

Coastal Resilience Challenge: Make waves to save Shoretown!

Shoretown is a small coastal community on the south coast of England. It has a beautiful 1km sandy beach which on a summer's day is busy with visitors enjoying an ice cream, walking their dog or swimming in the sea. The beach front supports a thriving tourism industry.

Following a winter of storms, the coastal defences were damaged, and the beach suffered from significant erosion meaning it is now shorter and steeper. People's homes and local seafront businesses were flooded twice resulting in a decline of the town's thriving tourism economy. The powerful storm surges are eroding the base of the cliffs in front of the golf course.

The storm damaged seawall now needs to be replaced. The current lack of coastal flood defences means that when there is a high tide or a storm surge, the low-lying homes and shops are flooding, as well as the car park and sports fields. Damages (loss of business and costs to refurbish homes) are estimated to be up to £500,000 per flood event. The council are currently investigating the future costs of flooding and costs to tourism.

You are a team of designers and engineers who have been asked by Shoretown Council (the Lead Local Flood Authority) to recommend measures to reduce flood risk, protect people's homes and support the local economy.

The Challenge

Work as a team to come up with a solution that will protect Shoretown from coastal flooding and erosion. Using experimental results from trials in the wave tank, you need select which combination of assets best reduces flood risk while considering budget, costs, affordability, carbon, timescales, amenity and stakeholders.

Prepare a 10-minute presentation to Shoretown Council outlining your proposed design and explain why you have chosen these options.

Resources

1. Map of Shoretown

2. Wave tank and coastal defences (assets)

Your team can use a physical model, the **wave tank**, to explore the performance of different coastal defences in various combinations. You will need to undertake testing to identify the levels of overtopping associated with different assets and help you understand which engineering options will best meet the needs of Shoretown Council and the local community.

3. Asset cards

These describe the characteristics of the engineering options available to test in the wave tank.

Roles

The facilitators will be taking on different roles during the game. You may nominate one member of your team to liaise with different stakeholders. You can consult stakeholders at any point in the game.

You have 1.5 hours until your presentation – good luck!