

Storms on Chesil Beach

Ed Harland

Fleet Study Group



Chesil Beach has a generally south-west facing aspect and the waves arriving on the beach may have travelled from well out in the Atlantic Ocean. Under storm conditions huge swells can impact the beach and these can considerably modify the beach profile, and, in extreme conditions, can cause temporary breaches of the beach. Wave heights most winters regularly reach 6 metres during periods of gale force winds. Under extreme conditions wave heights of 15 metres and more can occur. These waves can modify the beach in a number of ways. As the wave height increases pebbles are increasingly moved around the beach. Depending on the wind speed and direction, the pebbles may be moved up or down the beach or can be moved north or south along the beach.



As the wave height continues to increase eventually the waves start breaking over the top of the beach and there is considerable pebble movement. This usually occurs during periods of low barometric pressure and this can result in a storm surge in the Channel raising the mean water level. As a result of both effects, a large amount of water percolates through the beach and starts pushing out pebbles on the Fleet shoreline. Volumes of pebbles can be pushed out into the Fleet leaving voids known as 'canns'. Examples of large cans can be clearly seen in the beach opposite the Wyke Bridging Camp.



Under extreme conditions, the cann will be sufficiently large to result in a breach of the beach. This last occurred in 1990 just north of the check-point by the entrance to the WPNSA on the Portland Beach Road and the resulting flow of water washed away a portion of the beach road. It is now considered that a number of weaknesses exist within the beach and the most likely places for a breach to occur are along the Portland Beach Road and in the region adjacent to the Narrows.



From Abbotsbury northwards, under storm conditions there can be significant erosion of the land behind the beach. This can clearly be seen at Burton Cliff, with significant cliff falls occurring.

Further south, erosion of the Fleet land shore can occur during strong current flows resulting from the build-up of water in the lagoon during storms.



It is generally thought that the bulk of Chesil Beach is reducing due to a number of factors. Its efficacy as a sea defence is steadily reducing and at some point in the future it is likely that a breach may occur that is more permanent.