SOLENT SEASCAPE

Climate Change Mitigation in the Endangered Landscapes and Seascapes Programme

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The Endangered Landscapes and Seascapes Programme supports nature restoration across European land- and seascapes.

Why restore nature?

As well as providing benefits for biodiversity and ecosystem services, restoring natural landscapes also has the potential to contribute to climate change mitigation.

About the project

The Solent Seascape project aims to restore one of the most heavily used waterways in the UK. The project will improve habitat availability and quality for ecologically important and threatened species including the thresher shark and European eel.

Seagrass, saltmarsh and oyster reef habitats have undergone significant degradation. Along with overfishing this has led to a collapse of the fishery.

The project aims to restore and reconnect habitats across the 52,200 ha extent of the Solent. This will be done through improved management of existing habitats, restoration of degraded habitats and recovery of associated species.

Project size: **5,278 ha**

Assessment timeframe: **2022-2042**

Project lead: **Blue Marine Foundation**

Key activities:

- Actively and passively restore degraded seagrass meadows, saltmarshes and oyster reefs.
- Increase the populations of native oyster *Ostrea edulis*
- Improve habitats for threatened species

Total mitigation potential: **-10,187 tCO_2-e**

Assessing the climate change mitigation potential of this project

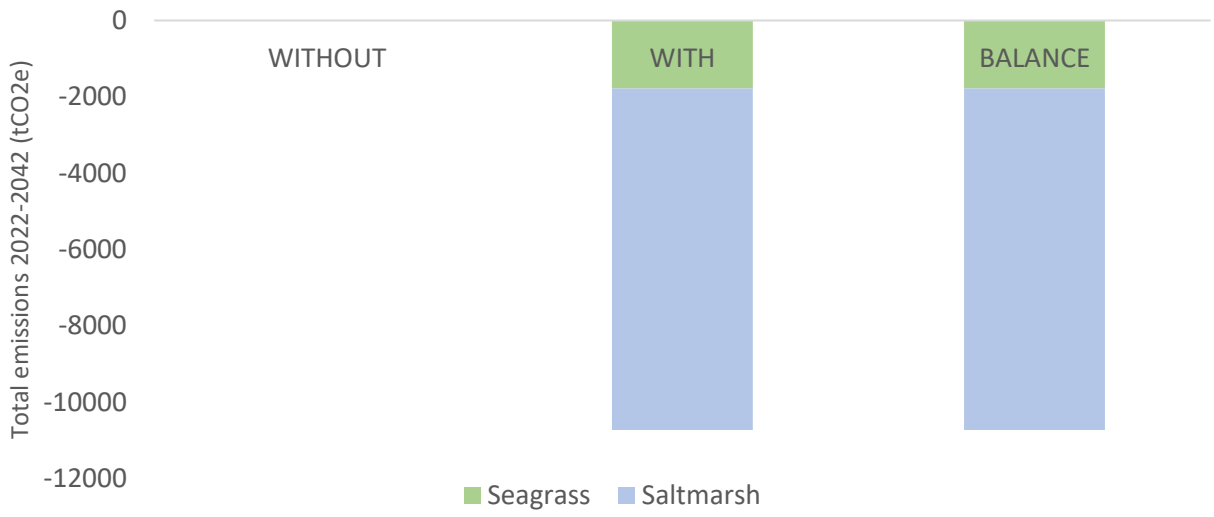
To determine the contribution of these actions towards climate change mitigation, their impacts on carbon stocks and GHG emissions need to be calculated. The most applicable tool for doing this is the EX-ACT carbon assessment tool, developed by FAO.

This tool uses the default 'Tier 1' emission factors, for the carbon sequestration of broad habitats and regions. Accuracy can be increased by more specific 'Tier 2' emission factors from the literature.

EX-ACT compares the 'project scenario' (the impacts of the restoration interventions) with a 'baseline scenario'. This determines the changes in greenhouse gas sequestration that are due to the project.

For this project, these interventions include afforestation on heather moorland, restructuring plantations to allow regeneration and rewetting drained peatlands.

Climate change mitigation results:



Assessed greenhouse gas mitigation potential (tCO2-e) over 20 years in the baseline scenario (without), project scenario (with), and the resulting emissions difference due to the project (balance)

Project outcomes

Over the 20 years of this assessment (2022-2042), the EX-ACT tool predicts there will be a total net emissions reduction of around **−10,721 tCO_2-e**.

Restoration of 77 ha of degraded seagrass is estimated to contribute **−1,779 tCO_2-e** compared to the baseline scenario.

Rewetting 126 ha of degraded saltmarsh is estimated to sequester **-8,942 tCO_2-e** into marine sediments.

Limitations

Knowledge of carbon accumulation in marine ecosystems is significantly lower than terrestrial ecosystems. Carbon accumulation rates in restored UK habitats are largely unknown and under investigation. As a result, these results have high degrees of uncertainties and are estimates. To increase accuracy, on-site carbon flux measurements and newly published data can be used for future assessments.

The EX-ACT tool simplifies ecological processes and this adds further uncertainty.

The assessment timeframe of 20 years is also relatively short in relation to ecological processes. Over timescales longer than this assessment (beyond 2042) the mitigation potential is expected to be much higher

Other benefits

- Recovery of the wider seascape through improved ecological activity
- Improved knowledge of ecosystem service benefits from coastal restoration including carbon storage, and biodiversity

More information:

ELSP– Solent Seascape

EX-ACT tool

ELSP– Natural Climate Solutions

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ENDANGERED LANDSCAPES & SEASCAPES PROGRAMME

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