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TITLE: Drawing the line on coastline recession risk

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ABSTRACT:

Climate change and the growth of coastal communities will significantly increase the socio-economic risks associated with coastline recession (i.e. the net long term landward movement of the coastline). Coastal setback lines are a commonly adopted management/planning tool to mitigate these risks. While it is widely recognized that planning decisions should be risk-informed, setback lines are presently determined using deterministic methods that cannot easily be related to considerations regarding the tolerability of risks. Here, we present a model for quantifying the risks posed by coastline recession and show how it can be used for deriving economically optimal setback lines. A demonstration at Narrabeen beach, Sydney, Australia illustrates that the proposed risk-informed approach to coastal zone management can significantly improve the transparency and efficiency of land-use planning decisions.

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