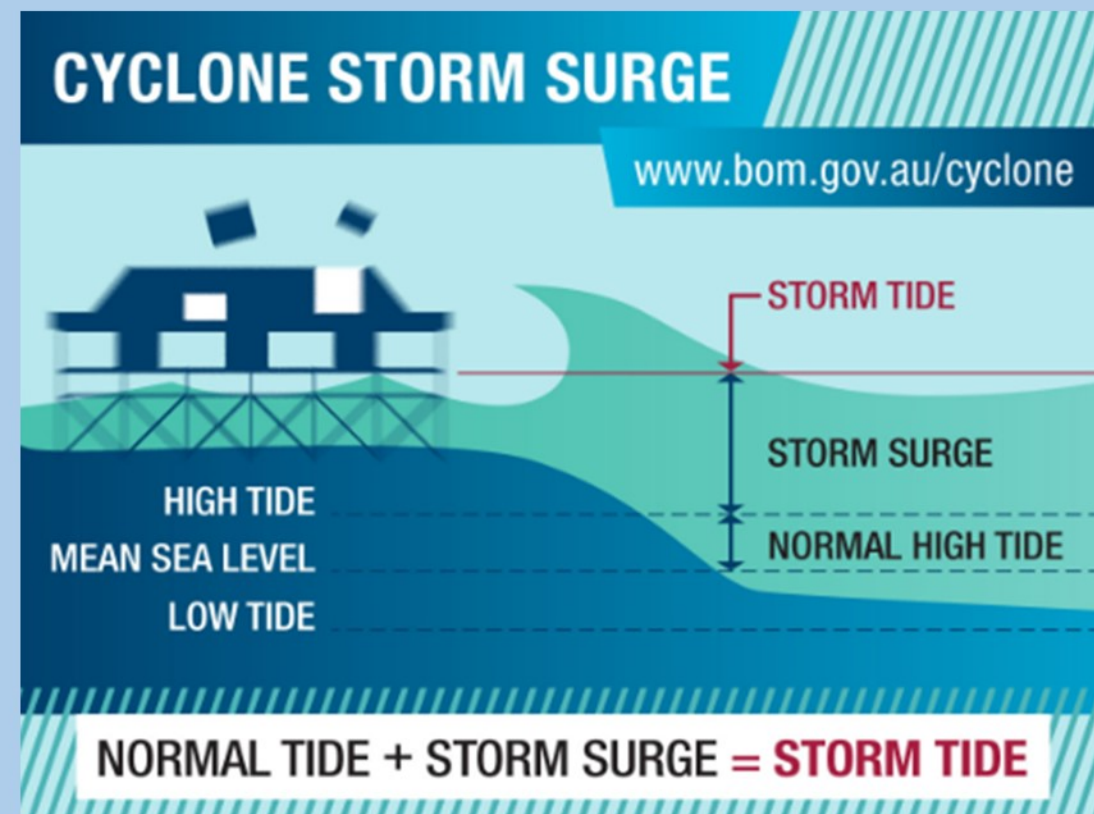


Why won't people listen? Communicating the risks about an event people may not realise they are vulnerable to.

Kristy Livock, PhD Candidate, James Cook University



INTRODUCTION

The impact from surges of sea water from tropical cyclones is often under recognised^{1,2}. However, it is storm surges that have caused more fatalities globally than any other factor associated with tropical cyclones³.

Despite Australian communities being generally well prepared for cyclones, the perception and understanding of the potential risks from an accompanying storm surge remains low¹. The infrequency of significant storm surges in populated areas is argued to result in residents underestimating the severity of such events and the extent to which they are vulnerable to conditions they have not prepared for⁴.

This becomes a further concern when considering that climate change is predicted to contribute to larger and more intense cyclones, with systems tracking to southern parts of the country, impacting areas that have not experienced such events in the past. Residents in these areas are probably not aware of the risks or know what to do when a disaster such as a storm surge occurs.

PROJECT AIMS

- * Understand why people do not pay attention to risk communication that may be personally relevant.
- * Use this information to re-frame the message about the risks associated with storm surges.

HOW ARE STORM SURGES PERCEIVED?

My first study explored the differences between how cyclones and storm surges are perceived by people who are vulnerable to such events.

⇒ 231 participants (68% female, average age 24 years, $SD = 8.55$)

Measures:

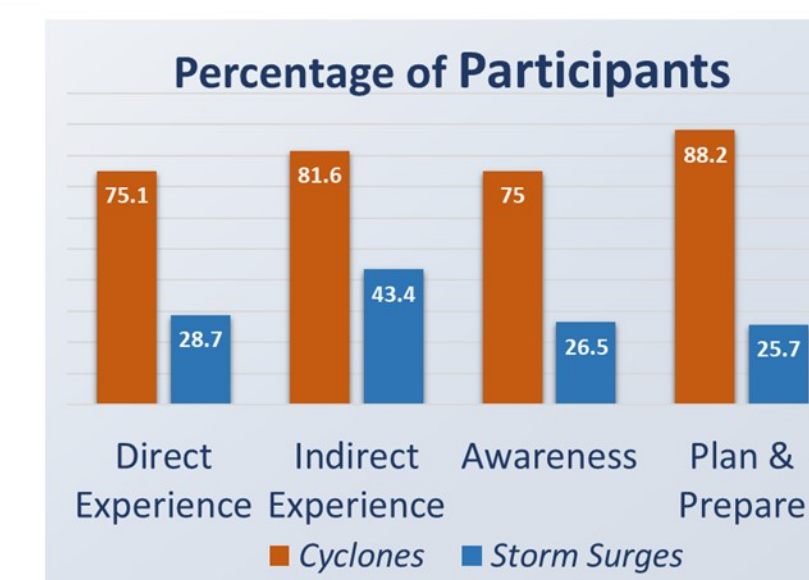
⇒ Experience with cyclones and storm surges, understanding of official warnings, self-assessment of awareness and perceived ability to plan and prepare.

⇒ Perceptions of severity, possible negative consequences, likelihood and preparedness.

Findings:

⇒ Participants living in this region are not as familiar with the particulars of storm surges as they are with cyclones and could be underestimating potential danger that may occur.

Publication: Livock, K., & Swinbourne, A. L. (2021). Perceptions of storm surges in North Queensland. *Australian Journal of Emergency Management*, 36(4), 75-81. doi:10.47389/36.4.75



EXPLORING THE ROLE OF EXPERIENCE & KNOWLEDGE

My second study explored how prior experience, subjective knowledge and objective knowledge impacted on perceiving the risks of storm surges.

⇒ 198 participants (72% female, average age 35 years, $SD = 16.2$)

Measures:

⇒ Experience, perceived storm surge risk, subjective knowledge, objective knowledge

Findings:

⇒ Prior experience is not a good predictor of storm surge risk unless an individual also experienced negative consequences.

⇒ Whilst subjective and objective knowledge each impacted on risk perception, these relationships differed depending on whether the participant had experience with a storm surge.

⇒ Participants rated the risks from the wind aspect of a cyclone as more of a threat than a surge, suggesting that they found it harder to visualise risk for an event they had less experience with.

Conclusion: Relying on experience and knowledge to inform risk perceptions does not appear to be an effective way to convey the potential dangers that may occur.

Order of Perceived Risk

(most to least concerning)

1. Flying Debris
2. Wind
3. Rain/Flooding
4. Storm Surge

EVALUATING STORM SURGE RISK COMMUNICATION AND RE-FRAMING THE MESSAGE

My final studies are exploring the utility of a health behaviour model, the Extended Parallel Process Model (EPPM), to make predictions about behaviour in the context of storm surges.

⇒ Can perceived threat and perceived efficacy predict how someone is likely to respond to risk communication based on their mental model of storm surge risk?

⇒ Does changing the message improve the ability of the EPPM to understand how people intend to behave?

⇒ Does structuring communication to an audience who is predicted to be in *Fear Control* improve the efficacy of the risk message?

WHY WON'T PEOPLE LISTEN?

Conclusions:

- The potential danger from storm surges is underestimated by those who may be at risk.
- Past experience and knowledge are not good predictors of perceived risk.
- Improving the mental model individuals have of storm surge risk is hypothesised to increase the perception of potential danger.
- Risk communication about storm surges needs to be structured based on specific audience characteristics in order to motivate individuals to pay attention and follow recommendations to remain safe.



REFERENCES

- ¹ Morrow, B. H., Lazo, J. K., Rhome, J., & Feyen, J. (2015). Improving storm surge risk communication: Stakeholder perspectives. *Bulletin of the American Meteorological Society*, 96(1), 35-48. doi:10.1175/BAMS-D-13-00197.1
- ² Queensland Government, D. M. (2015). Tropical Storm Tide Warning. Retrieved from <https://www.disaster.qld.gov.au/dmp/Documents/Storm-Tide-Handbook.pdf>
- ³ Rappaport, E. N. (2014). Fatalities in the United States from Atlantic Tropical Cyclones: New Data and Interpretation. *Bulletin of the American Meteorological Society*, 95(3), 341-346. doi:10.1175/BAMS-D-12-00074.1
- ⁴ Wachinger, G., Renn, O., Begg, C., & Kuhlicke, C. (2013). The Risk Perception Paradox—Implications for Governance and Communication of Natural Hazards. *Risk analysis*, 33(6), 1049-1065. doi:10.1111/j.1539-6924.2012.01942.x