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## 6 Covehithe

Grid reference [TM 528 820]

Covehithe is famous for losing land to the sea; it is one of the fastest eroding stretches of coastline in Britain. Every year it loses another four to six metres of cliff. This process has been going on for centuries. In the 1780s, the coastline lay over 1 km (0.6 miles) further east.

There was a sheltered inlet of some kind here in the Middle Ages, with an area called North Hals ('northern neck of land'), probably referring to a now-vanished spit or promontory. There was also evidently a cove (creek) with a hythe (landing place). The size of St Andrew's church reminds us of the former wealth and ambition of its builder.

Covehithe's crumbling cliffs are a feast of geological features; the sediments show an intricate variety of colours, shapes and textures. The best time to see them is in winter and spring, when storms have freshened up the exposures and scoured the beach. The most geologically significant strata belong to the Norwich Crag Formation. Pale, blue-grey clays with rusty mottling form a distinctive platform feature at beach level. These are the remains of intertidal mudflats about 1.8 million years old, and contain desiccation cracks and fossil worm burrows. Evidence from pollen and marine microfossils show that the climate was cold, and the environment was grassy heathland with sparse tree cover similar to parts of northern Scandinavia today. This time period is known as the Barentian, named after similar deposits at nearby Easton Barents. Fossil shells may be found in the cliffs or even mingled with modern shells washed up on the beach; they include species now only found in Arctic regions.

The main part of the cliff is a complex of sands and gravels. The lowest layers belong to the Westleton Beds of the Norwich Crag, and were deposited in offshore sand and pebble banks. Quartz-rich marine sands and gravels of the Wroxham Crag Formation are found higher up. Brown glacial clays of the Lowestoft Formation of Anglian age cap the cliff, and were deposited beneath an ice sheet, perhaps 450,000 years ago. The sequence illustrates a general cooling of the climate in the early Pleistocene period. Tapering ice wedge casts caused by downward-growing fingers of ground ice can sometimes be seen in the sands and gravels.

### Figure

(Figure 15) Road to nowhere. Visitors may see old wartime drain pipes, electricity cables and bundles of barbed wire eroding out of the cliffs. Recently a concrete pillbox was swallowed by the sea.

(Figure 16) Reconstruction of a local tundra scene during the Barentian cold period. © Beverly Curl

(Figure 17) Sands, gravels and clays of the Norwich Crag formation exposed in Covehithe Cliffs. Similar deposits are forming offshore at the present day.

(Figure 18) Eroding cliffs at Covehithe, April 2006. Clay beds of Barentian age are exposed on the beach in the middle distance.



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*Reconstruction of a local tundra scene during the Baventian cold period. © Beverly Curl*



*Sands, gravels and clays of the Norwich Crag formation exposed in Covehithe Cliffs. Similar deposits are forming offshore at the present day.*



*Eroding cliffs at Covehithe, April 2006. Clay beds of Baventian age are exposed on the beach in the middle distance.*