

Climate change and coastal archaeology in Sandwich, Kent

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Sandwich Bay, Kent, is the site of a possible ship graveyard; at low tide, a series of wooden shipwrecks of varying condition and completeness and a WWII B17 bomber are exposed on the beach (Evans and Davison 2019). This site, and others like it, are at risk from the effects of climate change.



Volunteers surveying one of the wrecks, and a drone flying over to take aerial shots.
Credit: MSDS Marine

Sandwich Bay is a dynamic stretch of coastline. Coastal erosion and sediment accretion have changed the shape of the coast countless times through history. Prior to the 16th century, the flat stretches of beach at Sandwich Bay had not yet formed or were deeply submerged, Thanet was an island, and the town of Sandwich was a longstanding, lucrative port importing and exporting goods from all over the world. Sediment accretion over time silted up the natural harbour at Sandwich and created large swathes of intertidal beach, which rendered the port inaccessible to larger craft and therefore redundant.

The bay is now home to a number of unidentified wooden wrecks lying in the intertidal zone and nearshore area. These vessels range in size, though most are under 30m long, and are of varying type (Evans and Davison 2019). The wrecks are undated, but

because of the rate of coastal formation in the area, it is likely that they are post-medieval and later. For the most part, the wrecks appear to have been beached, with the bows pointing towards the shore. Historical sources from as early as 1417 indicate that it was fairly common for ships to be grounded on the flats at Sandwich Bay during storm events (The National Archives: SC 8/171/8529). A number of interesting features are visible at low tide – at least one wreck shows evidence of sacrificial planking, while a galley brick was recorded on a different wreck. Sandwich Bay offers a rich resource of wrecked vessels ripe for investigation.

Climate change is threatening coastal heritage all around the world. The East Kent coast suffers from high rates of coastal erosion and sediment displacement resulting in a constantly changing coastline, and climate change driven by human influence is

exacerbating these natural changes. Rising sea levels, more frequent high-intensity rainfall episodes, and an increase in the frequency and intensity of storm activity threaten the stability of the coastline at Sandwich Bay. These phenomena have the capacity to cause frequent flooding and increase rates of erosion, which could prove catastrophic for the wrecks at Sandwich Bay. Indeed, it was noted during a survey in 2018 that one of the wrecks may have deteriorated since a previous survey undertaken in 2011 (Wessex Archaeology 2012), and that another had become significantly more exposed as a result of shifting sand levels.

Climate change is also causing the northward migration of the blacktip shipworm *Lyrodus pedicellatus*. This species was first identified in southern Spain in the late 19th-century, but is typically found in warmer and tropical waters. This marine borer has the capacity to cause

immense damage to wooden structures in a very short amount of time. The average temperature of UK waters has consistently increased since 1970; 2006 was the warmest year in UK coastal waters since records began. It was around this time that the blacktip shipworm was first identified on the Sandwich coast in 2005, and again in 2006 and 2007. Research has indicated that the worm can multiply in temperatures as low as 12°C (Knight 2018); the average sea temperature around the UK is 8–10°C in winter, and 15–20°C in summer. Further increase in average sea temperatures would enable this aggressive and invasive species to thrive all year round, causing untold damage to wooden wrecks like those at Sandwich Bay. Several of the sites at Sandwich Bay already show signs of damage from piddocks, another aggressive marine borer.

Other invasive species such as the Pacific oyster have been recorded on the wreck sites themselves, indicating that these sites may provide suitable habitats for other non-native species (Evans and Davison 2019).

MSDS Marine, in partnership with Carcinus and the Nautical Archaeology Society, undertook several non-intrusive walkover surveys in Sandwich Bay in order to begin assessing the significance of these wrecks individually, and their value as a group. So far, the age, type, and identity of the vessels remains unknown. Further investigation of these wrecks is required, and soon. The UK has a long and vibrant history of wooden shipbuilding, and although remnants of this industry exist on many beaches around the country, few are appropriately studied, and all are now at risk from the effects of climate change.

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References

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A wreck during low tide.
Credit: MSDS Marine



Volunteers recording a wreck. Credit: MSDS Marine



Frames sticking out of the water with trenails connecting them to the outer planking. Credit: MSDS Marine