

‘PLANS SCHMANS!’ – HOW CARAVAN PARKS RESPONDED TO THE AUGUST 2015 SUSSEX INLET AND LAKE CONJOLA FLOODS

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Abstract

Serious flooding of Sussex Inlet and Lake Conjola in August 2015 provided the opportunity to assess the effectiveness of flood emergency management plans (FEMPs) at flooded caravan parks. A survey of 16 caravan parks found that FEMPs were universally not enacted. Some park managers judged that the risk was low due to the low occupancy rates, and so did not need to enact their FEMPs. Others were not even aware of a FEMP. Various strategies to improve the effectiveness of FEMPs are proposed, including making the template more accessible by focussing on the key actions required, making the template more flexible, and mandating FEMP reviews as a condition of granting annual approvals to operate. In addition, and perhaps of most importance, greater investment in social and experiential learning approaches is required, to promote park managers' appreciation of changing flood risks and to facilitate sharing between park managers of innovative approaches to managing risk.

Background

About 40 caravan parks in Shoalhaven LGA are identified as flood-labile. Council adopted a Development Control Plan (DCP) and Local Approvals Policy (LAP) in October 2013 to better manage the flood risks for this distinctive land use sector. One feature of this *Caravan Parks in Flood Prone Areas Policy* is the use of caravan park flood risk precincts rather than the raw hydraulic hazard/function classifications derived directly from flood studies. The flood risk precincts allow for downgrading of flood risk from high to medium, or upgrading from medium to high, based on each park's evacuation capability. This is assessed by comparing the available warning time to the warning time required for evacuation and other tasks. As part of a caravan park's compliance report, each manager must provide a flood emergency management plan (FEMP), outlining the flood risk to the caravan park and how the risk is to be managed through the preparedness, response and recovery stages. The *Caravan Parks Flood Safety Study* (Bewsher Consulting, 2008) prepared a FEMP template and FEMPs for 30 caravan parks in the Shoalhaven. It was intended that the caravan parks would maintain these FEMPs and that the remaining parks would prepare FEMPs using the template.

August 2015 floods

In August 2015, an East Coast Low developed off the NSW coast (Figure 1) and resulted in heavy 24-hour and 48-hour rainfall totals in the Shoalhaven (Figure 2). Seventy-two hour rainfalls of 372mm and 417mm were recorded at Sussex Inlet and Lake Conjola, respectively. Flooding occurred across the LGA, with particularly significant events at Sussex Inlet and Lake Conjola, equivalent to about 20 year ARI events (Table 1). Some 95% of caravan parks in these villages were flooded, to depths

of up to 600mm at Sussex Inlet (Figure 3). Fortunately, the occupancy rates of Shoalhaven caravan parks are low in August, which mitigated the risk.

Figure 1 – Synoptic chart

Source: Bureau of Meteorology

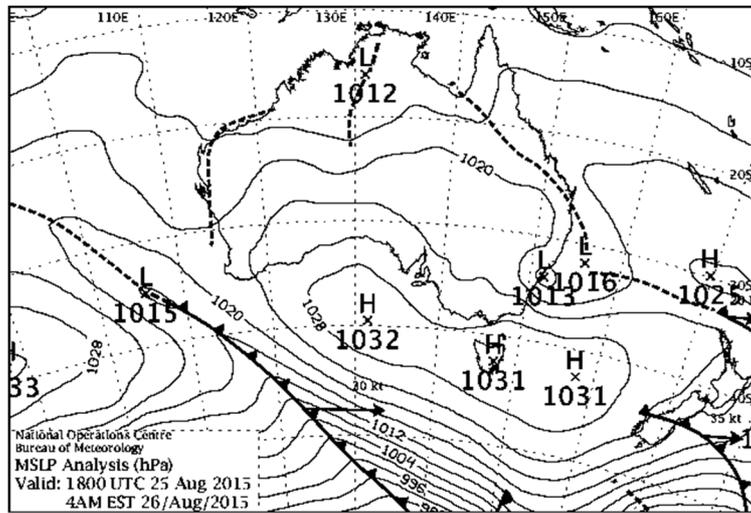


Figure 2 – Rainfall distribution

Source: Bureau of Meteorology

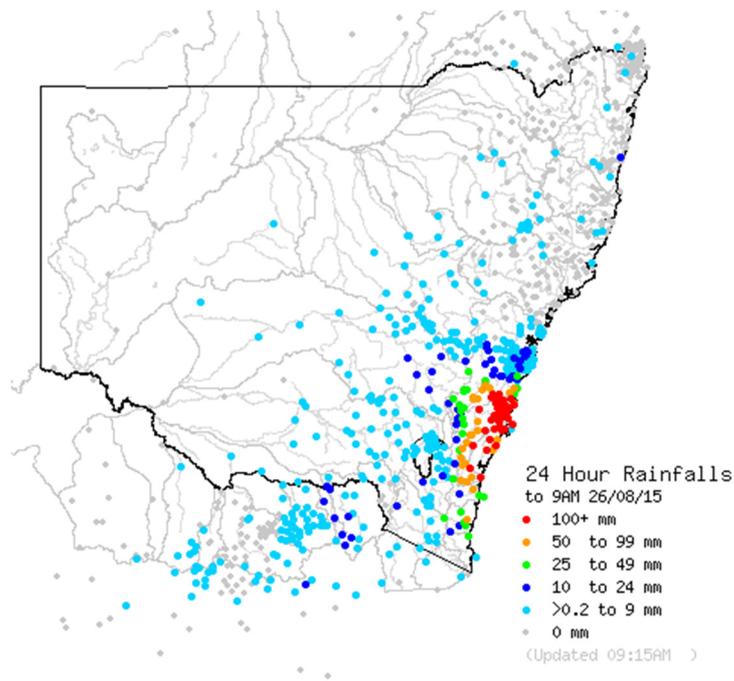


Table 1 – August 2015 flood summary

River	August 2015 peak	Approx. ARI	100 year ARI flood peak
Sussex Inlet	1.42m	20	2.05m
Lake Conjola	2.14m	<20	2.4m

Figure 3 – August 2015 flooding at Sussex Inlet caravan parks



a. Riverside Caravan Park, where the depths reached 300-400mm

Source: Park manager



b. Badgee Caravan Park, where the depths reached 600mm

Source: T. Marr

Effectiveness of caravan park FEMPs

The flooding of caravan parks in Sussex Inlet and Lake Conjola provided the opportunity to assess the effectiveness of the FEMPs that had been previously prepared. To this end, a few days after the flood, Council set out to interview managers from 12 caravan parks in Sussex Inlet and four in Lake Conjola. Questions sought to elucidate the extent to which each park was affected, the depth of flooding, whether the FEMP was enacted and what could be done differently.

At the risk of over-simplification, from these interviews four types of managers could be discerned:

- **Self-reliant manager:** These managers did not refer to their parks' FEMPs. They knew the flood history and were confident they knew what to do. The few park patrons present were evacuated early, and vans that could be moved were relocated. The owners of the park's holiday vans (or 'annuals') were contacted and property inside their vans was raised. Little damage was incurred.
- **Apathetic manager:** These managers may not have known that their park had a FEMP and did not use it. They tended to regard FEMPs as a form of Council 'red tape' rather than as a resource to help them respond effectively to floods. Some damage was incurred.
- **New manager:** New managers knew neither of the area's propensity for flooding nor of the existence of the park's FEMP.
- **Absent manager:** Some managers could not be located, with the belief that they were not present during the flood.

In summary, park managers relied on their own experience of past floods and judged the risk to be low due to the low occupancy rates. FEMPs were uniformly **not enacted**.

A number of other issues were identified with FEMPs:

- Some caravan parks had yet to draft FEMPs;
- FEMPs had not been maintained, even to update phone numbers when there was a change of manager;
- FEMPs were viewed only as compliance documents required by Council and not as living documents of real value in emergencies;
- FEMPs did not clearly detail the actions required of managers and staff.

Enhancing the effectiveness of FEMPs and resilience in caravan parks

Consideration is given as to how to enhance the effectiveness of FEMPs in caravan parks, and, more broadly, to increase resilience to flooding in caravan parks.

Making FEMPs more accessible

First, there may be a need to make FEMPs more accessible to caravan park managers, who have a diverse range of day-to-day responsibilities and for whom flood preparedness is a low priority. The FEMP template developed for the *Caravan Parks Flood Safety Study* was comprehensive, including a lengthy section assessing flood risks, which is the necessary basis for a flood action plan. A detailed template was prepared because most plans submitted to Council at that time were cursory, with no appreciation of the full scope of flooding, no recognition of the different types of moveable dwellings within parks, no appreciation of available warning times or constraints to evacuation, and no linkage between the particular flood risk at a park and the list of actions (see also Yeo, 2003). The template included instructions about where managers could locate information needed to complete a FEMP, in the hope they would complete and own the FEMP for themselves. Hindsight suggests that this was too optimistic. It may be unrealistic to expect park managers to devote time to assessing flood risk and evacuation capability when this is outside their area of expertise and isn't always seen as a priority. The few parks that have updated FEMPs since 2008 (only when required to do so due to a proposed development within the park) have engaged consultants. The others have allowed their FEMPs to collect dust.

It might be that separating the technical detail from the action plan, and drawing the park manager's attention to the latter, would make FEMPs more accessible. One way of facilitating this is to prepare a one-page sheet focussing on the key response phase of a flood emergency, clearly linking triggers, consequences and required actions (in terms of monitoring/liason, site control, evacuation/shelter) and the resources required for those actions (e.g. Flood Focus Consulting, 2015, 2016).

Making FEMPs more flexible

Second, there may be a need to build greater flexibility into FEMPs to reflect the variability of flood behaviours and risk exposures. Typically, FEMPs are prepared on the basis of design floods. But design floods, while necessary for setting flood planning levels, may differ from real floods. Design flood modelling is typically conservative, for example, applying the critical duration, assuming that a dam is full at the start of a

storm, or assuming that a lake is not flowing freely to the ocean and the starting water level is high.

Exposure at caravan parks varies according to season. In the Shoalhaven, the number of visitors in August is significantly lower than numbers over the New Year. There is a big difference between a fully occupied park with 1500 people in peak season and a park with a handful of holidaying backpackers in the low season.

FEMPs cannot cover every scenario, but they could allow for some flexibility, while being simultaneously conscious of the desire for simplicity. For example, if a park is full, evacuation will likely need to commence earlier. An example of limited flexibility is shown in Figure 4, designed for a caravan park with two evacuation routes, one of which can be cut by inundation associated with local overland flows independent of lagoon flooding.

Figure 4 – Excerpt from a draft FEMP
 Source: adapted from Flood Focus Consulting (2016)

		TRIGGERS			CONSEQUENCE
STAGE	Lagoon flood condition	Wood Street vehicular exit condition	Exposure		
	1	Flood Watch OR Severe Weather Warning for torrential rain/flooding issued for area OR locally adverse weather conditions	Trafficable	Average site occupancy	Flooding probable
2	Lagoon 1.5m and rising quickly	Trafficable	High site occupancy	All evacuation routes open	
2A		Untrafficable	High site occupancy	Limited vehicular evacuation via Lake Rd and Bennett St	

Top-down approaches

However, simply making FEMPs more accessible and flexible is no guarantee that managers will own them. One way of promoting ownership could be through regulation and controls. Councils could require appropriately updated FEMPs as a condition of gaining an approval to operate a caravan park under S68 and S94 of the *Local Government Act 1993* (Yeo & Grech, 2006). Shoalhaven City Council currently requires either proof that actions in a FEMP are implemented, or, when changes have occurred since the last approval to operate was granted, an updated FEMP (*Shoalhaven DCP 2014*, Chapter G10, Section 10.3). But what exactly constitutes a ‘change’ is not made clear in the policy. It is recommended that an updated FEMP be required whenever there is a change of manager (a relatively frequent occurrence)¹, when new information about flooding becomes available (including after a significant flood such as the August 2015 event or when a new Flood Study is completed), when there is a change to risk exposure, or when there are new opportunities to enhance response such as with emerging communication technologies.

Another possible approach to mandating appropriate responses during floods is to change a park’s flood risk precinct according to the quality of its response in the flood. If there is a park that was categorised as ‘medium’ risk because it has rising road access and (in theory) sufficient warning to evacuate people, but its FEMP was not enacted and people were not evacuated in time, its risk rating could revert to ‘high’. This would have implications for any future development. Against this idea, it could be

difficult to judge whether a FEMP was adequately implemented, and this approach would likely lead to discord and so may not achieve the desired end.

Bottom-up approaches

An alternative approach for improving the effectiveness of FEMPs is to get alongside park managers and partner with them. To this end, Council is considering organising regular meetings with a park manager and the NSW SES. If these were held on a two-year cycle, a Council officer would need to meet with 20 park managers a year. Or meetings could be held with groups of caravan park managers, such as one group for Sussex Inlet parks and another for Lake Conjola parks. This would provide a forum for managers to share their experiences and to brainstorm responses to various flood scenarios, so that self-reliant managers can help new managers. This would be guided by Council and the SES so that the attitudes of apathetic or sceptical managers do not sabotage the objective of promoting flood readiness.

FEMPs will continue to function as compliance documents for approvals to operate, *and* hopefully *also* as living, useful resources for park managers to improve emergency management practice. Ultimately, however, a FEMP is not an end in itself but is just one means of building flood resilience in caravan parks, so that the goals of people's safety, property protection, business continuity and environmental protection are met. As Duffy (2015) describes, there are several tools for building flood resilience, including social learning in communities, experiential learning using scenarios and tailored learning for different psychological profiles.

Informing caravan park patrons

Residents and visitors to caravan parks are also key players during a flood emergency, so enhancing their awareness of, and readiness for flooding is also important. Some caravan parks have formal flood height markers to perpetuate memory of historical floods. In NSW, the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2005* (hereafter, 'the Regulation') has some provisions promoting patrons' appreciation of the flood hazard:

- Clause 72(1d and 2) requires the location of any flood liable land to be marked on a community map;
- Clause 126(2) requires that the community map be displayed in a prominent position in the caravan park/camping ground;
- Clause 123(i) requires the operator to inform prospective occupants of short term/camping sites about the location of flood liable land.

In our experience, these requirements are not often met at caravan parks in NSW. But the deficiency is not difficult to remedy, by including either a flood extent line or a notification about the flood threat (especially if it affects the entire park) on the site plan distributed to patrons as they check in. In addition, a one-page flood evacuation plan designed for park patrons should be prepared and displayed in communal areas, and distributed to patrons in the event of the issuance of a Flood Watch or Flood Warning.

Conclusion

A survey of 16 caravan park managers in Sussex Inlet and Lake Conjola after the August 2015 floods demonstrated a general attitude of 'plans schmans', with limited understanding of flood risk and a park manager's role in managing the risk to life and property. During this flood, these attitudes did not necessarily translate to a serious problem given the low occupancy rates and moderate flood depths, which mitigated the risk. And some self-reliant managers essentially have the plans residing in their heads and so did not need to refer to the written FEMPs. But the complacent attitudes detected in some managers is concerning given the likelihood of bigger floods – including with climate change – and the potential for larger risk exposures – both in the event of a flood striking in peak seasons such as at New Year or Easter, or with the pressures for more long-term sites to provide affordable accommodation for elderly retirees and young families.

The effectiveness of FEMPs can be enhanced by adopting a more accessible FEMP template and with more flexible triggers to match the variable risk. Using the approval to operate to mandate the reviewing and updating of FEMPs whenever there is a change of park management or when new flood information becomes available is also recommended. But it is profitable to acknowledge that FEMPs are just one tool to achieve for flood-prone caravan parks the goals of people's safety, the protection of property, business continuity and environmental health. It is recommended that Council and the NSW SES also invest in the rather more labour-intensive task of regularly meeting with park managers and facilitating meetings between park managers, drawing upon the lessons of social and experiential learning. Flood safety at caravan parks also requires that park patrons appreciate the risk. This objective may be advanced through the installation of permanent flood markers and the diligent implementation of existing provisions of the Regulation.

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¹ A NSW-wide survey of 71 caravan parks found that the median tenure for park managers was four years. Almost one-third of managers had been so for less than two years (Yeo, 2003).