

HOW MANY HOMES CAN FLOOD?

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New research commissioned by The Insurance Council of Australia and undertaken by Macquarie University's Risk Frontiers Centre suggests that more than 170,000 Australian residential properties are affected by riverine flooding and hundreds of thousands may be at risk from coastal inundation.

Riverine Flooding

The research on riverine flooding was presented at the 46th Annual FMA Conference (see page 3) by Roy Leigh, Risk Scientist at the Risk Frontiers Centre and draws on flood studies from more than 300 locations. It takes from research by Geoscience Australia into the availability of flood studies (see page 5) and also work by the NSW SES into the number of flood affected properties in NSW and provides additional research and analysis.

Estimates are based on the number of properties affected, up to the 1 in 100 flood level, as reported in the flood studies. This of course ignores the thousands of additional properties which would be affected by floods up to the Probable Maximum Flood or the thousands more not affected by main channel flooding but by overland flows.

Mr Leigh informed conference delegates that overground flooding was chosen as the measure for two reasons:

It is reported in most flood studies and, from an insurance point of view, this would be the trigger for many claims.

He acknowledged that information about overfloor flooding risks, and even depths and velocities, would be more helpful but this type of data is simply not widely available. Likewise there is limited data about less frequent floods.

The results of the research are summarised in Table 1.

State	Number of residential properties	Proportion of total
Queensland	62,130	36%
New South Wales	55,677	33%
Victoria	42,376	25%
Western Australia	1,142	1%
South Australia	6,582	4%
Northern Territory	990	1%
Tasmania	723	<0.5%
Australian Capital Territory	0	0%
TOTAL	169,620	100%

Table 1: Number of urban residential properties susceptible to mainstream riverine flooding with an ARI of 100years

The seven most flood-prone areas account for just over 40% of the total number of identified properties flood-prone to the ARI 100-year level. The worst 60 areas (20% of the locations in the study) contain 80% of the flood-prone properties. About 22% of the identified flood-prone properties are located in Brisbane City, Ipswich and the Gold Coast.

Table 2 shows the statistics for the seven most flood affected areas:

Region or City	State	Number of residential properties susceptible to over-ground flooding	Proportion of national total
Gold Coast	Qld	20,128	12%
Brisbane & Ipswich	Qld	18,010	10%
Sydney	NSW	10,139	6%
Shepparton	Vic	6,572	4%
Melbourne	Vic	6,000	3%
Mackay	Qld	5,924	3%
Brown Hill & Keswick Creeks (Adelaide)	SA	5,000	3%

Table 2: The seven most flood-prone regions in Australia based on an ARI 100-year flood

Dr Keping Chen, also of the Risk Frontiers Centre, used high-resolution geospatial data such as exposures, shorelines and elevation, to produce a national study of overall coastal inundation hazards including tsunamis, tropical cyclones, coastal flooding, and sea level rise.

He found 75 per cent of addresses, including residential, commercial and industrial sites were vulnerable in 37 local government areas, based on two threshold parameters: being within 3km of the coast and less than 6 metres above sea level.

The Gold Coast leads the list with more than 92,000 addresses under threat followed by Brisbane (32,909), Rockingham in Western Australia (27,509), Gosford in NSW (22,796) and Kingston in Victoria (19,508). Most of the addresses are located on the east coast in NSW and Queensland. The study also found that 50% of the population is located within 7km of the coast. Many of these properties are also at risk of riverine flooding.

The “sea change” phenomenon is exacerbating the situation with experts warning much of the new housing built near beaches will go under water in a big storm.

The risks were exposed when storms verging on cyclone intensity lashed southern Queensland and northern NSW from Fraser Island to near Coffs Harbour, with major damage recorded to the main beach at Noosa.

ICA spokesman Rod Frail commends the study saying there is not enough information on coastal inundation to give insurers an understanding of the risks and damage associated with these disasters.

"We need to fill in the blanks for yet another peril faced by home owners on the coast and we want to find a solution that will provide universal cover," he said.