beds; or the vast stores of carbon in our seabed sediments.

What we're calling for

The development of a comprehensive Blue Carbon Strategy by the UK Government and devolved administrations, focusing on three key nature-based action areas:

- Scaling up marine rewilding for biodiversity and blue carbon benefits
- Integrating blue carbon protection and recovery into climate mitigation and environmental management policies
- Working with the private sector to develop and support sustainable and innovative low-carbon commercial fisheries and aquaculture.

Carbon contained in marine and coastal ecosystems must be considered in the same way as our woodlands and peatbogs... critical to the UK's carbon strategy.

The [Blue Carbon report](#) outlines how vital blue carbon solutions are to an effective strategy which reaches net zero by 2050.

You can read more about our asks in this [Parliamentary Briefing](#).

“We're calling on UK governments to act with urgency to invest in, co-develop and implement a four nation Blue Carbon Strategy.”

The time is now

Later this year, the UK will be hosting COP26 – the [UN Climate Change Conference](#) – in Glasgow. The conference brings together world leaders to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. The ocean and its blue carbon stores are a crucial part of the many urgent and varied solutions required to address the climate crisis.

The UK has committed to significantly increase its spending on nature-based solutions, including those offered by the ocean.

The Marine Conservation Society and Rewilding Britain are calling on UK governments to adopt ocean-based solutions at pace and scale by 2030.

A group of cross-party parliamentarians have signed up as 'Blue Carbon Champions' to support our key asks in Westminster. You can see who's signed up, and find out more [here](#).

Learn more...

We're not the only ones talking about blue carbon. See these reports from others who agree we need more action on blue carbon habitat recovery...

Read our full report – [Blue Carbon – Ocean-based solutions to fight the climate crisis](#)

- Read the [Ocean Recovery Plan for Scotland](#)
- [The Welsh four-point plan for blue carbon](#)
- The Welsh Government's report: [Estimating the Carbon Sink Potential of the Welsh Marine Environment](#)
- Marine Scotland: [Re-Evaluating Scotland's Sedimentary Carbon Stocks and A Compendium of Marine Related Carbon Stores, Sequestrations and Emissions](#)
- Ulster Wildlife: [Blue Carbon Restoration in Northern Ireland – Feasibility Study](#)
- Wildfowl and Wetlands Trust (WWT): [A Blue Recovery](#)
- Natural England: [Carbon storage and sequestration by habitat: a review of the evidence](#)

Co-funded by the European Union.

Also of interest

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