



# Implications of Coastal Hazard Risk Management and Adaptation Planning (CHRMAP) in Western Australia

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# CHRMAP

A risk management process that considers coastal hazards (long term coastal erosion and coastal inundation).

1

Identify potential hazard areas

2

Identify assets located in hazard areas = risk

3

Identify adaptation options for reducing risk

4

Implement most feasible options



# CHRMAP

Obligation under 2013 revised *State Planning Policy 2.6 (Coastal Planning Policy)*, *Planning & Development Act (2004)*

Revised largely in response to increasing sea levels - *Sea Level Change in Western Australia. Application to Coastal Planning (2010)*, 0.9m by 2100

Absence of coastal planning based legislation. Planning policy only.

Two funding rounds – DoTransport and DoPlanning - ~\$1,500,000



# Methods

Multiple case studies: Gingin Dandaragan & Busselton

Participant observation: part-time project management



# Adaptation Strategies & Measures



# Adaptation Hierarchy

**1. Do-nothing:** Useful in areas absent of human-made public and private assets, where coastal erosion can be allowed to take its course with relatively little impact.

**2. Avoid:** Aims to avoid the presence of *new* development on greenfield and infill sites within a coastal hazard area.

**3. Managed Realignment (or Relocate):** The deliberate process of allowing coastal processes to take their natural course.

**4. Accommodate:** Regarded as a viable solution for managing the potential impacts of coastal *inundation* through measures such as minimum floor levels.

**5. Protect:** Maintain the shoreline in a fixed position. Considered a last resort: high costs, negative down-drift impacts and visual amenity; reduced flexibility for future decision makers.



# Managed Realignment (relocate)

Not applicable unless protection of private property can be restricted. Not apparent that these powers exist under current legislative and policy framework. Political appetite?

**Land swaps**

Restrictive to the landowner, expensive to implement, opportunity costs to government

**Land acquisitions**

Absence of funding for adaptation purposes



# Protection

Community expectations don't align with legislative obligations.

**Specified area  
rates**

Identifying beneficiaries: hazard areas, town, jurisdiction  
Potential for significant costs to landowners in hazard areas



Italy. Photo Enzo Pranzini



Italy. Photo Enzo Pranzini



# Informed Community Adaptation

An alternative approach: recognises current funding and legislative framework.  
Provides options to landowners. Shared responsibility for adaptation.

**Special Control  
Areas (similar to  
overlays)**

Inflexible to data and information changes, refined mapping

**Event-triggered  
contingent  
approvals**

Do they stand the *condition* test of 'certainty'?

**Time-triggered  
contingent  
approvals**

High reliance on *uncertain* and *conservative* hazard maps



**Where does this leave existing  
conforming uses?**

Photo Nick Kraus, via Enzo Pranzini



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# Communicate Hazards

Inform current and future landowners of the potential for coastal erosion and inundation  
= voluntary assumption of risk

**Coastal Hazard  
Mapping**

Absence of gov. or industry standard for developing hazard maps

**Notifications on  
Title**

Potentially subject to local politics  
Questionable effect late in the purchasing process



# Key Findings & Opportunities

1. Inconsistent approaches to hazard mapping across. Coastal hazard mapping technical guide – methods, terminology, scale definitions and uses, scenarios (years and events), examples.

2. Community needs access to hazard info early in the decision making process. Shared state-wide coastal hazard mapping platform.

3. 2015 P&D regulations remove planning discretion over single residential dwellings. Clarity is required for including these powers in planning schemes, as well as criteria for assessing development.



# Key Findings & Opportunities

4. No guideline for temporary coastal protection works (timeframes, removal obligations, materials). Potential for policy refinement.

5. Strategic relocation or protection under the current funding and legislative framework is extremely limited. Investigate merits of a multi-tiered, conditional, gov. funded adaptation (acquisition) reserve.

6. No multi-disciplinary reference body (e.g. NSW Coastal Advisory Board, Victorian Coastal Council). Potential for a strengthened WA Coastal Planning and Coordination Council.



# Thank you

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