Dynamic Coast

COP26 Dynamic Coast Headlines

The latest research on Scotland's wave-dominated erodible coast reveals:

1. **Coastal erosion currently affects 46% of soft shorelines (up from 38% reported in 2017). The average erosion rate now is ca. 0.43 m/yr.**
2. **The extent and rate of coastal erosion, and the risk to coastal assets, is expected to increase under all emissions scenarios. Under a High Emissions Scenario, 75% of soft coasts are expected to be eroding by 2050. Even under a Low Emissions Scenario erosion extents, rates and risks are higher than now.**
3. **Reduction in global green-house gas emissions is essential, but must be delivered alongside adaptation of coastal infrastructure and communities. We must become *'sea level wise'*.**

Dynamic Coast reveals:

1. Around £ 20B of assets (road, rail & residential property) lie within 50 m of our coast. Of this, £ 5B of assets are protected by artificial defences, whilst £ 14.5B are protected by natural defences. We must appreciate the value of our natural coastal defences.
2. Under a cautious risk assessment (where neither artificial nor natural defences are maintained) and a High Emissions future, an estimated £ 1.2B of assets may be at risk of erosion by 2050. Under a comparable Low Emissions future around £ 814M of assets may be at risk by 2050: the avoided damage cost of a Low Emissions future by 2050 is around £ 395M.
3. Impacts are expected to occur initially through increased erosion and erosion enhanced flood impact, followed by storm damage & landslides.
4. Modelling suggests that the decade 2020s is when erosion first influences most shores. It is also the decade where inland low-lying coastal flood risk areas are most at risk from erosion-enhanced flooding.
5. Local variations and complexities exist, however most assets at risk are clustered in a few local authority areas (including Argyll & Bute, Dumfries & Galloway, Highland and Orkney). Data-rich sites including Bay of Skaill, Montrose & St Andrews demonstrate how targeted assessments can identify short-term resilience measures which buy time for longer term adaptation strategies to be developed.
6. Social vulnerability to coastal erosion is unevenly distributed across Scotland. Dynamic Coast's initial assessment paves the way for more detailed study by local authorities to consider Just Transition implications.
7. Coastal management approaches have been slow to change. The existing Shoreline Management Plans have relied heavily on artificial defences to hold the shoreline.
8. The pace and extent of future direct and consequential change at the coast suggests a new approach is needed to deliver an inherently resilient coast and a better adapted society: an appropriate route would be the dynamic adaptive pathways model. We must become 'sea level wise'

Recommendations:

- Recognise the scale of change anticipated at the coast and empower the planning system to secure adequate accommodation space for the coast and its assets to relocate to risk-free sites where necessary;
- Undertake adaptive shoreline management for all erodible shores with assets at risk;
- Cooperate with shared approaches to develop better short-term resilience measures and deliver funded long-term adaptation plans and actions (investing in natural coastal defences is an essential element in resilience and adaptation strategies);
- Improve the quality, extent and frequency of coastal monitoring data.

Becoming "sea level wise" means:

Knowing what sea levels, coastal erosion and flooding to expect; what assets will be at risk; when holding the present position will become untenable; how we flexibly manage increasing risks through time; and if nature-based approaches buy time for longer-term strategic adaptation.

Dynamic Coast Aims:

The Scottish Government's Dynamic Coast project aims to improve the evidence base and awareness of coastal change to support decision-makers and ensure Scotland's coast and assets can adapt to future climate.

Find out more:

1. View www.DynamicCoast.com for further summaries, reports and interactive maps.
2. Funded by CREW, NatureScot and the St Andrews Links Trust and delivered by the University of Glasgow.