Factsheet

UK Centre for Ecology & Hydrology

Saltmarshes

Key facts and figures

- 85% of saltmarsh in England has been lost since 1860
- In the UK, there are just 45,000 hectares of saltmarsh remaining
- These coastal wetlands provide habitats for thousands of migratory birds
- The top 10cm of UK saltmarsh soil hold ~2.3 million tonnes of carbon
- Restoration projects would increase their ability to mitigate climate change

Q What are saltmarshes?

A

Saltmarshes are habitats that are flooded by seawater and created when fine mud and silt are deposited along a sheltered part of the coastline.

In a healthy and natural state, they mitigate climate change by storing carbon, support wildlife, provide protection from floods, storms and coastal erosion, and filter pollutants.

However, there has been widespread degradation and loss of saltmarshes in the UK and globally due to human activity.

Researchers at the UK Centre for Ecology & Hydrology (UKCEH) are quantifying the amount of carbon that these habitats can absorb from the atmosphere and store, as well as studying their role in supporting wildlife and preventing floods and pollution.

An example of a healthy saltmarsh in Caernarfon

Our science is informing saltmarsh management, policies and restoration, as well as supporting progress towards achieving net zero targets and reversing biodiversity loss.

Media, please contact us on: E-mail: cehpress@ceh.ac.uk Phone: +44 (0)7920 295384

Q How much saltmarsh is there in the UK?

A The UK only has about 45,000 hectares of natural saltmarsh remaining. The main areas of saltmarsh are sheltered coastal waters such as the Thames, Severn, Humber and Solway Firth estuaries.

Q Why have saltmarshes been degraded and lost?

A Since the 19th century, large areas of saltmarsh have been drained to reclaim land from the sea for agriculture, development or coastal flood defences, or degraded through pollution or lost though erosion and rising sea levels. This has resulted in loss of habitat and biodiversity.

Since 1860, 85% of saltmarsh has been lost in England and up to a tenth of the remaining habitat could by lost by 2060 without restoration.

However, in the UK, there has been growing awareness of the importance of saltmarshes, resulting in habitats being protected, restored or created.

The Environment Agency estimates there was a seven per cent increase in the area of saltmarsh habitat in England between 2009 and 2019.

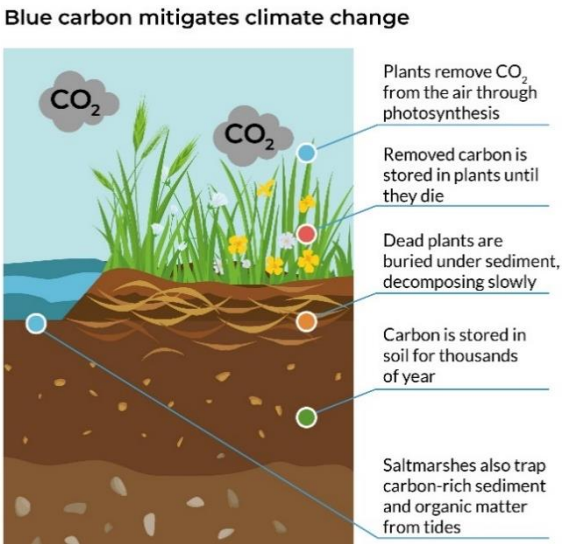
Q What is 'blue carbon'?

A Blue Carbon refers to carbon captured and stored by marine and coastal ecosystems such as saltmarshes, seagrass meadows and mangroves.

Atmospheric carbon is absorbed by saltmarshes' vegetation via photosynthesis.

Carbon-rich sediment and organic matter can also flow in on the tide, trapped by the roots and stems of saltmarsh plants.

This carbon is then stored within sediment for potentially hundreds of years if the marsh remains stable.



Media, please contact us on: E-mail: cehpress@ceh.ac.uk Phone: +44 (0)7920 295384

Q How much carbon do saltmarshes capture and store?

A Saltmarshes' carbon accumulation rates vary, depending on local conditions. A study by UKCEH, Bangor University and the Wildfowl & Wetland Trust estimated UK saltmarshes accumulate the equivalent of 3-14 tonnes of carbon dioxide per hectare per year. In total, they accumulate up to around 700,000 tonnes CO_2 a year and this could increase with effective restoration. The top 10cm of UK saltmarsh soil hold a total of around 2.3 million tonnes of carbon.

Recently restored marshes capture more sediment than natural marshes in the first few years, resulting in greater carbon accumulation rates in the short term. Globally, it is estimated that blue carbon habitats store around 30 billion tonnes of carbon, and large-scale conservation has the potential to stop the release of around 300 million tonnes of CO_2 per year.

Q How do these habitats help biodiversity?

A Saltmarshes support a range of rare and important plants and animals including breeding birds such as the redshank (*pictured*), which has declined in the UK in the past 40 years.

Saltmarshes provide high-tide roost sites for tens of thousands of wading birds. They are also important habitats for seabass and other commercially important fish, and rare plants such as sea lavender and sea barley.

Photo: Smudge9000 via Wikimedia Commons

The degradation and loss of saltmarshes has reduced available habitat for these species at a time of an overall global decline in biodiversity.

Q How do saltmarshes provide flood protection?

A There is now more interest in natural methods of reducing flood risk due to the growing cost of building and maintaining hard defences to cope with rising sea levels rise and coastal erosion. Saltmarshes act as natural buffer zones between dry land and the sea, reducing the energy and height of waves before they can reach properties, roads and buildings, and protecting shorelines from erosion.

Media, please contact us on: E-mail: cehpress@ceh.ac.uk Phone: +44 (0)7920 295384

Q How do you restore saltmarshes?

A

Restoration projects involve creating a gap in current sea walls to reflood previously reclaimed land, so saltmarshes are reconnected to the tidal flow.

They can also involve landscaping measures to help tidal waters flow in and out, and building replacement sea defences inland.

Large-scale restoration includes the flooding of 300 hectares of land at Steart Marshes in Somerset by the Wildfowl & Wetlands Trust, providing flood protection for properties, supporting fish and birds while also retaining its use for grazing.

The RSPB's Wallasea Island project in Essex used soil from the Crossrail scheme to raise the land and flood almost 170 hectares of arable land to create saltmarsh, mudflats and lagoons.

It is the largest manmade coastal nature reserve in Europe.

The sea wall at Tollesbury, Essex, was breached in 1995 to enable saltmarsh restoration.

Photo: Natural England

Restored saltmarsh at Wallasea Island.
Photo: rspb-images.com

At present, 20 million tonnes of silt and mud a year dredged from the UK's ports, harbours and marinas is disposed of offshore, but trials are under way in using this earth to restore saltmarshes. UKCEH is involved in a pilot project led by engineering firm Land & Water at Chichester Harbour.

Restoration is usually carried out by government agencies and conservation charities, informed by scientists, although mechanisms for private investment in restoration are also being developed.

The restored saltmarsh at Tollesbury

Media, please contact us on: E-mail: cehpress@ceh.ac.uk Phone: +44 (0)7920 295384

Q What is the UK Saltmarsh Carbon Code?

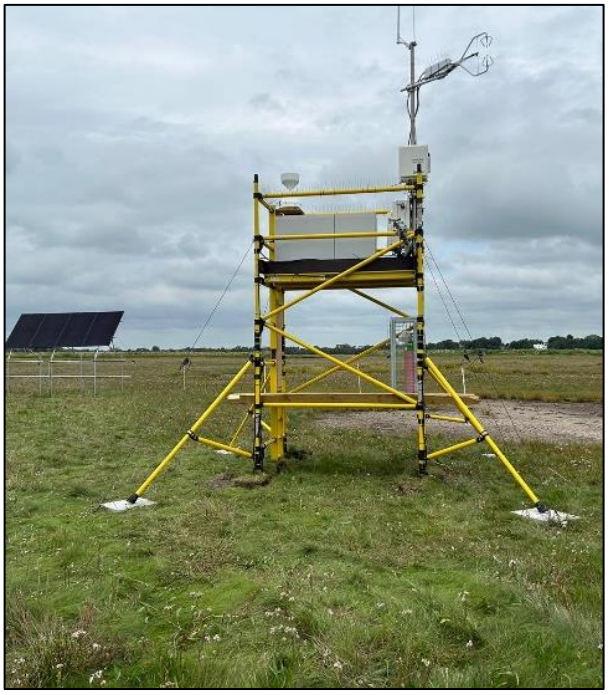
A

There is growing interest in carbon credits from companies seeking to voluntarily offset their emissions of CO2 in a way that can be reliably measured, reported and verified.

UKCEH is leading a partnership of scientists, charities and financial experts, funded by the UK Government's Natural Environment Investment Readiness Fund, to develop and pilot a UK Saltmarsh Carbon Code.

This will be a rigorous and scientifically-based voluntary certification standard that will be similar to the Peatland Code and Woodland Code.

It will enable saltmarsh carbon credits to be bought by private investors, thus providing an income stream for restoration projects and supporting national net zero zero goals.



Measurements from UKCEH's flux towers will help establish the greenhouse gas removal potential of saltmarshes

Q What could a healthy UK seascape look like?

A

Since the mid-1800s, we have lost approximately 85% saltmarsh, 92% seagrass and 95% of oyster reef.

A restored UK seascape could harbour more diverse, abundant fish and invertebrate communities that could move between these habitats for feeding, shelter and growth.

Restored coastal habitats could stabilise sediment and store excess nutrients, leading to cleaner, clearer and calmer nearshore waters.

Better connected coastal habitats are more resilient to the effects of climate change, such as an increase in severe storms and warmer sea temperatures, as well as pollution.

Media, please contact us on: E-mail: cehpress@ceh.ac.uk Phone: +44 (0)7920 295384