

# PLANNING FIELDWORK



You are going to conduct research into a coastal area, plan the fieldwork you will undertake, and prepare a pitch for your teacher to take the class to study this coastal marshland. Below are some ideas, pointers and useful links to support you with this. Ask your teacher for guidance and support finding resources if you need it.

## What should you do?

1. Review the site information sheets and chose one to explore further
2. Have a look at the site on the map
3. Explore other secondary data sources
4. Consider some fieldwork techniques you could use to study this site and the equipment you will need
5. What do you expect to find? Write a hypothesis related to the fieldwork you will carry out
6. Complete a field sketch of the area and prepare your pitch considering the questions below

## Primary Data Sources

- Beach profiles / Cross Shore profile
- Sediment analysis
- Longshore Drift
- 'Hard' defences: groyne / sea wall measurements
- Positive vs negative evaluation factors
- Questionnaires
- Risk mapping

## Secondary Data Sources

- Maps, aerial photographs: current and historical
- Wind, wave and tidal data
- Shoreline management plans

## Your pitch/presentation should include:

1. Why is coastal fieldwork important?
2. Which site did you choose and why?
3. What factors are important to consider?
4. What data are you going to collect and why?
5. How will you collect the data and what equipment do you need?
6. What risks are associated with this type of fieldwork?
7. How are you going to present and analyse this data?
8. Who will benefit from this fieldwork?

## Useful Resources and Links

- Google maps and Google earth
- OS maps:  
[osmaps.ordnancesurvey.co.uk](http://osmaps.ordnancesurvey.co.uk)
- Search: Environment Agency's National Coastal Erosion Risk Map
- Tide data: [ntslf.org/tides](http://ntslf.org/tides)
- Wind and wave data:  
[channelcoast.org/data\\_management/real\\_time\\_data/charts/](http://channelcoast.org/data_management/real_time_data/charts/)
- Fieldwork planning ideas:  
[geography-fieldwork.org](http://geography-fieldwork.org)
- Shoreline management plans (SMPs) and Environment agency resources:  
[gov.uk](http://gov.uk)
- The RESIST project: [nerc-resist.uk](http://nerc-resist.uk)
- Global temperature and sea level information: [climate.nasa.gov](http://climate.nasa.gov)
- CoastWEB project:  
[pml.ac.uk/CoastWeb/Home](http://pml.ac.uk/CoastWeb/Home)

# FREISTON SHORE



## Background Information

Freiston's sandy shore of The Wash was a popular seaside resort with attractions and horse races up to the mid-19<sup>th</sup> century. However, coastal accretion and deposition of sediment led a salt marsh to develop and left the tourism industry stranded.

Land reclamation through embanking the newly developed marshes allowed the land to be used for agriculture from the time of the second World War, but this was reversed in 2000, through Managed Realignment (MR). This is the process where flood defences are removed to restore intertidal habitats; the areas that are above water level at low tide and underwater at high tide. At Freiston, it allowed nearly 1 km<sup>2</sup> of tidal salt marsh to re-establish.

This took the pressure off the, now further landward, sea defences prolonging their life by buffering them against wave and tidal energy that had been eroding the shore. Freiston is now a protected RSPB reserve with a saline lagoon and wet grassland habitats for a number of bird species and other wildlife.

## Purpose

Coasts are dynamic and constantly changing and evolving.

Monitoring the morphological, sedimentological and biological changes to our coasts is important for understanding how they can best be preserved, managed and protected.



Freiston Shore: Google Earth 2020



The Wash aerial view 1953: Edwin Seppings

## Site Information

Coordinates: 52°56'32.1"N  
0°04'14.6"E

Equipment available:

- Meter ruler
- Long tape measure
- Sediment core collection tubes
- Flow meter
- Quadrat
- Light meter
- Ranging poles

# HOLDERNESS COASTLINE



## Background Information

The Holderness coast is eroding at an average of 1.8 m per year, and hence is the fastest eroding coastline in Europe. This rapid change is the result of soft, sand and clay rich cliffs with narrow beaches, being exposed to powerful waves travelling long distances over the North Sea, and artificially constructed groynes preventing longshore drift.

There have been conflicts in the area as a result of the management strategies (sea walls, groynes and rock armour) put in place to slow and prevent this erosion.

Increased erosion has been seen at Great Cowden as a result of the groynes in Mappleton; leading to destruction of farmland and holiday parks. Location of the sea defences is disputed as some communities and their land are protected, whilst others are adversely affected by land loss and loss of tourism and thus money coming into the area.

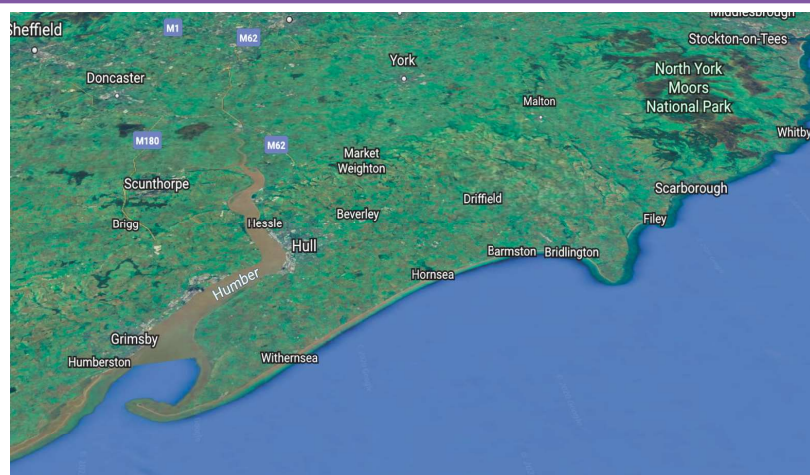
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Mappleton Groynes: Google Earth 2020



Holderness Coastline: Google Earth 2020

## Site Information

Coordinates: 53°52'39.3"N  
0°08'01.8"W

Equipment available:

- Meter ruler
- Long tape measure
- Sediment core collection tubes
- Flow meter
- Quadrat
- Light meter
- Ranging poles



# MEDMERRY



## Background Information

At Medmerry, on the South East coast in Sussex, the earth and shingle embankments built in the 1960s have been breached allowing the formation of natural mudflats by the sea. Originally this area of salt marshes was drained to create farmland, but its vulnerability to flooding as sea levels rise made it a good option for managed realignment.

Managed Realignment (MR) is the process where flood defences are removed to restore intertidal habitats; the areas that are above water level at low tide and underwater at high tide.

The slow recreation of the mudflat and salt marsh act as a store of water which acts as a buffer to erosion, reducing the flood risk to surrounding communities. Here, this process has created a 73-hectare sanctuary for wildlife, and a popular walking site for tourists and locals. Farmers grazing their cattle on salt marsh have found their produce to have a greater salt content, desirable for consumers who will pay a higher price for the taste.

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Medmerry Realignment: New Civil Engineer



Medmerry before MR: Solent Protection Society

## Site Information

Coordinates: 50°45'41.7"N  
0°45'40.7"W

Equipment available:

- Meter ruler
- Long tape measure
- Sediment core collection tubes
- Flow meter
- Quadrat
- Light meter
- Ranging poles

# KEYHAVEN MARSHES



## Background Information

Keyhaven Marshes are formed in the shelter of Hurst Castle shingle spit on the Hampshire coast, shaped by longshore drift over hundreds of years.

The salt marsh is retreating by up to 6 m each year. Sea level rise has led to squeezing of the salt marsh between the sea and the sea wall, built as a defence around 30 years ago. Storms breaching the spit of Hurst Castle have threatened the marsh's existence, with up to 80 m of erosion resulting from recent storms pushing the shingle ridge over the marsh, exposing it to the sea. The area is popular for boat mooring and with tourists and those human pressures can cause further damage by erosion.

As part of a £5million defence project, rock armour and beach replenishment were used to increase the size of the spit and enhance its protective effect. Some areas of the marsh are now under protection as a nature reserve, with limited access to preserve the biodiversity of the area.

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Keyhaven: Google Earth 2020



Hurst Castle and Spit  
1996:  
Bournemouth echo

## Site Information

Coordinates: 50°42'22.6"N  
1°33'03.8"W

Equipment available:

- Meter ruler
- Long tape measure
- Sediment core collection tubes
- Flow meter
- Quadrat
- Light meter
- Ranging poles

# STEART PENINSULA



## Background Information

Wetland habitats service the coastal ecosystem. They provide coastal protection through wave and tidal reduction and in support fisheries, water quality and recreation.

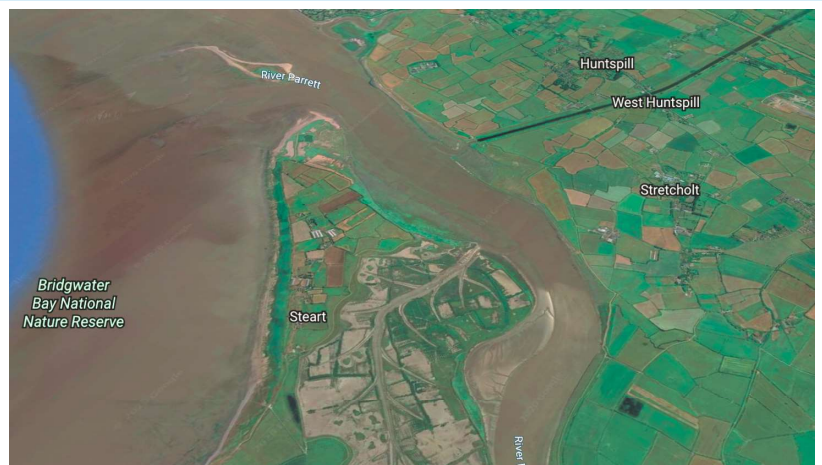
Managed Realignment (MR) is the process where flood defences are removed to restore intertidal habitats; the areas that are above water level at low tide and underwater at high tide.

The Steart Peninsula was a major site of flooding for most of the last thousand years. As a result of this flooding, coastal erosion, sea level rise and wave activity, sea walls were constructed as defences but are now considered to be at risk of failure. From 2012 to 2014 The Environment Agency converted the peninsula into a major wetland reserve. This flood management scheme involved a breach of the sea wall, allowing seawater to enter the salt marshes from the estuary of the River Parrett. The intention being for the marsh to dissipate energy from the tide and waves and protect the surrounding area from flooding and erosion.

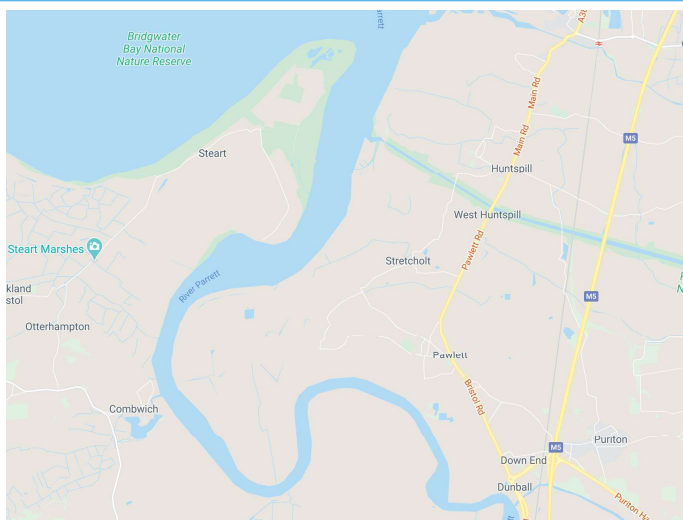
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Steart Peninsula: Google Earth 2020



Steart Peninsula: Google Maps 2020

## Site Information

Coordinates: 51° 12' 27.62" N, 3° 2' 26.33" W

Equipment available:

- Meter ruler
- Long tape measure
- Sediment core collection tubes
- Flow meter
- Quadrat
- Light meter
- Ranging poles