Planning for the next great flood from the sea

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Overview

- Background
- Progress
- Policy framework
- Issues and challenges
- Conclusions

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What's happening?

The scientific community agrees that globally the climate is changing.

But the down-scaled models aren't developed enough to accurately predict what will happen at a regional or local scale, and when.

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Coastal flood risk in Victoria

Estimated that a 1.1 metre sea level rise would put at risk of damage by inundation and erosion:

- residential buildings worth $8-$11 billion (31 000 to 48 000)
- coastal infrastructure worth up to $22 billion
- commercial buildings worth $12 billion
- roads worth $9.8 billion

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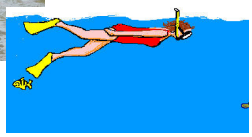
So what might the future look like in coastal areas?

Out for a lunchtime walk on a normal high tide day



Out at lunchtime on a King tide day

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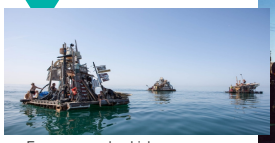
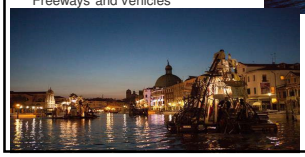


Freeways and vehicles

Adaptive design to protect a coastal community



Vehicles on freeway entering a city

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That's all folks!

Ok, that shouldn't be too difficult to plan for!
Any questions?

Something's gotta give …. and it ain't gonna be the sea.

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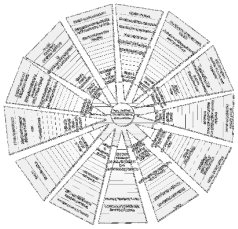
Policy framework for coastal management

- Coastal Management Act (to be replaced by new Marine & Coastal Act)
- Planning & Environment Act
- Water Act
- Emergency Management Act



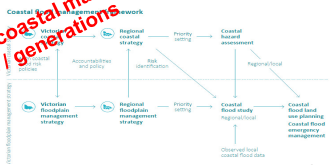
These provide strategic direction for the planning, management and sustainable use of the coast.

Policy framework for coastal flood management

The Victorian Coastal Strategy (2014) and Victorian Floodplain Management Strategy (2016) provide a systematic approach to:

- Planning for projected SLR of not less than 80cm by 2100
- Prioritising areas for coastal hazard assessment
- Assessing the risk
- Mitigating the risk

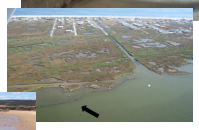
Gradual change to coastal management – decades / generations



Risk mitigation – protect, accommodate, retreat

Options for mitigating coastal risk

- Structural defences (sea walls, artificial reefs)
- Nature based solutions (reefs - coral, shellfish, mangroves, salt-marshes, seagrass/kelp beds)
- Development choices (land use planning)
- Risk transfer (insurance)
- Emergency response



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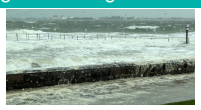
Issues & challenges: flooding V erosion



- Physically inseparable
- Coastal flood management advice recent additional responsibility for CMAs
- Coastal erosion management advice currently ad hoc
- Both hazards currently have separate PS overlays

- New MACA proposes CMAs provide advice on both

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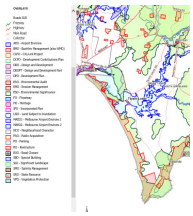
Issues & challenges: land use planning

- Purposes for flooding and erosion overlays not specific for coasts
- Poor overlay coverage in coastal areas
- No defined direction for future zones and overlays
- If several overlays present (eg. hazard or heritage), which has priority?
- Existing land use rights trump engineering life expectancy of structures
- Nowhere to retreat to for many



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Issues & challenges: coastal protection

Should I stay or should I go
If I go there will be trouble
If I stay it will be double

- Expensive: sea walls, artificial reefs, beach renourishment
- Long lead time: nature based solutions, s.a. shellfish reefs, mangroves, salt-marshes, seagrass/kelp beds
- Not allowed to protect private property from public land

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Issues & challenges: emergency response

UNDER DEVELOPMENT,
BUT CAN BE DONE IN A FEW YEARS

- New role for SES
- Rudimentary coastal forecasting and warning capability
- Municipal Flood Emergency Plans need to be updated

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Conclusions

Concentrate on improving coastal flood response ASAP

BECAUSE

existing homes, businesses and other structures in coastal areas will not be adequately protected from increased storm surges and incremental sea level rise in the short term, nor will they be moved replaced.

HOWEVER

policies are in place to ensure development principles and practices are modified over the longer term to mitigate the risks to human life, safety and property from coastal hazards.

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Thank you! Any questions?

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