Almada, Portugal

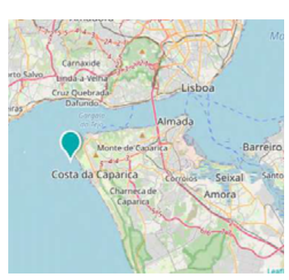
NbS in Education: You will never see dunes the same way

ReDuna – Restoration of S. João da Caparica Sand Dunes

https://oppla.eu/casestudy/22495

The ReDuna project is a showcase example of the successful use of NbS to combat coastal erosion, a key impact of climate change. The project, which was launched in 2014 after severe winter storms, focuses on restoring the sand dunes of S. João da Caparica in Almada, Portugal. These dunes play a key role in protecting the coastline, acting as a natural barrier and protecting the settlements behind them from storm surges and rising sea levels. Almada, a busy coastal town whose tourism industry is threatened by coastal retreat, benefits enormously from these protective measures. The dune ecosystem was restored through the installation of willow sand fences and the planting of 100,000 native plants along a 1 km stretch of coastline. These measures not only strengthen the dune structure, but also promote the resilience of the entire coastal region.

A key aspect of the project was the involvement of school students, which continues in 2024. Over 100 students from the USA who came to Portugal took part in volunteer activities. They helped maintain the restored dunes, installed fences, planted new plants and removed invasive species. These hands-on activities not only contribute to the stability of the dunes, but also allow participants to experience and understand NbS first-hand.



The project is not only a practical example of the successful use of NbS, but also part of the project Nature-Based Solutions Education Network (NBS EduWORLD), which aims to build broad social competence in the field of NbS. Among other things, a central component was the development of various learning scenarios, including 'S.O.C: Save Our Coasts (and Souls)', which familiarises pupils with the effects of coastal erosion and promotes solutions through NbS.

As part of the ReDuna project, international students were able to gain important experience with NbS through practical volunteer work. This collaboration demonstrates how NBS EduWORLD combines education and hands-on projects to promote sustainable coastal protection and sensitise young people to environmental change.

NbS in depth

Social benefits

The ReDuna project strengthens social commitment and awareness of the importance of nature conservation measures. The active involvement of pupils and students in the restoration work is particularly noteworthy. By helping to install fences, plant native species and remove invasive plant species, they are contributing to the sustainable development of the region while also receiving valuable, practical training. This raises awareness of the challenges posed by climate change and promotes sustainable thinking among the next generation.

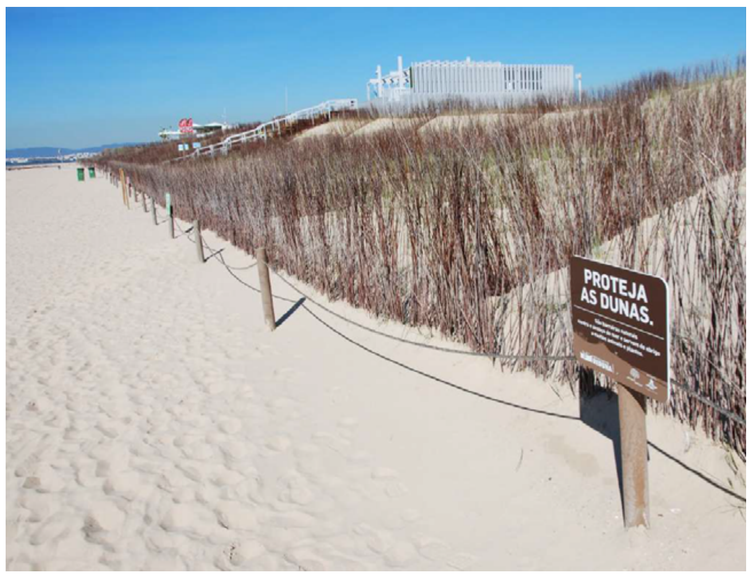
In addition, the project creates close collaboration between different stakeholders - from local communities and NGOs to educational institutions and international volunteer organisations. This collaboration strengthens the sense of community and shows how collective efforts can bring about great environmental change.

Environmental benefits

The restoration of the dune landscape significantly strengthens the local ecosystem. The planting of 100,000 native plant species helps to stabilise the dune structure and encourages the arrival of 49 new animal species that are now colonising the area. This increasing biodiversity contributes to the resilience of the ecosystem by supporting the natural processes needed to protect the coast against erosion and storms.

In addition, the NbS measures restore the natural balance between beach, dune and ocean, which stabilises sediment dynamics in the long term and reduces the risk of coastal erosion. The ability of the dunes to store carbon and thus contribute to the reduction of greenhouse gases emission is particularly noteworthy. The plant roots form a dense network that not only stabilises the sand, but also acts as a natural carbon store.

Economic benefits



Restoring the dunes not only tackles climate change impacts, but also has significant economic benefits. Almada is a popular tourist destination, and protecting the beaches is crucial to continue welcoming the 8 million annual visitors. By slowing coastal erosion and stabilising the beaches, the ReDuna project directly contributes to maintaining the tourism infrastructure, which is an important source of income for the region.

The project also creates jobs in the area of dune care and maintenance. The regular maintenance of the fences, reforestation and the use of invasive species control techniques provide long-term employment opportunities for the local population.

This shows that sustainable coastal protection measures not only bring ecological and social benefits, but can also have a positive economic impact on the region.

Want to learn more about NbS Education?

https://nbseduworld.eu/

NBS EduWORLD

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NBS EduWORLD is funded by the European Union (Grant Agreement No. 101060525). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the granting authority can be held responsible for them.

Network Nature

Selected case studies

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The project has been funded by UK Research and Innovation (UKRI) under the UK government´s Horizon Europe funding

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