

Identifying and incorporating community coastal values in coastal hazard risk management and adaptation planning: A case study of the south west of Western Australia

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Introduction

Our action research project aims to analyse community coastal values and investigate how these could be affected by the impacts of climate change, specifically coastal erosion and inundation. It also aims to show how community coastal values can be identified and incorporated into coastal hazard risk management and adaptation planning in Western Australia. In doing so, we explore and implement best practice engagement methods including public information sessions, community surveys, and scenario planning workshops with social learning objectives.

The project is located in the southwest of Western Australia; the sites are Bunbury Back Beach (City of Bunbury), Dunsborough Foreshore (City of Busselton) and Waikiki Beach (City of Rockingham). These sites have varied economic, social, environmental and cultural assets that have been identified as being vulnerable to the impacts of coastal climate change and are representative of many coastal communities.

Preliminary Results

Figure 1 shows the relationship between the relevant stages of this project to the coastal hazard risk management and adaptation planning (CHRMAP) process as outlined in the WA Government Coastal hazard risk management and adaptation planning guidelines (Western Australian Planning Commission, 2014). The figure illustrates where community values can inform the CHRMAP process.

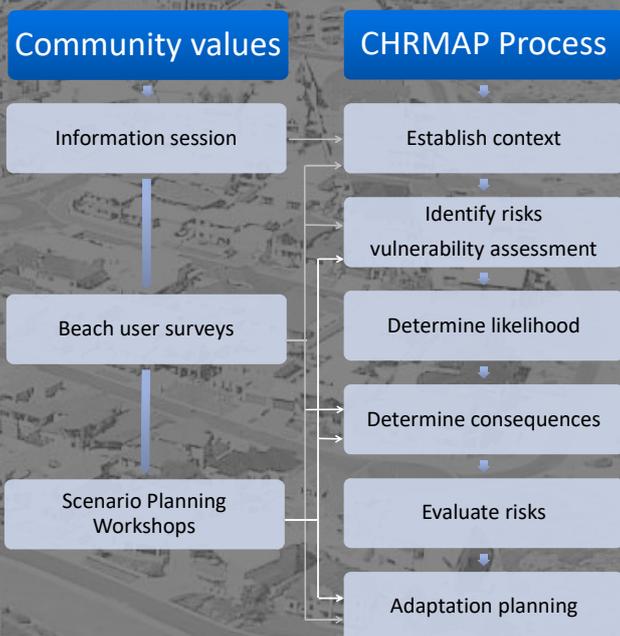


Figure 1: The relationship of community values as identified in our action research project to the CHRMAP process.

Beach User Surveys

The beach user survey comprised of 31 questions that were developed to address the research questions. As at 8 March 2018, 86 surveys were completed at Bunbury Back Beach, 87 at Dunsborough Foreshore and 85 at Waikiki Beach.

In regards to the importance (or not) of qualities and assets of the beach/foreshore that should be preserved from potential future erosion (Figure 2); environmental qualities such as clean water, vegetated dunes, native trees and animals were identified at all three sites as being most important. Public safety and facilities for active recreation such as paths for walking, jogging and grassed areas for play and exercise were also noted as being of high importance. Private residences adjacent to the beach were identified at all three sites as being not as important.

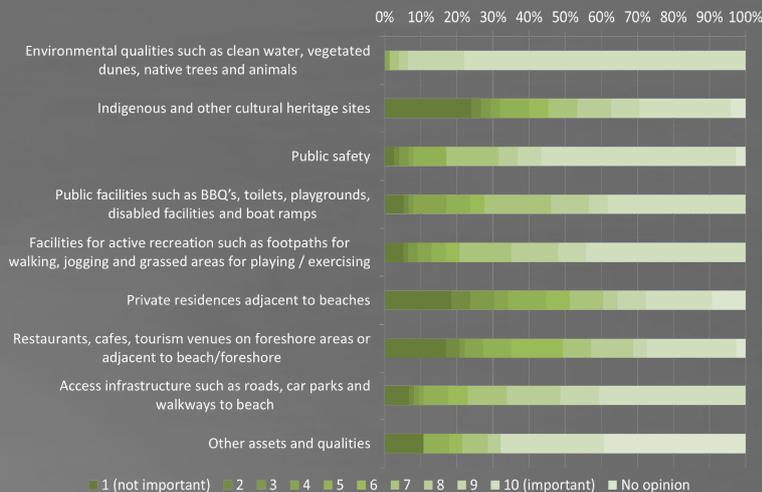


Figure 2: Responses for Bunbury Back Beach online survey question "When thinking about what should be preserved from potential future erosion, how important are the following assets and qualities of this beach/foreshore to you?" (n=77).

Discussion

The preliminary results of this research that includes the development of a new analytical framework that incorporates physical qualities, assets, uses and benefits and sustainability and temporal dimensions is contributing to the literature such as (Anthony et al., 2009) in this field. Additionally, this research is building on the work undertaken in WA (Damara WA, 2016); (GHD Pty Ltd, 2016) to incorporate more sophisticated learning into coastal hazard and risk management framework through social learning and participatory processes. Detailed analysis and discussion of the results of the beach user surveys and the Participatory Google Earth Mapping Workshops will be undertaken and presented in subsequent papers, using the analytical framework presented above. These papers will also discuss how specific social learning practices can enhance understanding and knowledge uptake of coastal climate change in the community; and how community values of the coast can be incorporated into coastal hazard risk management and adaptation planning.

Conclusion

This paper provided an overview of a study that aims to identify community coastal values and investigate how these could be affected by the impacts of climate change. These community-driven coastal values that are determined by the exploration of how the community use the coast, the benefits provided by the coast and the assets and qualities of the coast that supports these uses and benefits, will inform coastal hazard risk management and adaptation planning. The methodology developed and adopted is being tested at three sites; Waikiki Beach, Bunbury Back Beach and Dunsborough Foreshore, that have been acknowledged as being at significant risk from the impacts of climate change (Damara WA, 2012). Effective and sustainable coastal planning and management needs to consider and incorporate the social, cultural, economic and environmental aspects of the coast and participatory approaches and social learning is fundamental to this process.

The preliminary overview of the online beach user surveys results received at the time of writing indicate that environmental qualities such as clean water, vegetated dunes, native trees and animals were of most importance and these assets and qualities should be preserved. There was also high importance placed on visiting these beaches in terms of physical fitness and mental/emotional health benefits.



References:

- Anthony, A., Atwood, J., August, P., Byron, C., Cobb, S., Foster, C., Fry, C., Gold, A., Hagos, K., Heffner, L., Kellogg, D., Lellis-Dibble, K., Opaluch, J. & Oviatt, C. 2009. Coastal Lagoons and Climate Change: Ecological and Social Ramifications in U.S. Atlantic and Gulf Coast Ecosystems.
- Damara WA. 2012. Coastal Hazard Mapping for Economic Analysis of Climate Change Adaptation in the Peron-Naturaliste Region.
- Damara WA. 2016. Shire of Harvey Coastal Hazard Risk Management and Adaptation Plan. Report.
- GHD Pty Ltd. 2016. Cockburn Sound Coastal Vulnerability and Flexible Adaptation Pathways Project: Stage 3 Report Coastal Adaptation Plan.
- Western Australian Planning Commission. 2014. Coastal Hazard Risk Management and Adaptation Planning Guidelines, Western Australian Planning Commission.