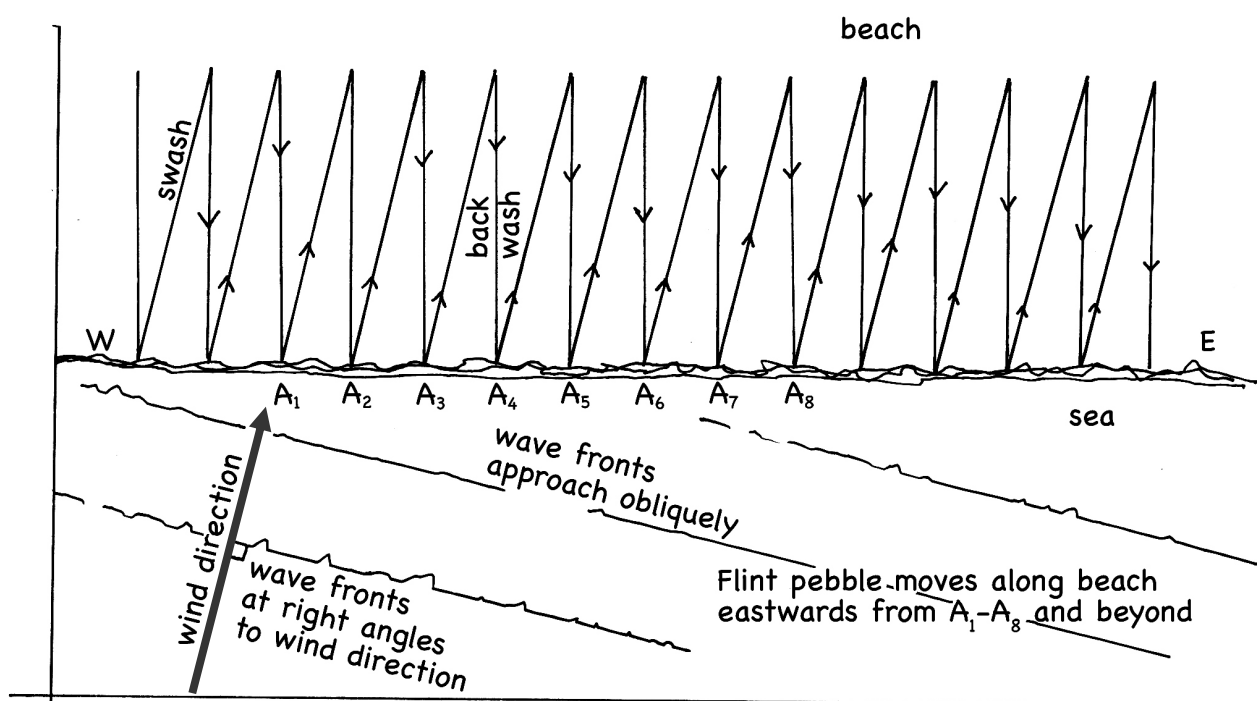


SHINGLE ON THE MOVE

1. THE PROCESS OF LONGSHORE DRIFT

Waves rarely hit the shore at right angles. Usually, as in the diagram, the winds cause the waves to hit the beach obliquely. This causes the swash to move pebbles obliquely up the beach, while the backwash drags them straight down, in the direction of the steepest slope, back towards the next waves. Over time, the pebbles follow a saw-tooth or zigzag path, moving sideways along the beach. This process is called **LONGSHORE DRIFT**.



Look carefully at the map (overleaf) showing the pattern of longshore drift along eastern Channel Coasts, prepared by BAR researchers.

a) From which direction do winds most often approach the North France and the East Sussex coast?

b) From which direction do the most powerful waves come?

c) What is the main direction of longshore drift on the eastern Channel coast?



d) There are four stretches of coast in South East England and one in France where the drift appears to go in two directions. Identify where they are and suggest an explanation

DOMINANT DIRECTION OF LONGSHORE DRIFT ON THE BAR COAST



e) What will happen to a stretch of beach from which shingle or sand is removed quicker than it is supplied by longshore drift?



f) What problems might this cause for sea walls and cliffs?

g) What might happen to beaches protected by engineered structures, (such as the harbour arms and breakwaters shown on the BAR map) that slow down longshore drift?

Groynes along Hastings beach



h) The wooden walls in the photo, dividing up the beach, are known as **GROYNES**. How does the pattern of accumulation of the shingle against the groynes indicate the direction of longshore drift?



i) Suggest some advantages and disadvantages of groynes:

