



New science, local knowledge and risk management policy; the case of a UK cliff top coastal community

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Cliff retreat in the UK is widely acknowledged to represent a significant risk to coastal communities; a threat which is believed to increase with climate change. Government policy to manage coastal change is manifest through ‘Shoreline Management Plans’ (SMP), coordinated by local government and used to guide investment in defence. Future scenarios for the coastline position at 20, 50 and 100 year epochs are derived using widely applied models of future coastal change and existing process data. Despite a significant body of work on the development of guidelines for coastal management, situations still arise such that policy directly contradicts both local knowledge and scientific data. This paper examines the case of the village of Staithes in North Yorkshire, UK, which is renowned for its dramatic coastal location, industrial heritage and fossiliferous rocks. Coastal cliffs here appear to be actively eroding, increasing the threat to cliff top housing. The methods of policy formulation in particular those used to extrapolate future conditions are poorly suited to locations such as this where small changes in modelled process rates or future change multipliers significantly alter the position of future modelled scenarios. Ultimately the requirement to draw solid lines to represent an uncertain future gives rise to a not a-typical situation where regional-scale policy and local knowledge come into conflict.

This paper explores a situation where new detailed scientific data has been made available on the spatial and temporal nature of coastal retreat processes; hence future uncertainty has been reduced. Interestingly this data adds a previously absent scientific credibility to the locals understanding of the coastal dynamics and risk. The authors observations and experiences are presented on how this data sits relative to local knowledge and experience, relative to the existing understanding of uncertainty about coastal processes, and relative to a classical engineering approach adopted by

policy makers. In light of this data controversy has arisen during the development of the most recent round of SMP. The conclusions draw on this study by exploring more generic issues including the need to develop a wide area policy versus the sensitivity of specific locations; the aims of the policy versus the inevitable (side-) effect(s); the treatment of widely referenced or persistent data versus new scientific data; local knowledge and experience versus that of the expert; the acceptance of new data by locals versus acceptance by experts; and, the portrayal of uncertainty and future predictions.