

Seagrass loss around the UK may be much higher than previously thought

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The loss of seagrass in the waters around the UK is much higher than previously estimated. A new study published in *Frontiers in Plant Science* concludes that, with high certainty, at least 44% of the UK's seagrasses have been lost since 1936, of which 39% has been since the 1980s. This study is one of the first of its kind to bring together seagrass data from diverse sources and give a systematic estimate of the current and historic extent of seagrass, as well as seagrass loss in the UK.

The study was a collaboration between researchers at University College London, Kings College London, and Swansea University.

Seagrasses as climate change superheroes Nature-based solutions are essential to mitigate the effects of the climate crisis, and seagrasses are highly suitable candidates for the job. While they cover only 0.1% of the ocean floor worldwide, seagrasses are one of the largest global carbon sinks, storing carbon in marine soils many times faster than terrestrial forests. Healthy seagrasses also support marine biodiversity, including commercially important (such as bass) and charismatic species (such as seahorses), and provide ecosystem services such as nutrient cycling, increasing shoreline stability, and supporting coastal livelihoods. But different human activities, such as industrial, agricultural, and coastal development, have led to worldwide declines.

Previous studies had estimated that the worldwide loss of seagrasses is at least 29%, but the current status of many seagrass meadows is unknown. A better knowledge of where losses have occurred would allow us to

protect current seagrass meadows and re-plant and restore degraded or lost ones. Dr. Alix Green, lead author of the study, says: "Raising the profile of this undervalued ecosystem will undoubtedly support its protection and rejuvenation."

Estimating the extent of seagrass meadows The purpose of the study was to estimate the current aerial extent of seagrass for the UK and to estimate the recent and historic percentage loss of seagrass.

The two species of seagrass indigenous to the UK are *Zostera marina* and *Zostera noltii*, both protected under several EU Directives and the UK's Wildlife and Countryside Act 1981. The researchers collected several datasets from different sources to research the current aerial extent of seagrasses. Any data collected since 1998 were categorized as 'contemporary', and data older than 1998 as 'historical'. The researchers used three methods to assess [seagrass loss](#) with high, medium, and low certainty.

Dr. Green says: "Our paper establishes the best estimate of current seagrass extent in the UK, confirming at least 8,493 hectares, and documents a loss of at least 39% of aerial cover in the last 30 years. Historically, we show that this loss could be as much as 92%, and that these meadows could have stored 11.4 Mt of carbon and supported approximately 400 million fish." Worryingly, these estimates are likely under-representative of the true loss.

Protecting what is left, restoring what is lost These results show the urgency of protecting current seagrass meadows and restoring degraded or lost ones. They also show that not all seagrass meadows in the UK have suffered equally, while some seagrass sites show signs of recovery. The observation that seagrasses can recover from environmental degradation is encouraging and should motivate conservation initiatives. Co-author Dr. Peter Jones, University College London, adds: "The next

decade is a crucial window of opportunity to address the inter-related crises of biodiversity loss and climate change—the restoration of seagrass meadows would be an important contribution to this. This will involve restrictions such as reduced boat anchor damage, restricting damaging fishing methods and reducing coastal pollution, including through marine protected areas."

Dr. Richard Unsworth, co-author and lecturer at Swansea University and director of the marine conservation charity Project Seagrass said: "Our systematic documentation of the loss of seagrass needs to be seen as a positive moment to start the rejuvenation of our coastal seas. Now is the time to create financial mechanisms that reduce the flow of nutrients into our coastal seas, and offsetting mechanisms to allow a pathway of carbon finance into the conservation and restoration of these systems. By reversing this loss, we can improve our fisheries, reduce coastal erosion and fight climate change."

Dr. Green concluded: "The catastrophic losses documented in this research are alarming but offer a snapshot of the potential of this habitat if efforts are made to protect and restore seagrass meadows across the UK. We hope that this work will spur continued, systematic mapping and monitoring of seagrass meadows across the UK and encourage restoration and rehabilitation projects. These meadows have the potential to support our bountiful fisheries and help us win the fight against climate change and environmental degradation. The UK is lucky to have such a resource in our waters, and we should fight to protect it!"

More information: *Frontiers in Plant Science*, [DOI: 10.3389/fpls.2021.629962](https://doi.org/10.3389/fpls.2021.629962) , www.frontiersin.org/articles/10.3389/fpls.2021.629962/full

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