Coastal communities face winter threat

November 18 2014, by Alan Williams

The coastal communities of South West England are in a vulnerable position because beaches that previously protected them have not recovered from the severe storms of last winter.

The unprecedented battering caused by a succession of Atlantic storms from December 2013 to February 2014 left a trail of damage along the coasts of Cornwall, Devon and Dorset.

But alongside the devastation caused to homes, businesses and transport infrastructure, the natural protection provided by sandy and gravel beaches has been reduced.

Now scientists from Plymouth University believe that could lead to increased problems for coastal communities, and have predicted the impact could be severe if the winter of 2013/14 comes close to being replicated in the coming months.

Paul Russell, Professor of Coastal Dynamics at Plymouth University, said:

"The conditions last year were the worst in at least 60 years. Four severe storms impacted South West England over a six-week period, each with unprecedented wave heights of eight to ten metres. These huge waves have reshaped our coastline. On the north coast beach levels have lowered as sand was shifted offshore, while on the south coast the dominant west to east transport has caused beaches to rotate, leaving the western ends of many beaches severely depleted. Since the storms, recovery has been limited with beaches on the north coast typically only regaining half of the sand lost while some south coast beaches have seen hardly any recovery."

In March this year, the coastal research team at Plymouth University – in partnership with the Plymouth Coastal Observatory and the Met Office – was awarded an urgency grant by the Natural Environmental Research Council (NERC) to fully analyse the impact of the 2013/14 storms.

Since then, they have carried out monthly analyses of the beach volumes at Slapton Sands in Devon and Perranporth in North Cornwall, with regular monitoring at many other sites along the north and south coasts of both counties.

At Slapton Sands, the beach at Torcross in front of the seawall is three metres lower than last year, leaving the foundation of the seawall exposed.

Meanwhile at Perranporth, the beach has lost around half a million cubic metres of sand compared to the same time last year and all this sand is currently contained in a large sand bar that presently sits about a kilometre from the shore.

Professor Gerd Masselink, Professor of Coastal Geomorphology at Plymouth University, said:

"Every coastal community in the South West was adversely affected by the storms of last winter. But the vast majority of them are going into the coming months in a worse position than they were last year because the natural barriers that usually protect them have been depleted. Beaches absorb the energy of incoming waves and, with beach levels lowered, larger waves are able to come closer to shore. Normally we would expect sand eroded during winter to be returned to beaches over the summer, but last year's winter waves moved the sand so far offshore or alongshore that it cannot easily come back."

Provided by University of Plymouth