



UK Coastal Research Conference

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9 YEARS OF LANDWARD AND LATERALLY PROGRESSING CLIFF RETREAT IN RESPONSE TO PROGRESSIVE DEFENCE FAILURE, CLIMPING WEST SUSSEX.

Uwe Dornbusch
Environment Agency

Significant lengths of the English coastline with a present-day Hold the Line policy will not be protected in the future. Understanding how quickly and to what extent the coast will change is essential to inform management of these frontages, yet there is an almost complete lack of field data. The study uses 40 cliff top surveys collected between 2016 and 2025 along a 1.2 km long section of a low chalk, clay and brickearth cliff. The frontage has benefitted since at least the late 19th century from a shingle beach held in place by generations of timber groynes and breastwork and was backed by a range of wall and concrete structures that have gradually failed over the last 9 years. Several thousand cubic metres of beach sediment are passing through the frontage annually.

Retreat (a maximum of 60 m) goes along with rotation to a more swash aligned plan shape and development of an equilibrium bay where an updrift control point is relatively stable in the western part of the frontage, while in the eastern part equilibrium bay development has tried to catch-up as the updrift hardpoint migrated westward. Both bays have coalesced during the winter 2024/25, initiating another scale of planform changes to one large equilibrium bay, however, the growth of the intertidal and the presence of beach material have already started to slow down retreat in some areas, suggesting that these will form limiting factors for the growth of the bay in the short term.