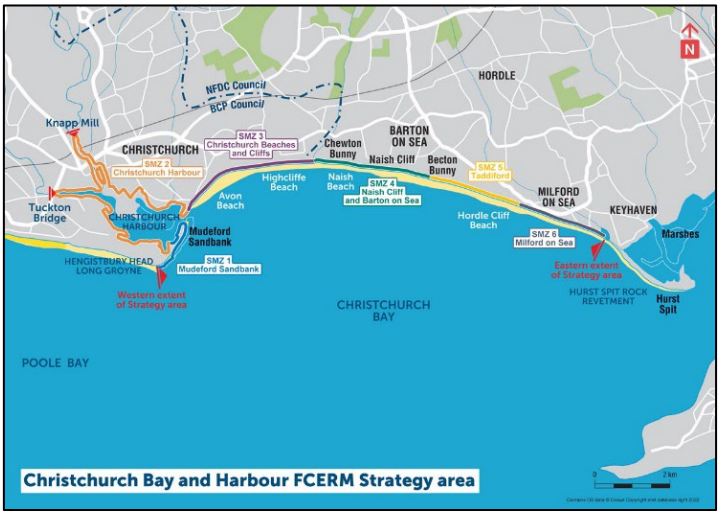
Coastal management at Milford on Sea

1. Milford on Sea is a small town with a population of just under 5,000 people located at the eastern end of Christchurch Bay in Hampshire.

(a) Use a highlighter or draw a ring to locate Milford on Sea on the map below.

(b) Locate and label the Isle of Wight in the lower right corner of the map.

(c) Use the linear scale to measure the width of Christchurch Bay (from the 'Western extent of Strategy area' to 'Eastern extent of Strategy area'). _____ km



Source: BCP Council

(d) Using the PowerPoint Slide 2 or the internet to help you to locate and label the following on the map below:

- Counties of Dorset and Hampshire
- The Isle of Wight
- Christchurch Bay
- Your home county.

https://d-maps.com/carte.php?num_car=5596&lang=en

(e) Describe the location of Christchurch Bay in England.

Produced in collaboration with Geography Southwest (https://www.geographysouthwest.co.uk/) and the project partners.

2. The photo below shows Milford on Sea and Christchurch Bay. The OS map extract is taken from the 1:50,000 series.

Image courtesy of Dan Amos, South East Regional Coastal Monitoring Programme

Kind permission: Digimap for Schools

(a) In what direction is the photo looking? _____

(b) On the photo, locate and label Christchurch Bay and Milford-on Sea.

(c) On the photo, label the beach and the beach huts (in the distance).

(d) What is the number of the main road shown on the photo? _____

(e) Give the 6-figure grid reference of the car park in the photo at X. _____

(f) Identify the land uses at immediate threat from cliff erosion.

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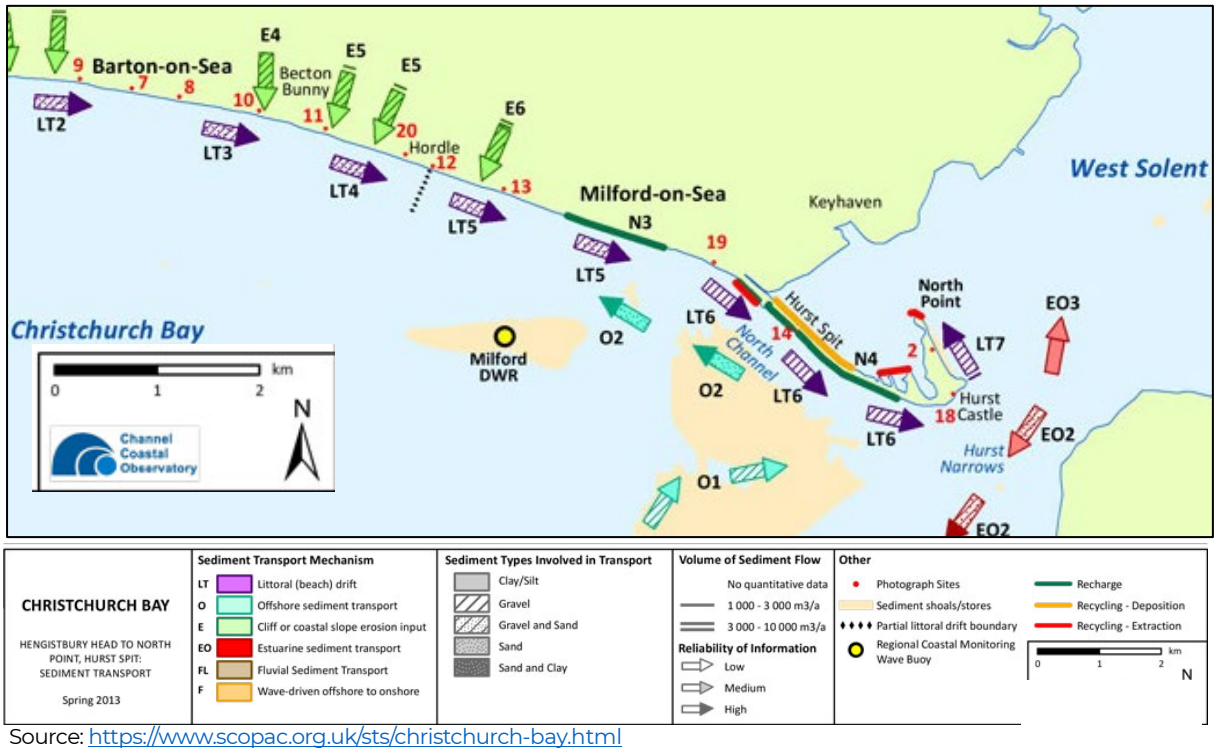
3. At Milford on Sea, sediment is transported along the coast from west to east. The map below shows some of the features of sediment transport in the east of Christchurch Bay.



Source: https://www.scopac.org.uk/sts/christchurch-bay.html

(a) Look at the key. Notice that the purple arrows show littoral (beach) drift. This is longshore drift. In what direction is longshore drift operating at Milford on Sea? _____

(b) Describe the type of sediment that is being transported at Milford on Sea.
_____

(c) An important input of sediment is from 'cliff or coastal slope erosion'. Identify the sources of eroded sediment to the west of Milford on Sea.
_____

(d) What coastal landform has been formed as a result of sediment transported across Christchurch Bay? _____

(e) Locate the green arrows labelled 02 that indicate offshore sediment transport. What type of sediment is transported and in what direction is it being transported?

- Type of sediment: _____
- Direction of transport: _____

(f) Explain how an understanding of sediment transport is important in managing the coast at Milford on Sea.

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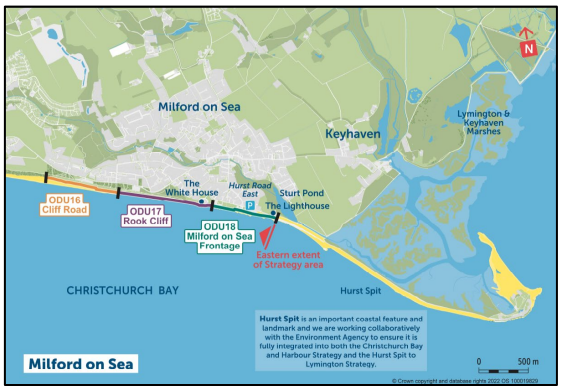
4. The coast at Milford on Sea has been divided into three management units – Cliff Road, Rook Cliff and Milford on Sea frontage. These are located on the map below.



Source: BCP Council

(a) Complete the table below to identify the management issues (e.g., cliff erosion) and the existing coastal defences (e.g., rock groynes). Where you can, describe the condition of the existing defences.

Management Unit	Management Issues	Existing coastal defences
Cliff Road		
Rook Cliff		
Milford on Sea Frontage		

(b) The photo below shows the effects of a winter storm in 2014. Annotate the photo to:

- describe the damage caused by the storm
- identify the existing coastal defences

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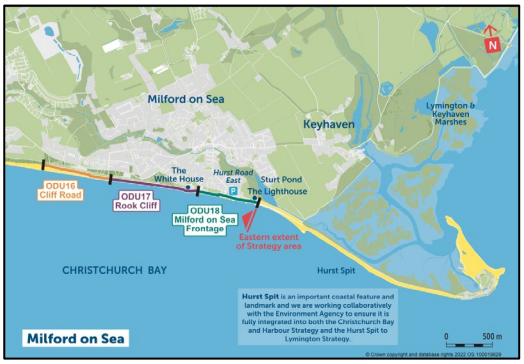
5. In England and Wales, a shoreline management plan (SMP) outlines policy for managing flood and erosion risks for a stretch of coastline. Complete the table below to define the four policy options for managing the coast. Include a simple diagram to explain each policy.

SMP Policy	Definition	Simple sketch
Hold the line		
Managed realignment		
Advance the line		
No active intervention		

6. The table below identifies the coastal management options for the three management units at Milford on Sea.

Location	SMP(2) policy	Management options
Cliff Road	Managed retreat to 2105	Repair and maintain Beach nourishment Rock/timber groynes Cliff stabilisation and drainage Rock revetment
Rook Cliff	Hold the line to 2105	
Milford on Sea frontage	Hold the line to 2025; managed retreat to 2105	

Source: BCP Council



Using evidence from the maps and photos, suggest why the policy of managed retreat has been adopted for the Cliff Road unit.

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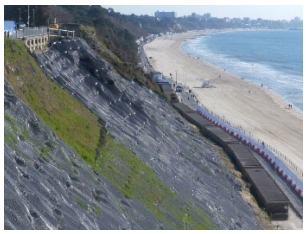
7. There are several management options for defending the coast at Milford on Sea. These include repair and maintain, beach nourishment, rock/timber groynes, cliff stabilisation and drainage and rock revetment. Complete the table below to describe these options.

Coastal defence measure	Description	Cost
Repair and maintain  Source: BCP		
Beach nourishment  Source: BCP		
Rock/timber groynes  Source: BCP		
Cliff stabilisation and drainage  Source: BCP		
Rock revetment  Source: New Forest District Council		

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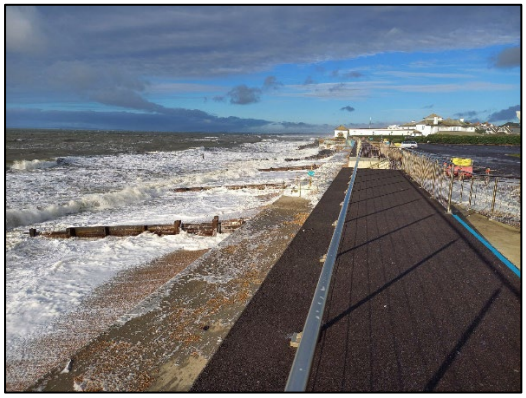
8. The SMP policy for Milford-on-Sea frontage is 'hold the line' until 2025 and 'managed realignment' to 2105. With reference to the photo and the map below, suggest how this coastal unit should be managed in the future, initially to 2025 and then to 2105. Give reasons for your suggestions.



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