

Mapping climate change vulnerability in the Sydney Coastal Council Group

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Abstract

As part of the Australian Greenhouse Office National Climate Change Adaptation Program, researchers from CSIRO, the University of the Sunshine Coast, and WWF Australia have been working with the Sydney Coastal Councils Group (SCCG) to undertake research on regional approaches to managing climate vulnerability in the Sydney region.

Over the course of almost two years, the Sydney integrated assessment project will help the region's coastal councils assess the potential biophysical effects of climate change, with subsequent emphasis on examining local capacities to adapt to potential climate change impacts.

Here we present the methodology and results from the first phase of this project, which entailed mapping of climate change vulnerability across the 15 SCCG member councils.

Vulnerability was assessed across five impact areas: heat-related health effects, sea level rise and coastal management, extreme rainfall and stormwater management, bushfire, and natural ecosystems and assets.

Spatial estimates of vulnerability were determined through the integration of multiple indicators representing the three components of vulnerability: exposure, sensitivity and adaptive capacity. Results indicate the important role of demographic and socio-economic conditions in influencing vulnerability. Furthermore, vulnerability was associated with a high degree of spatial heterogeneity and areas of high or low vulnerability, varied depending upon the impact under consideration.

This vulnerability assessment exercise will subsequently be used to further explore adaptive responses and institutional barriers at the local government level.