Coastal **C**ollaboration **C**luster: meeting coastal challenges

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Outline

- Australia's Coast challenges
- Coastal Collaboration Cluster

Coastal Collaboration Cluster

Australian Coastal Cities

Sydney

Perth

Brisbane

Coastal Collaboration Cluster

Australian Coastal Cities

Sydney

85% of Australians live under 50km from the coast

Population ~ 21 million

coast ~ 6.5 million

New South Wales ~ 80% - ≤ 3km

Growing NEEDS

Increasing expectation

Infrastructure and services

- Water supply
- Electricity supply
- Telecommunications
- Sanitation
- Food delivery
- Road and railway systems

Governance and planning

- Complexity - policy levels from federal to local, governments, decision-makers and citizens

Growing CHALLENGES

Erosion

Enhanced by Climate Change

Flooding

ster

Growing CHALLENGES

Within 200m of the coastline	
Regional infrastructure	120 ports
	5 power stations/substations
	3 water treatment plants
	170 unidentified industrial zones
	1,800 bridges
Community services and facilities	258 police, fire and ambulance stations
	75 hospitals and health services
	46 government administration facilities
	360 universities, colleges and schools
	102 retirement/nursing homes
	11 emergency services facilities
	41 waste disposal facilities

Transport and services infrastructure

Hospital, Cairns (QLD)

Airport, Sydney (NSW)

Sewage plant (NSW)

(Source: Geoscience Australia 2009 *in* Developing a national coastal adaptation agenda 2010)

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Growing CHALLENGES

Example: rail and tramways

Estimated length of existing rail and tramway infrastructure at risk from the combined impact of inundation and shoreline recession for sea level rise.

■ 2100 – Lower Estimate
■ 2100 – Upper Estimate
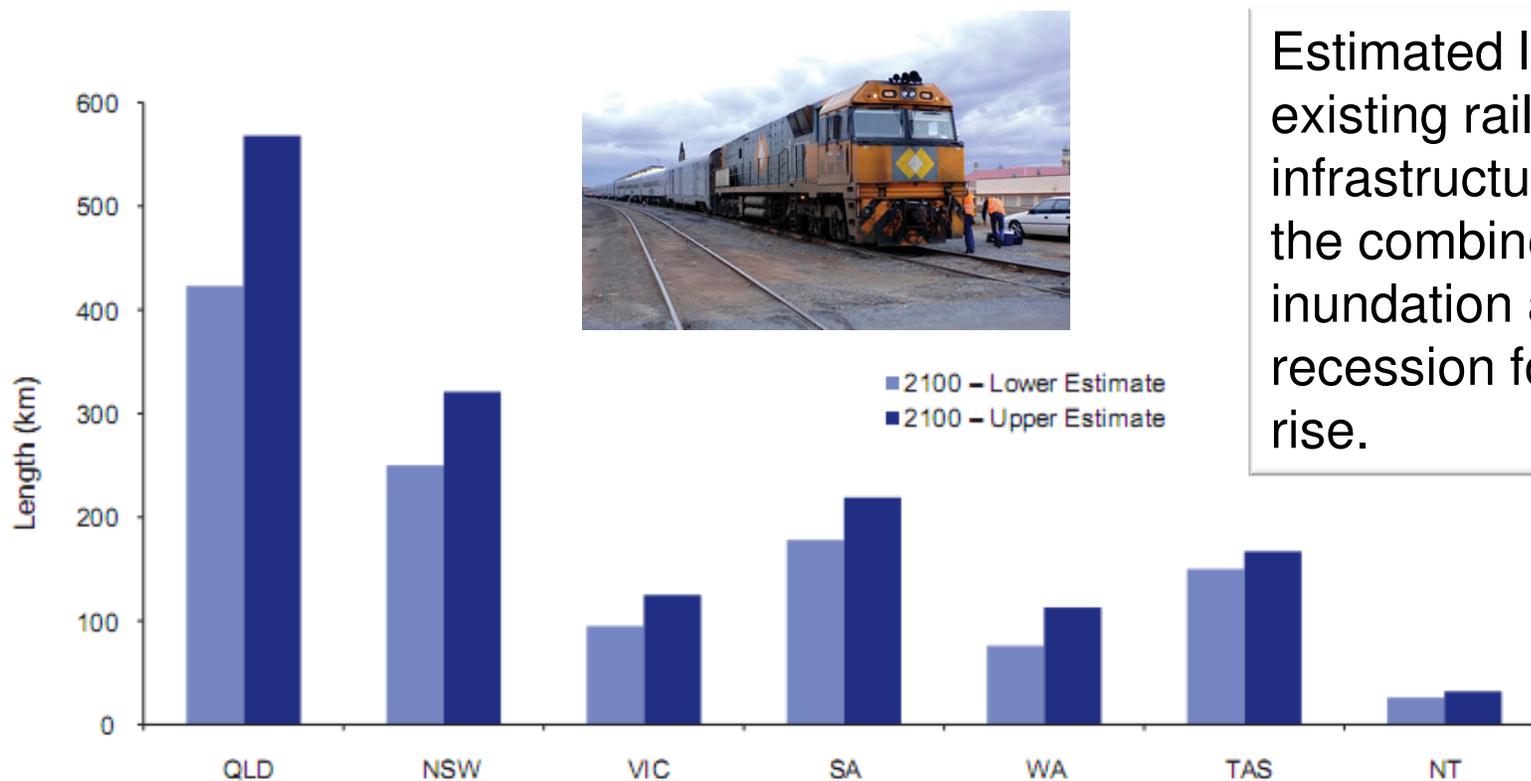
(Source: Climate Change Risk to Coastal Buildings and Infrastructure. Commonwealth of Australia, Department of Climate Change and Energy Effciency) 2011.

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Growing CHALLENGES

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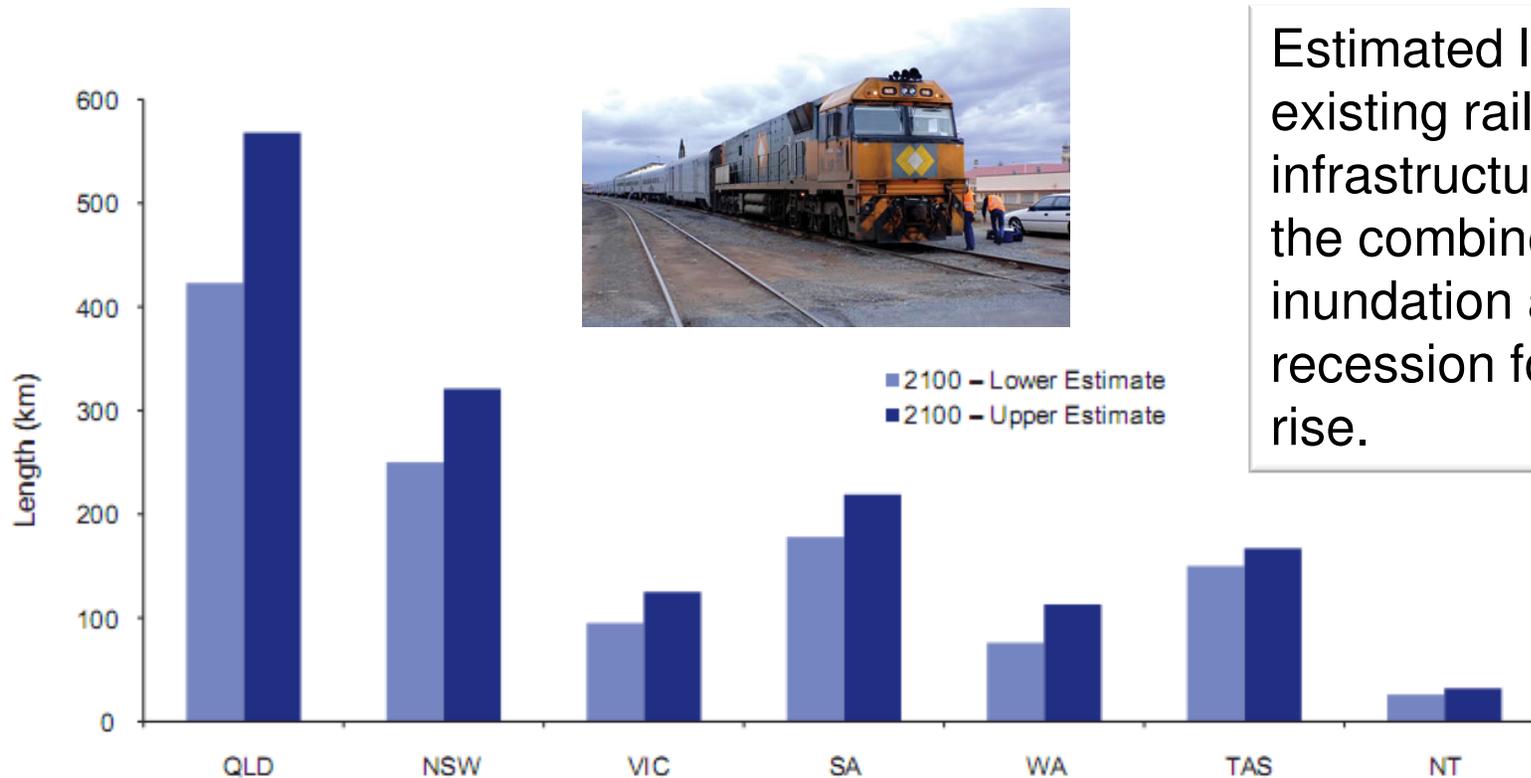
Nationally: 1,200 - 1,500 km of rail lines and tramways potentially at risk from inundation and shoreline recession from a sea level rise of 1.1 metres

MANAGEMENT Issues

- Adaptation coastal zone plans to sea level rise scenarios – zones (current, 2050, 2100)

  0.4m   **1.1m**

- Management Options
  - Protection (seawalls, sandbags, rising house floors)
  - 'Planned' Retreat (hazard lines)
  - No action

**ADAPTATION focus**

MANAGEMENT Issues

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ADAPTATION focus

SHORT TERM (0 – 50 years)

Strengthening defences.
(Dike reinforcements, nourishments etc.)

Spatial planning.
(Minimise risks, reserve space for future adaptation measures)

Increasing risk of awareness and preparation.
(Support for proposed adaptation measures – early warning, evacuation plans etc.)

Source: Climate Change Risks to Australia's Coast 2009:146.
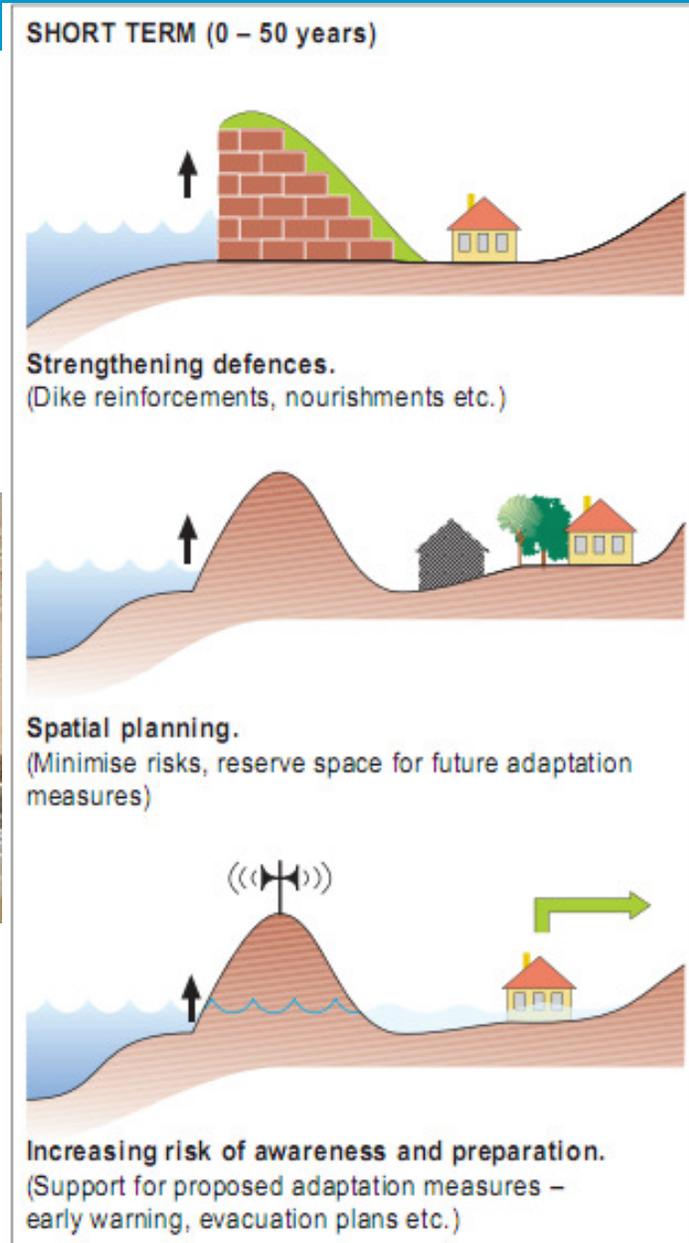
POLITICAL response

*Examples Climate Change - Coast*

...

2011
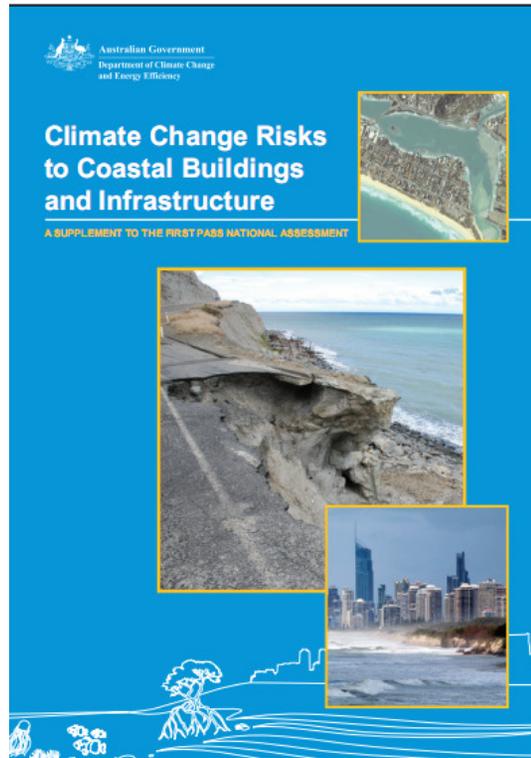
2010
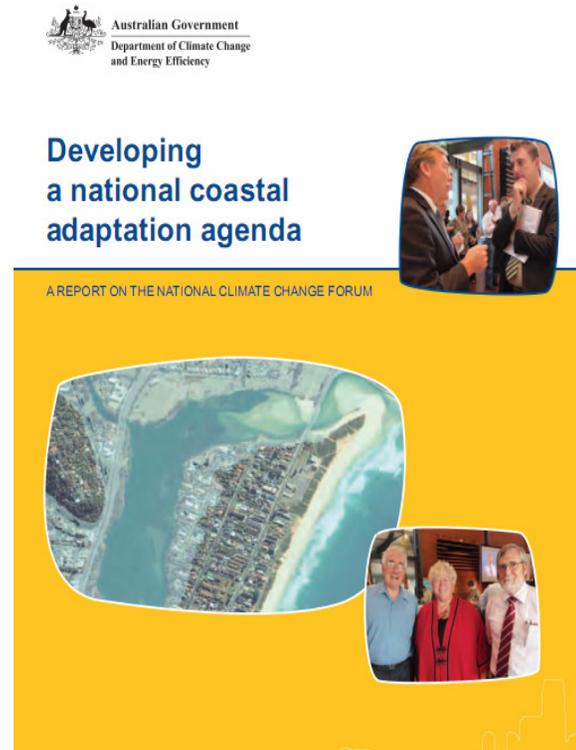
2009 ...
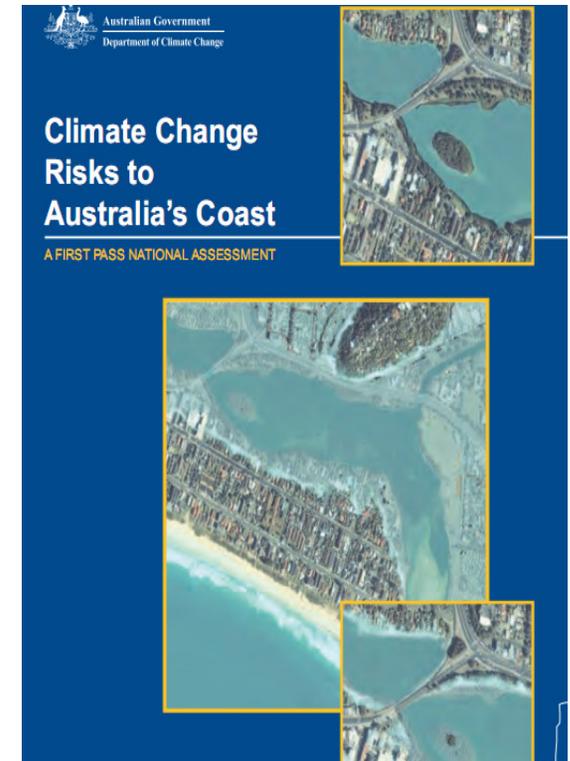
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Update Coastal Management Plans

Political response / Sea-level rise scenarios

- Example of Wollongong City (NSW)
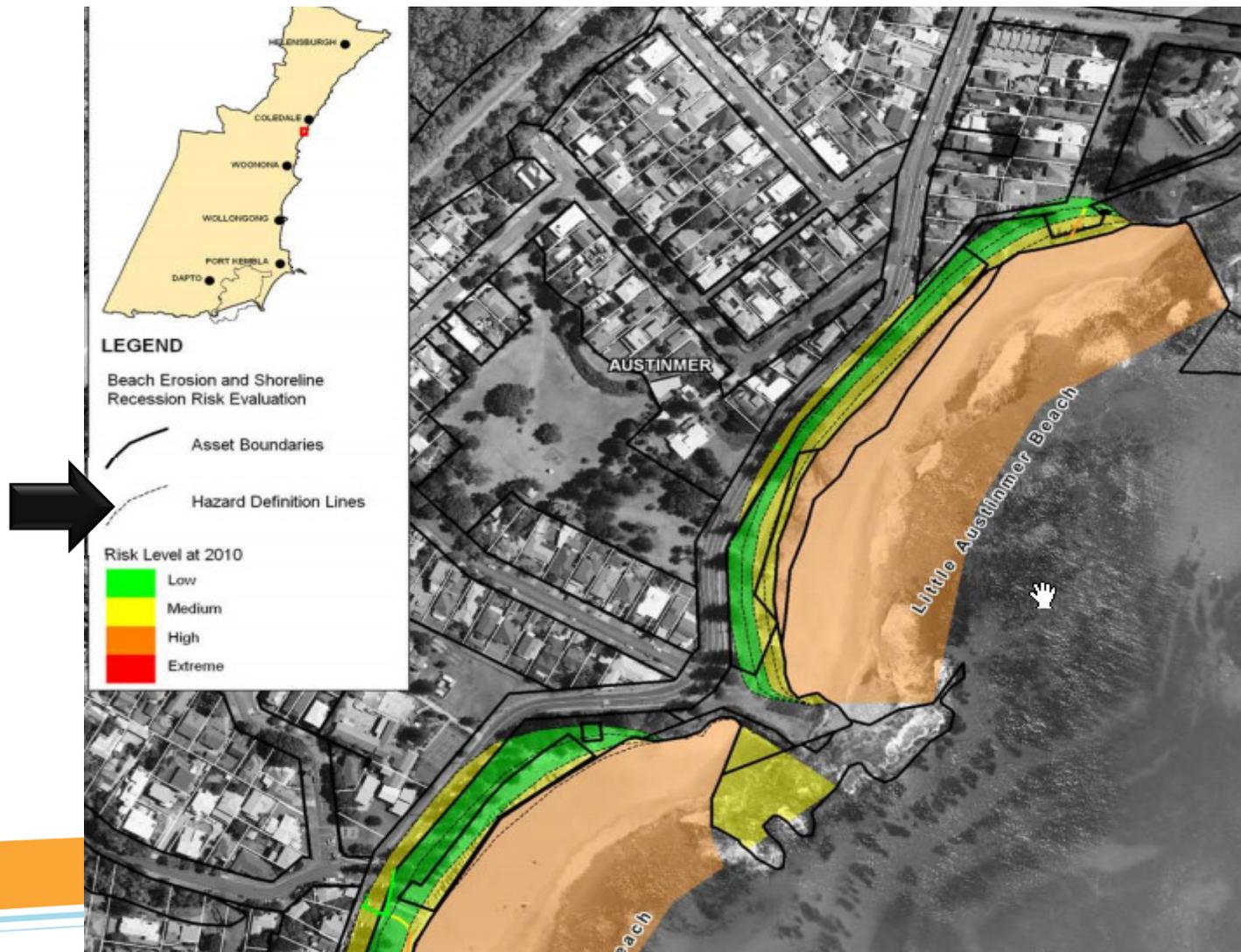
POLITICAL response

New Government Enquiry
(20 Sept 2011)

THE HON GREG COMBET AM MP

Minister for Climate Change and Energy Efficiency

THE HON BILL SHORTEN MP

Assistant Treasurer

Minister for Financial Services and Superannuation

JOINT MEDIA RELEASE

"The scientific advice is that even with a moderate degree of warming in the coming decades, there are serious risks to Australia's water resources, coastal settlements and biodiversity."
(Mr. Combet)

- review regulations and policies

⬇

- barriers to effectively adapting to the impacts of climate change

SCIENTIFIC research
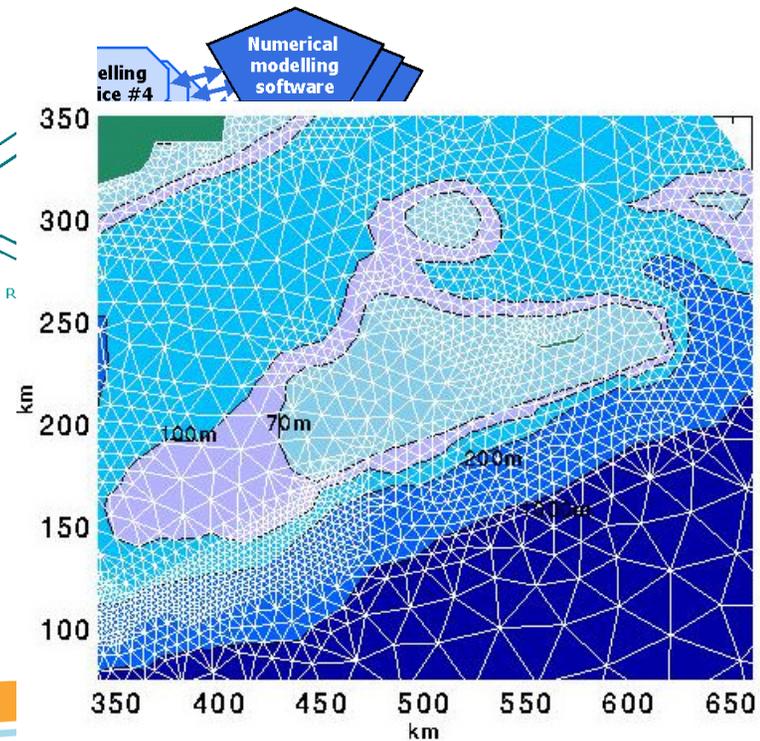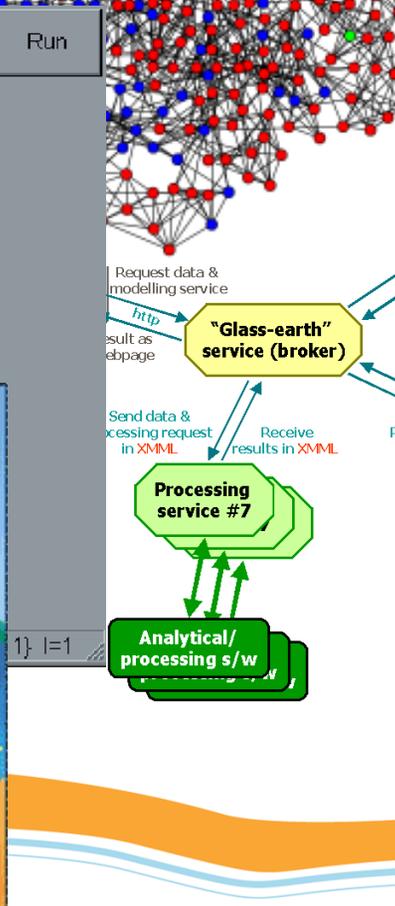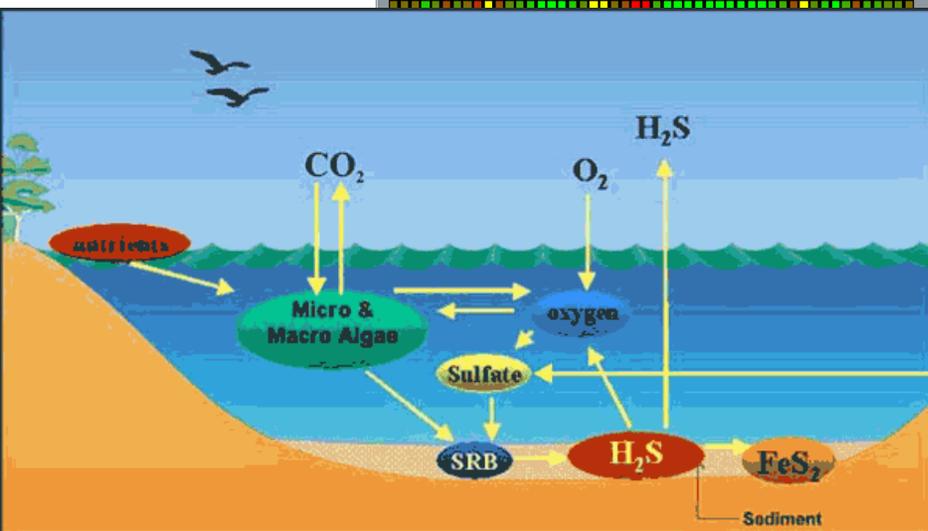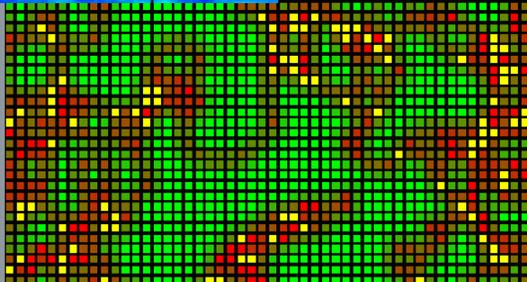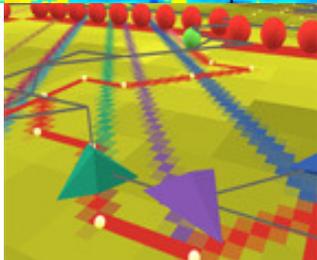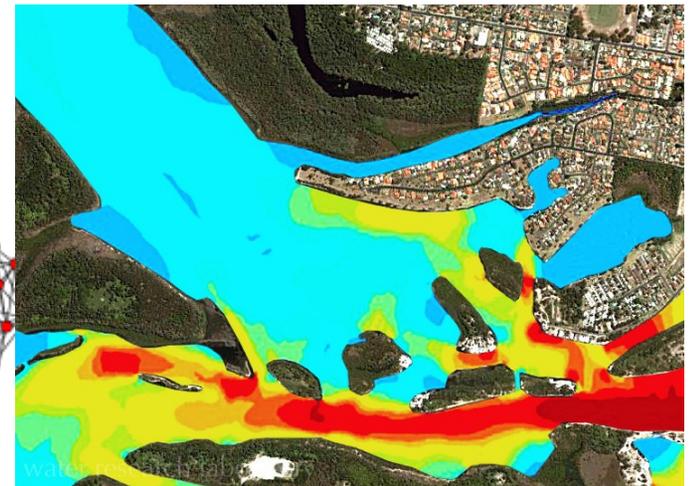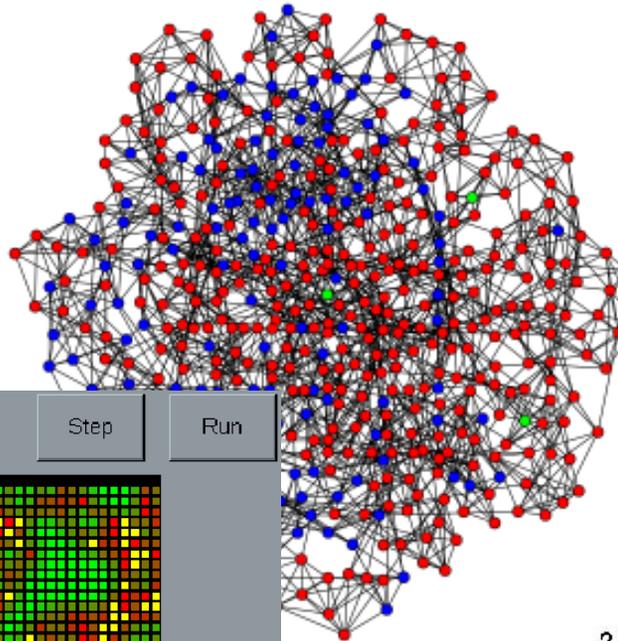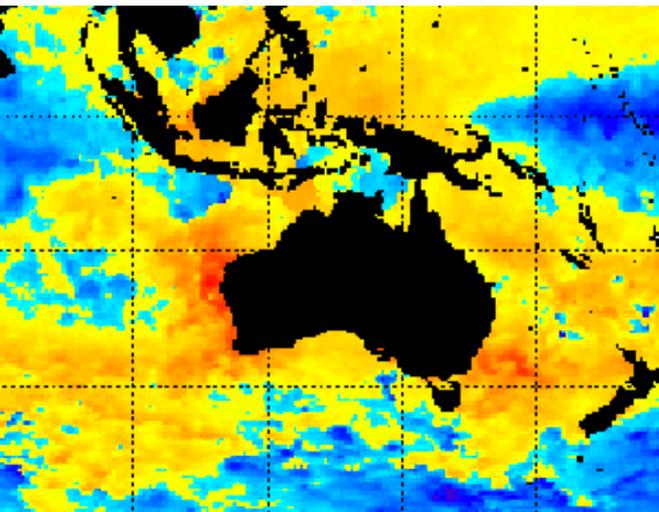
Science and Policy

Bridging the gap - Closing the gap?
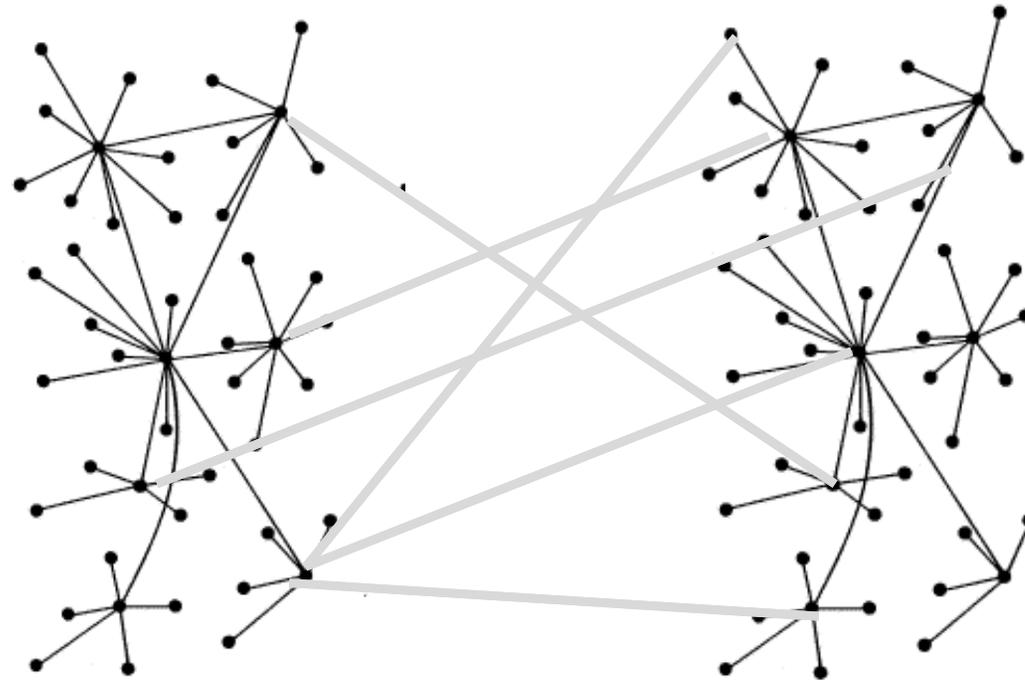
… ongoing concern to improve the way on which this knowledge contributes to decision making.

A CSIRO Flagship Social Research Project

The **C**oastal **C**ollaboration **C**luster (2010-13) will develop approaches to better **connect** science with the **needs** of governments, communities and industries to meet coastal challenges

- identify the key social and institutional **barriers** that inhibit the uptake of science in the coastal zone

- ways to introduce and apply the best **knowledge** available to coastal policy-making and planning

Coastal Collaboration Cluster

Coastal Collaboration Cluster Structure
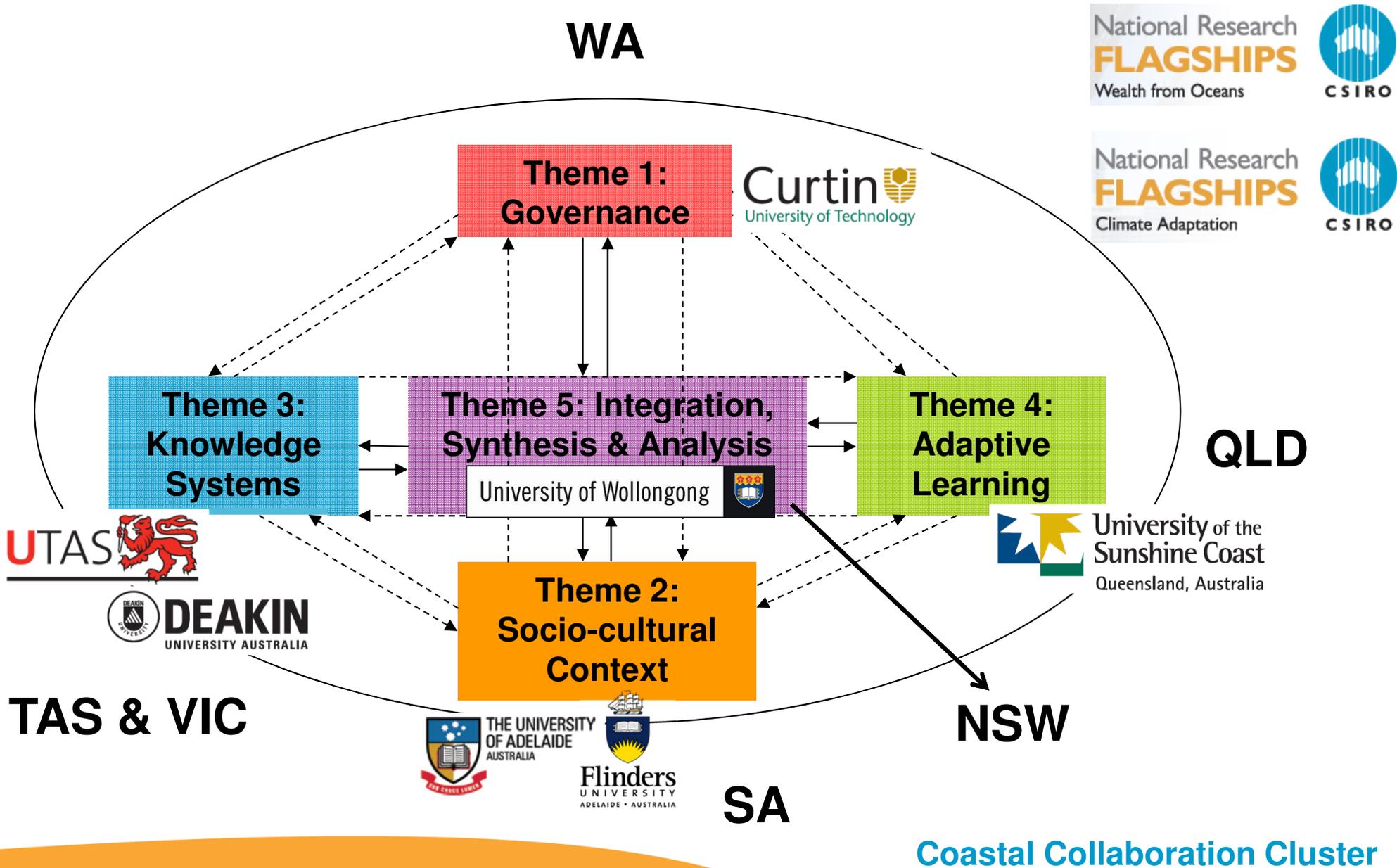
CLUSTER research

Key Issues

- population growth, food webs, climate policy, communication is core issue, resilient coastal Australia.

Overall Aims

- Methods to enhance the **delivery of research** outputs to ensure **relevance to policy** development at all levels (local, regional, state and national).

- Strategies to improve **interaction** between scientific and management agencies.

Coastal Collaboration Cluster

CURRENT Status

- Year 1 completed May 2011.

- Engagement with stakeholder groups – case studies around Australia.

- Develop reports, publications, book and briefings.

- Participate at conferences.

- **BUT, this is only the begin!**

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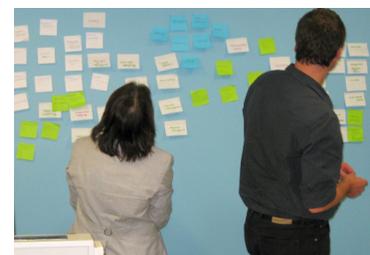
Theme 5: Integration & Synthesis

Agent-Based Modelling (ABM)
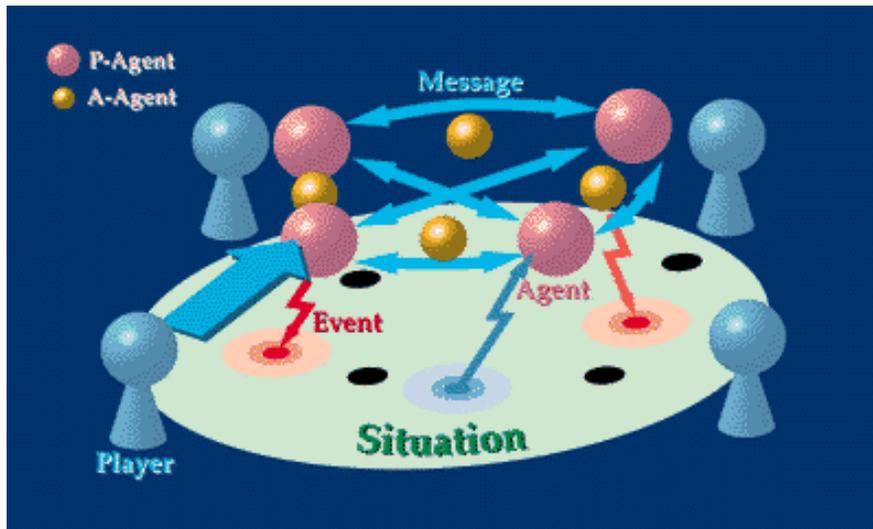
process ⇔ rules = complex behaviour

Simulating the actions and interactions of autonomous agents
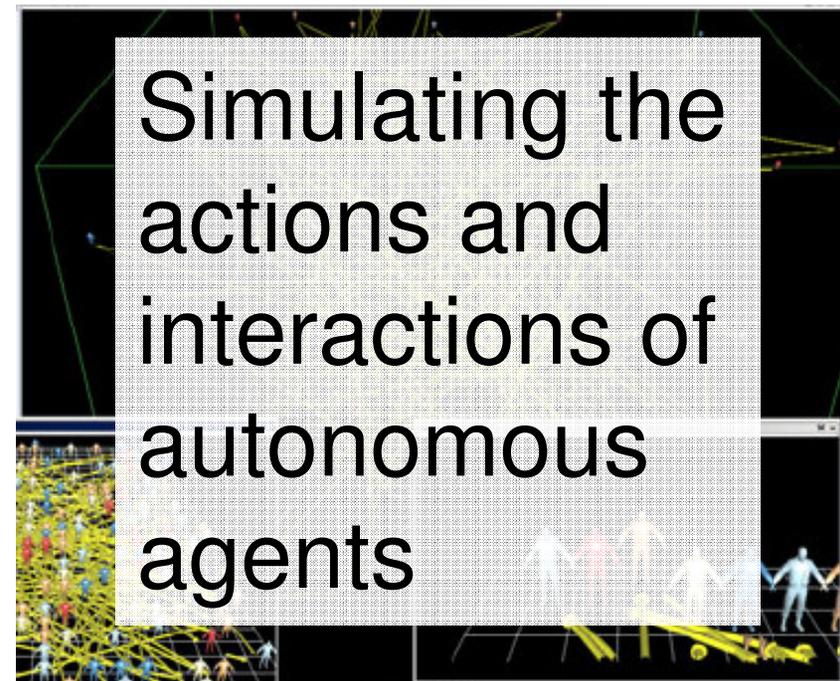
Conclusion REMARKS

- 'Better' and smart **infrastructure** and other essential **services** are critical priorities for growing nations such as Australia.

- Adaptation and mitigation **pathways** are necessary to support a more **resilient** society to prepare for coastal changes (incl. climate change impacts).

- Connecting **science** with the needs of **governments**, **communities** and **industries** to meet coastal challenges is highly required.

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Thank You!

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http://www.csiro.au/partnerships/Coastal-Cluster.html
http://www.ancors.uow.edu.au
http://smart.uow.edu.au/index.html