

# **Can Nature Help Protect Denmark's Coastlines?**

New tools for climate adaptation along vulnerable coastlines

## **Climate Change and Coastal Risk**

As climate change causes sea levels to rise and storms to become more severe, coastal communities face increasing risks from flooding and erosion. At the same time, many vulnerable coastal areas contain valuable natural habitats that are important for biodiversity and recreation.

## **The C-COAST Project**

The C-COAST project, led by Aalborg University (AAU) in collaboration with COWI and Danish coastal stakeholders, aims to develop new methods for designing coastal protection that combine traditional engineering solutions with nature-based approaches.

## **Research Approach and Methods**

Over the next two and a half years, AAU will investigate how beaches, coastal vegetation, and protective structures such as dikes work together during storms. Experiments will be carried out in Aalborg University's wave laboratory, where realistic storm conditions can be recreated. The results will be used to develop advanced computer models that can predict how coastlines evolve over time and how different protection measures perform under future climate conditions.

## **Nature-Based Coastal Protection**

The project focuses on finding solutions that not only reduce flood risk but also help preserve and restore valuable coastal ecosystems. By understanding how natural features such as beaches and salt marshes can reduce wave energy and support biodiversity, coastal protection can become both more effective and more sustainable.

## **Impact and Applications**

The knowledge generated through C-COAST will help engineers, municipalities, and national authorities make better decisions when planning future coastal adaptation projects. Ultimately, the project will contribute to safer coastal communities, more resilient infrastructure, and healthier coastal environments in Denmark and beyond.