

Beaches devastated by extreme storms showing little signs of recovery, study shows

November 24 2016, by Mr Alan Williams



Credit: University of Plymouth

Beaches left decimated by the severe winter of 2013/14 have still not recovered almost three years later, according to new research led by the University of Plymouth.

The study, published in *Marine Geology*, showed around eight weeks of storms left many [beaches](#) along the UK's Atlantic coastline in their most

eroded state since records began.

Conditions since have in many cases done little to replenish exposed areas, with parts of Devon and Cornwall having only recovered around half of the sand lost during that time.

For the research, scientists examined the response at 38 natural beaches in the south west of England, ranging from semi-sheltered reflective gravel barriers to ultra-dissipative exposed sand beaches with dunes.

It showed that some beaches experienced sediment losses of up to 200 m³ for every 1m strip of beach, providing the potential to dramatically change the equilibrium state of beaches along the western side of the continent.

The current study includes data gathered up to the middle of 2015, but researchers have continued assessing the beaches at Slapton Sands in Devon and Perranporth in North Cornwall to examine whether the situation is improving.

Dr Tim Scott, who led the study alongside colleagues in the University's Coastal Processes Research Group, said:

"As of October 2016, Perranporth had only recovered about half of the sand lost in 2013/14, while Slapton Sands has seen a marked and lasting shift of sand from the western end of the beach to the east. But it appears the impact of the storms that winter were so extreme at Slapton Sands, with large waves consistently from the South West, it would take a series of significant easterly wave events of similar impact to replenish what was lost. Since 2013/14, wave conditions have remained southwesterly-dominated and that is why we are seeing the current, and dramatic, effects."

Previous research led by the University – published in March 2016 –

showed the 2013/14 storms were the most energetic to hit Europe's Atlantic coastline since records began in 1948. Regardless of this, it had been expected that most of the sand lost as a result of those storms would have been replenished.

However, data collected as part of the current study and more recent analysis, has shown that while there has been some recovery in the summer months since 2013/14 these have largely been wiped out in the following winters.

This has created a situation where high water shorelines are further landward at sites such as Perranporth, while communities such as Torcross – at the western tip of Slapton Sands – are left more vulnerable as the sediment protecting the sea wall remained depleted.

Dr Scott added:

"Our ongoing research has shown that recovery after a severe weather event can take many years, but we are also seeing that those effects are intrinsically linked to long-term climate cycles. With the advance of climate change, it is likely we will experience more extreme and energetic storms in the future, and developing a greater understanding of coastal recovery – and any means by which we can influence it – will be essential."

The full study – The extreme 2013/2014 winter storms: Beach recovery along the southwest coast of England by Scott, Masselink, O'Hare, Saulter, Poate, Russell, Davidson and Conley – is published in *Marine Geology*.

More information: Tim Scott et al. The extreme 2013/2014 winter storms: Beach recovery along the southwest coast of England, *Marine Geology* (2016). [DOI: 10.1016/j.margeo.2016.10.011](https://doi.org/10.1016/j.margeo.2016.10.011)

Provided by University of Plymouth

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