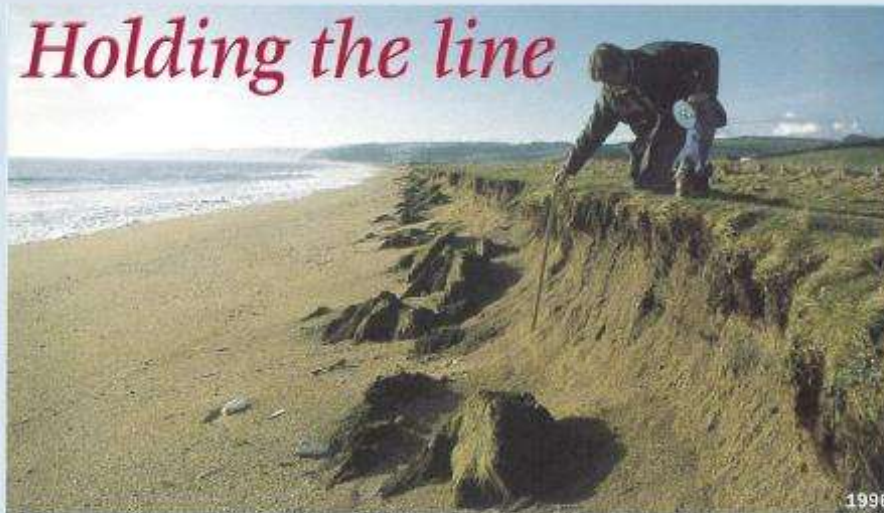


Holding the line



In my Snapshot column for Vol. 12, No. 2, I discussed some problems associated with the management of the Slapton Ley National Nature Reserve in south Devon. Here, I want to consider another issue affecting the same site, namely beach erosion.

It is true to say that the integrity of Slapton Ley is fundamentally dependent on the dynamics of coastal geomorphology. The lake and its associated wetlands only exist because of the shingle ridge, a barrier behind which freshwater has been ponded up for several thousand years. In recent years, there has been concern that erosion is threatening the very existence of the shingle barrier. Our snapshots show how the vegetation mat, which stabilises the shingle ridge-top, is being undercut. Marine activity is now perilously close to the main A379 road. The January 1996 picture was taken immediately after erosion had occurred. The other photo was taken in July 1998, by which time the 'cliff' had degraded somewhat.

There are several possible reasons for the erosion. It could be the result of a natural progression, as the ridge is gradually driven onshore over time. It could indicate the result of climatic variability, with changes in wind direction and storm waves in recent years concentrating erosion on a different



part of the Start Bay coast. Or it could be that global warming, in the form of rising sea levels and increased storminess, is upsetting the equilibrium of the beach system: as climate alters, the beach responds by changing to a new shape and new position.

What can be done? What should be done? Basically, there are two options – we could:

- do nothing – allow nature to run its course;
- hold the line – combat erosion through some sort of protection works.

Although the shingle ridge is an integral part of the nature reserve, it is no longer 'natural'. This is a real complication. At the south end of Slapton Sands, the village of Torcross sits on the shingle ridge. A concrete sea wall was built to protect the village following severe storm damage in 1979. A road runs right along the shingle ridge: the A379 links the towns of Kingsbridge and Dartmouth and

is heavily used by local people and holiday-makers alike. Must we protect the road at all costs or should we abandon it once it is breached and relocate it somewhere inland? Do the benefits of keeping the road open justify the costs of doing so?

One of the 'costs' of having the road is that the beach ridge is now essentially fixed in position. There is no flexibility in the short term (as climate fluctuates) or in the longer term (as the shingle gradually migrates onshore). Before the road was built in 1856, we must assume that the ridge top was occasionally breached by floodwaters overflowing from the Ley; subsequent constructive wave activity would restore the status quo. In addition, extreme storm-wave activity would sometimes throw shingle over the ridge top on to the far side, thus effecting the gradual shoreward movement. Today, any shingle reaching the road is bulldozed back whence it came!

Some people would argue that we should stand back and let nature take its course. If this means the eventual loss of the freshwater lake and its surrounding marshland, following a catastrophic breach of the shingle barrier, then so be it. This may be an overly gloomy view, however; the ridge has survived for many centuries in its current position so disruption is likely to be temporary, not permanent. Even so, a resumption of these 'natural' instabilities would introduce a more dynamic element into what is a rather static condition today. Even to this extent, change (as always) will take some getting used to.

But other people (many people, probably) would put social and economic disruption before environmental benefit. Their priority would be to protect the road, to maintain its integrity by whatever means necessary. Might this mean 'hard' engineering protection along the whole of Slapton Sands? Perhaps not a sea wall, but maybe large boulders ('rip rap') to protect vulnerable sections. How do we value ugly engineering works along a coast of spectacular scenic value? A 'soft' solution might be more pleasing – replenishing the beach using shingle from further along where the beach is much wider. But this has ongoing costs, which could mount up over time.

Landscape management demands an appreciation of timescales, something which geographers know a lot about. Short-term gains (keeping the road open) must be balanced against long-term losses (the inflexibility of concrete). Protecting a village like Torcross is one thing, but protecting a stretch of shingle ridge may be quite another. Decisions taken today may bind successive generations: there is something rather permanent about a sea wall! Should we hold the line or, like King Canute, know when to gracefully retreat? What would you do?

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