

A Changing Climate for Maritime Biodiversity: linking science to practice – Case Study

Coastal Adaptation Strategies and ‘Shifting Shores’

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Overview

A National Trust report “[Shifting Shores – Living with a changing coastline](#)”, published in 2008, showed that increased coastal erosion could affect 279 kilometres (173 miles) of the National Trust’s coastline in the South West and tidal flooding could affect 852 hectares (2105 acres) of its coastal sites. More frequent and intense storm events and rising sea levels (brought about by climate change) will heighten the risk. The ‘*Shifting Shores*’ document highlights the National Trusts’ overarching coastal management policy to “work with natural processes wherever possible” and to allow the coast to realign itself when sea defences have to be removed.

The National Trust is obliged (by Act of Parliament) to own and manage its sites forever. The Trust has therefore recognised the necessity of taking a long-term management approach, which fully takes the impacts of climate change into account. When assessing different management options, a number of social, economic and environmental factors must be considered. Caring for biodiversity and habitats is a key concern and many of the Adaptation Strategies are designed to incorporate measures that are beneficial in helping biodiversity adapt to the changes in their environment. Many of the ideas currently being developed are also designed as interim measures in order to give species (and people) a little time to adapt, relocate and adjust to their changing circumstances.

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Managing Change – Coastal Risk Assessments

The '*Shifting Shores*' work was informed by a number of Coastal Risk Assessments (CRA) – the first version of which was developed in 2004. The CRA₁ process enabled the Trust “to understand and prepare for coastal erosion and flooding linked to both the rise in mean sea level (a subtle and incremental process) and increased storminess (sudden and chaotic events)”. It also takes account of consequential erosion/accretion at the shoreline. CRA₁ allowed the Trust to place all the coastal sites into an order of priority in terms of the risks attributable to flooding and erosion.

The 'next step' was to look at these 'hotspot sites' in much greater detail and on a more extensive range of themes. Differential erosion maps were also produced for all relevant sites. The second stage report (CRA₂) was completed in 2008 and provides a much more comprehensive interpretation of the information gathered from every coastal property. The report enhances and reflects the Trust's Coast and Marine Policy generated in 2006.

The '*Shifting Shores*' philosophy is bedded in the need to approach climate change issues in a rational way and to plan within the 50 -100 year timeframe so that adaptations can be planned and implemented in a considered manner and where there are difficulties to overcome, there is time to resolve them in a sensible fashion.

The National Trust works according to the following principles:

- **Work with nature, not against it** - this may mean removing defences and agreeing to let coastlines realign naturally. This may have implications regarding some of the stringent ecological designations
- **Think and act in a wider context** - work with coastal process 'cells' rather than with political boundaries
- **Solutions need partnership** - large-scale proactive realignments require a strong partnership approach so that all those who may be affected by a realignment programme have an adequate opportunity to put their case
- **Long-term planning is critical** - it may be necessary to move people, habitats and buildings and to do so effectively needs careful thought and early planning
- **Public participation is crucial** - part of the Trust's current task is to raise awareness of climate change impacts in order to gain public confidence and consensus

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Supporting biodiversity... some examples

The National Trust approach is always to favour natural coastal realignment wherever practicable. It only supports interference where there are demonstrable and over-riding benefits....often this would be in order to 'buy time' for a more adaptive and ecologically acceptable solution to be devised.

Black Ven, Lyme Regis

- The Coastal Adaptation Strategy for Black Ven is to allow the site to geologically 'unstitch' with no interference
- This will allow the speciation to be maintained and for the bare ground (early coloniser) species to continue to survive
- Public access is unacceptable due to Health and Safety issues but the Trust is exploring a number of virtual access technical ideas that might allow the public to understand the geology and biology of the site

Bossington (Porlock Bay)

- An excellent example of 'Managed realignment'
- Following the breach in the boulder bank, salt marsh and small lagoons have developed behind the bank (where the River Horner meets the sea)
- The area now has Special Site of Scientific Interest (SSSI) status
- Further studies are looking at the implications of even higher sea level rise

Studland Beach and the seaweed (Eelgrass, *Zostera sp*)

- National Trust made a decision in 2007 NOT to continue the practice of removing seaweed (washed ashore during storms) from South Beach
- As the seaweeds decayed, nutrients are washed along the foreshore and enrich the sands
- Strandline plants such as Sea Rocket (*Cakile maritima*) have now become more abundant and are helping to stabilise the back beach and embryo dunes
- Some objections were received from visitors saying that the beach was "unsightly and very smelly." So a community engagement programme was necessary to explain the reasons for the change in policy to the public.

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Coastal management considerations for the future

- There are complex inter-dependencies between different geomorphic features that define the natural systems at work on the coast
- The evolution of one particular element of the coast is influenced by evolution in adjacent areas
- These inter-relationships are not always well understood
- We need ever-more precise predictions of coastal evolutionary tendencies over the next century if we are to plan effectively. Shoreline Management Plans (SMPs) are an important element in this research
- SMPs will need to become more sensitive to ecological issues in the next iteration (SMP3)
- The spatial boundaries of environmental designations will have to be more flexible and take into account the gradual changes in species distribution

Challenges

- There is still much confusion and hesitancy about climate change impacts but we need to **plan on the assumption of** higher sea levels, hotter summers and wetter winters
- We can minimise the impacts by planning in advance and **making our communities more aware of the basis for our decisions**
- Environmental and planning laws **need to keep up with the science**
- **The SW economy can thrive** in the future if we take proactive care of our coastal assets
- For tourism, safe and easy access to the coastal is vital and will this aspect will become **an increasing challenge** if accelerated erosion occurs

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Relevant links:

'Shifting Shores': http://www.nationaltrust.org.uk/main/w-global/w-news/w-latest_news/w-news-shifting-shores-report/

General coastal policies:

http://www.nationaltrust.org.uk/main/w-chl/w-countryside_environment/w-coastline/w-coastline-resource_reference/w-coastline-coastal_process.htm

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