

Multi-scale adaptations to global change and their impacts on vulnerability in coastal areas (MAGIC)

Call: Coastal Vulnerability

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Adaptation plans have become increasingly popular across the globe. While some adaptations have beneficial outcomes, many have unintended consequences for vulnerability. This is particularly relevant in coastal zones where both marine and land-based adaptations have an impact and human pressures are greatest.

We believe a better understanding of the underlying social-ecological processes driving adaptation in coastal areas, particularly the feedbacks between risk from biophysical change, cognitive processes, and adaptation, will reduce the incidence of maladaptations while increasing the frequency of win-win adaptations. Findings will directly inform and support adaptation decision making in coastal areas, add to current knowledge on vulnerability and adaptation, and facilitate learning and appreciation of feedbacks in adaptation responses.

We use a model of “private proactive adaptation to climate change” to assess the interactions between:

- a) the actual risk posed by climate change
- b) cognitive factors such as perceived risk and perceived adaptive capacity
- c) adaptations and
- d) situated learning when decisions makers participate in modelling processes.

We assess the relationship between these drivers and adaptation plans in coastal areas at three scales: individual decision makers; local communities of practice; and regional planning authorities. Participatory modelling with decision makers will result in lasting impacts for enhanced coastal resilience.

In each of three coastal regions: the Languedoc-Rousillon in France; Cornwall in the UK; and the Garden Route coast in South Africa, we will identify two to three examples where users, communities of practice, and regional authorities have developed adaptation plans and strategies resulting in the unintended transfer of vulnerability from one sector, scale or place to another. We will use available empirical data and models, participatory agent-based modeling,

interpretative methods; and reflexive learning to catalyze and assess changes in the cognitive perceptions of decision makers who design adaptation plans.