

Coastal Management

Two thirds of the world's population live within a few kilometres of the coast. But the coastline is a vulnerable place; at risk from storms, erosion, deposition and sea-level rise. Given its importance we need to carefully consider how we manage the coastline to ensure that we can make use of its resources while still preserving its natural beauty and processes.

“More than 250 million visits are made to the UK's coast per year... with seaside tourism valued at £17 billion.”

- UK National Ecosystem Assessment 2014

Coastal management can be put into the four categories:

Do nothing	Allow natural processes to take over. This may lead to areas of land being lost to the sea
Hold the line	Keep the coastline at its present position. This may require a range of engineering solutions
Managed retreat	Allow the coastline to retreat but in a staged and managed way
Advance the line	Defences are built out at sea

“By recreating a naturally functioning shoreline we free ourselves from the ‘sea defence cycle’ of construct, fail and reconstruct. This must surely be more cost effective in the long run and more desirable in terms of maintaining the coast's natural beauty. It does mean making some tough choices, but we can't just store up the problems for future generations to deal with..”

- The National Trust

What questions do geographers ask?

You can ask geographical questions about anywhere on the coast. Photographs, map views and Google Earth views can help you. Here are some examples.



Holding the line. Eastbourne by Ken Douglas / CC BY.

- How do these hard defences affect the beach sediment system?
- What historical evidence is there for the impact of these hard defences?
- Are these hard defences sustainable



An eroding coastline. Formby Point by Simon Norman

- What happens to the sediment which has been eroded from the sand dunes?
- When did the sediment balance change from accretion to erosion?
- Should anything be done about erosion of the sand dunes?

News reports and recent research articles provide interesting themes around which you can ask geographical questions. Here are a few examples.

Explore real-time data (including wave direction and height) and a gallery of photographs from across the coast of [England and Wales at the Channel Coast Observatory](#)

[What's in your backyard?](#) (Environment Agency) provides maps of the coastal erosion management policy in England. Here is an example.



Example of a coastal erosion management map by Environment Agency / Contains Environment Agency information © Environment Agency and database right

The Steart Coastal Management Project in Somerset, completed in September 2014, is one of the largest managed realignment projects in the UK. But there have been critics, such as the local MP, who has called the project "[Disney for ducks](#)"

What could you investigate by fieldwork?

Here are some examples. Each research question has been split into 2 or 3 sub-questions.

Research questions	Sub questions
What is the impact of the coastal defences at x?	Where are the hard defences at x? What is the impact on the hard defences on longshore drift and the rate of deposition? Is there any historical evidence for the difference that the coastal defences have made?
Is coastal squeeze happening at x?	What is the land use along the coast at x? How vulnerable are different places along the coast at x to coastal flooding and rising sea-levels? Is there any historical evidence for changing land use along the coast at x?
How successful are the coastal management strategies used at x?	What coastal management strategies are used at x? What is the impact of coastal management on longshore drift and the rate of deposition? Can the coastal management strategies at x be compared with strategies along a contrasting stretch of coast?

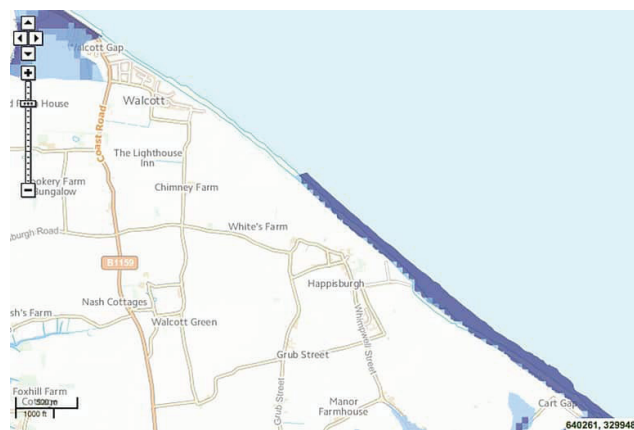
Specialised geographical concepts

A good way to demonstrate challenge in your choice of research question and/or sub questions is to consider one or more of the specialised geographical concepts. Here are a few suggestions:

Specialised concept	Research question or sub question
Causality	How has the sea wall at x altered the rates of erosion and deposition?
System	How do groynes at x affect the sediment budget along the coast?
Risk	What factors put the coast at x at risk of coastal flooding?
Resilience	How resilient is the coast at settlement x to changing weather patterns associated with climate change?

Choosing a fieldwork location

Choose a stretch of coast with some variation. The Environment Agency “What’s In Your Backyard” website shows how the risk of coastal flooding varies across the country.



A possible fieldwork location: Happisburgh in Norfolk. Length of coastline shown is approx 3km. Why is there a high risk of flooding at Happisburgh (purple shading) but little risk of flooding at Walcott? What coastal management strategies are used? How vulnerable is human activity to coastal flooding?

Whether you're preparing for AS/A level/ Advanced Highers/Highers/IB or GCSE, Geography or Biology, we've got you covered.

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flood-coast-map Image by Environment Agency Contains Environment Agency information © Environment Agency and database right