

Stormy waters ahead for coastal towns: what are the options?

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Port Adelaide flood map: The blue represents the areas prone to flooding in the year 2100, based on current high tide levels plus 74cms of sea level rise. Credit: University of South Australia

Australians love property and being near water. But fast forward 30 years and the two may be incompatible, judging by global forecasts warning of sea level rises that could threaten thousands of coastal residents in decades to come.

New research from the University of South Australia analyses the storm surge risks to Port Adelaide—one of Adelaide's most [flood](#)-prone regions—and considers how authorities might prepare for such a scenario between now and 2100.

The likelihood of this happening over the next 80 years is growing, based on sea level rise projections and forecasts predicting more intense weather in Australia, resulting in severe storm surges which can inflict considerable damage.

UniSA Ph.D. candidate John Watson is exploring a [legal framework](#) for relocating people from [urban areas](#) prone to frequent storm-surge flooding. He has adopted Port Adelaide as a case study.

Watson, from UniSA's School of Law, says there are three [policy options](#) available to adapt flood-prone regions: protection (building structures such as seawalls); accommodation (improving drainage, or constructing houses on stilts); or managed retreat (permanent relocation to higher land).

The third option is worth considering, despite being the most unpalatable and under-researched solution, he argues in his soon-to-be completed thesis.

"It may be preferable for governments at some point in the future to acquire properties at risk of frequent flooding and convert them to a public use, such as open space or a flood buffer," he says.

However, Watson says there are significant political, economic and social ramifications in adopting a policy of managed retreat.

"The idea of governments enforcing a retreat from [natural hazards](#) goes against the grain of the great Australian dream—owning your own home, particularly near the sea—so it tends to be an unpopular strategy."

"One of the interesting questions is if managed retreat is implemented at Port Adelaide, when would be the right time to relocate? Do it too early and there is the opportunity cost of sacrificing usable land. Do it too late and people and communities will suffer.

"Also, who should pay? Given the cost of such a policy, and the likelihood that other places will also suffer frequent floods in time, should the Commonwealth tax those who choose to live in flood-prone areas, or businesses that emit greenhouse gases that contribute to sea level rise and the risk of floods? Should it contemplate a climate adaptation future fund, for example? These are questions that need to be considered."

He cites examples in the US where in the wake of Hurricane Sandy, residents in New York's Staten Island whose homes were flooded asked the government to buy them out.

"There will be communities who will accept the idea of land acquisition because they have been frequently inundated. Others will resist because they have a strong attachment to their property and believe the government's job is to protect the community and not to intervene in private matters."

When completed, Watson hopes to extrapolate his managed retreat framework for Port Adelaide to other urban flood-prone areas in Australia.

A 2005 council study mapped the impact of a once-in-a-century flood in Port Adelaide, estimating the cost of a clean up to be in the region of \$30 million if a major flood hit, and rise to more than \$70 million by 2050 if nothing was done and sea levels rose by 0.3 metres.

Watson's [case study](#) was based on flood mapping and statistics outlined in the Port Adelaide Seawater Stormwater Flooding Study, published in 2005.

Provided by University of South Australia

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