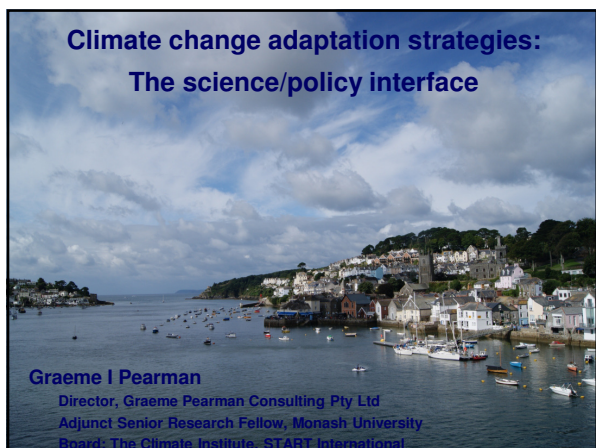
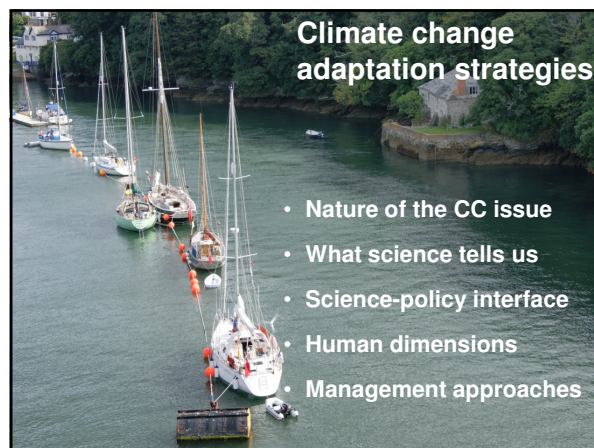


Climate change adaptation strategies: The science/policy interface

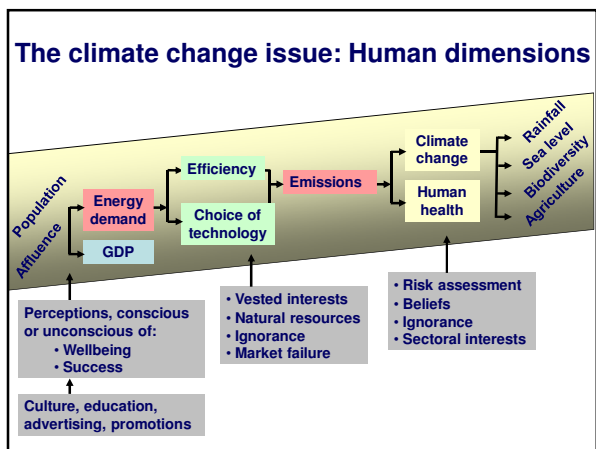


Graeme I Pearman
 Director, Graeme Pearman Consulting Pty Ltd
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 Board: The Climate Institute, START International

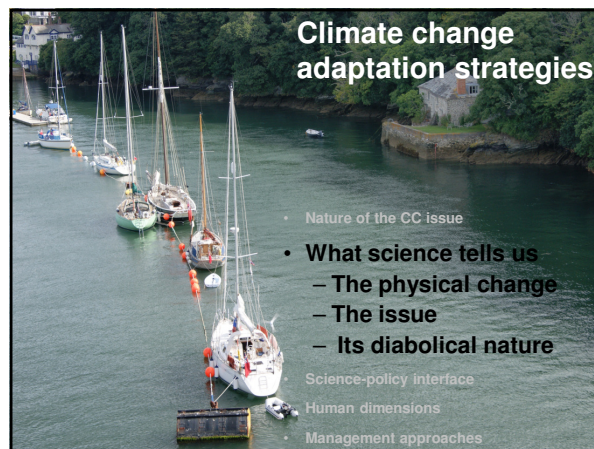
Climate change adaptation strategies



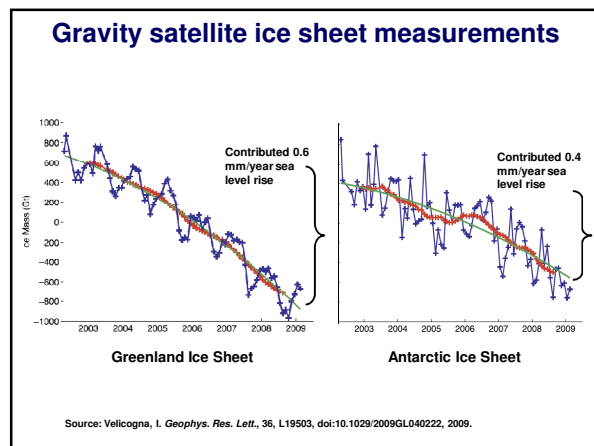
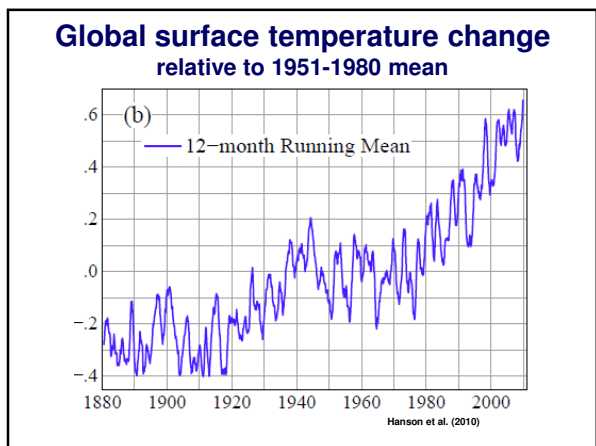
- Nature of the CC issue
- What science tells us
- Science-policy interface
- Human dimensions
- Management approaches

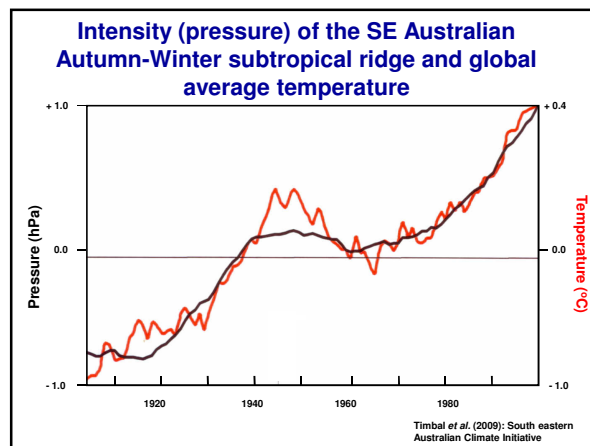
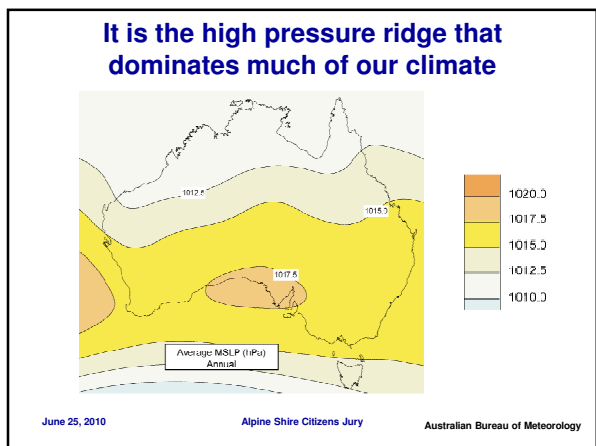
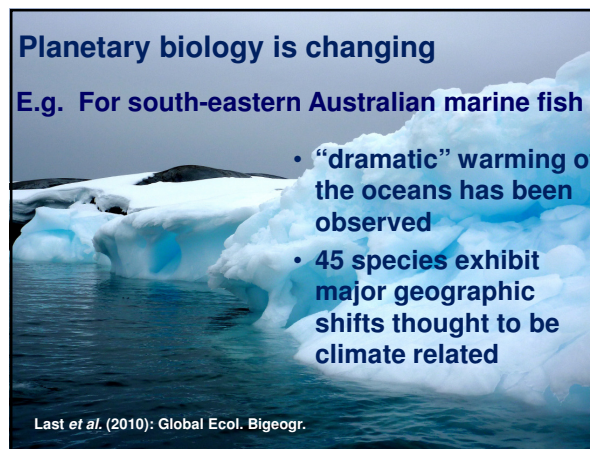
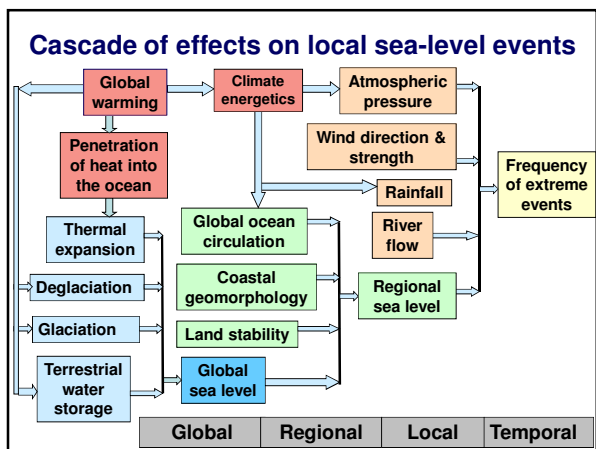
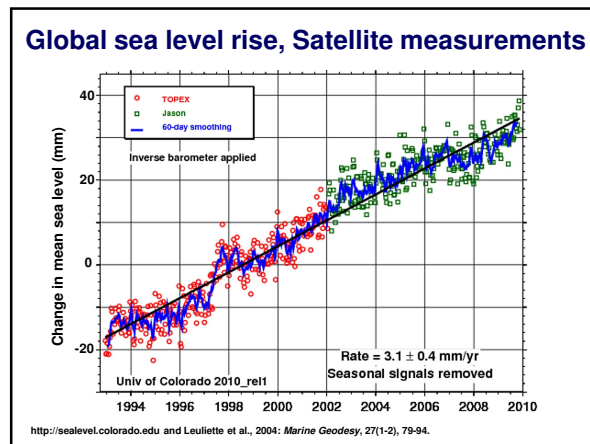
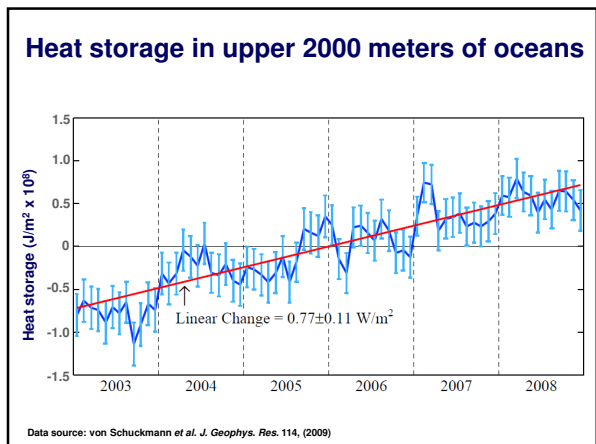


Climate change adaptation strategies



- Nature of the CC issue
- **What science tells us**
 - The physical change
 - The issue
 - Its diabolical nature
- Science-policy interface
- Human dimensions
- Management approaches





"One swallow does not a summer make, nor one fine day; similarly one day or brief time of happiness does not make a person entirely happy."

Aristotle (384 - 322 BC)

One wet season does not a drought break or invalidate the wisdom of actions designed to manage the risk of ongoing drought

- Scientific knowledge about each facet of the CC issue has improved dramatically recently, yet there remain, & will always remain, uncertainties

- Thus adaptive and mitigative responses need to be managed in a risk framework, where the
 - Probability of events occurring, such as, for example, extreme inundation are weighed by the
 - Level of impact they would have if they do occur

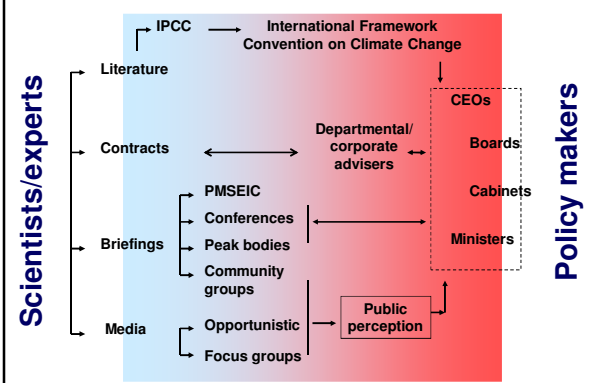
Where to get your facts

- The science of climate change: Questions and answers: www.science.org.au/policy/climatechange2020.html
- Climate change: a summary of the science: <http://royalsociety.org/climate-change-summary-of-science/>
- The Climate Institute: Climate Change Making Up Your Mind: http://www.climateinstitute.org.au/images/makingupyourmind_top10_web.pdf
- Bureau of Meteorology: <http://www.bom.gov.au/climate/change/>
- NASA: Global Climate Change: <http://climate.nasa.gov/>
- US National Ocean and Atmospheric Administration (NOAA): <http://www.climate.gov/#climateWatch>
- UK Met Office: <http://www.metoffice.gov.uk/climatechange/>
- New Scientist's: Climate Change: A Guide for the Perplexed: <http://www.newscientist.com/article/dn11462>
- Deutsche Bank primer on answers to CC sceptics: http://www.dbcca.com/dbcca/EN/_media/DBCCAColumbiaSkepticPaper090710.pdf

Climate change adaptation strategies

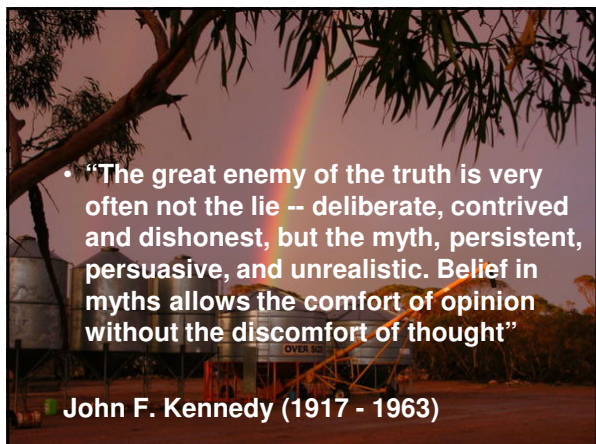
- Nature of the CC issue
- What science tells us
- Science-policy interface
 - How it works
 - Is it the problem?
- Human dimensions
- Management approaches

Mechanisms for Science-Policy Interface



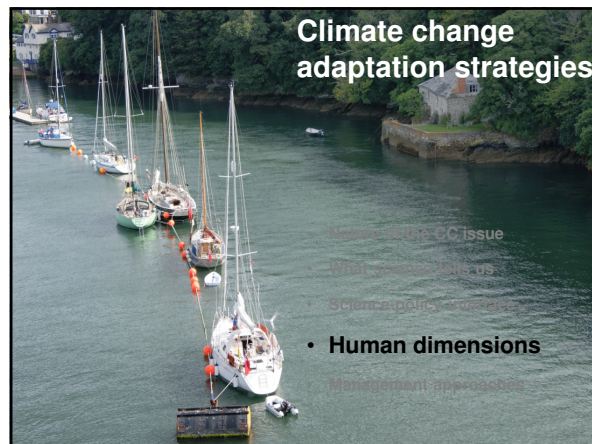
Barriers to a functioning interface

- Gatekeepers
- Purchaser-provider model
 - Capture
 - Media
 - Independence
- Emergence of the non-reality world
 - Role of narratives
- Time scales
 - Immediate single solutions or strategic
- Complexity
 - Personal experience versus advice
 - Purpose and system



- “The great enemy of the truth is very often not the lie -- deliberate, contrived and dishonest, but the myth, persistent, persuasive, and unrealistic. Belief in myths allows the comfort of opinion without the discomfort of thought”

John F. Kennedy (1917 - 1963)



Climate change adaptation strategies

- Nature of the CC issue
- What is at stake
- Science-policy interface
- Human dimensions
- Management approaches

How well do we assess risk?

- There are 6 million parts in a Boeing 747
 - How many could be removed or rendered inoperable before you would decide not to fly?
- IPCC concluded that there is a 50% chance of a 20-30% of all species being at risk with a warming of 1.5-2.5°C
 - There has been virtually no media or public attention to this risk
- What are the consequences of inoperable ecosystems?

Common reactions to learning about severe environmental problems

Threat	Emotional responses	Coping mechanisms
	Anxious	Minimising
	Scared	Denying
	Sad	Avoiding
	Depressed	Scepticism
	Numb	Desensitises
	Helpless	Depend on others
	Hopeless	Resigned
	Frustrated	Cynical
	Angry	Fed up

Based on Australian Psychological Society (2008) *Climate Change: What You Can Do*. http://www.psychology.org.au/publications/tp_sheets/climate/

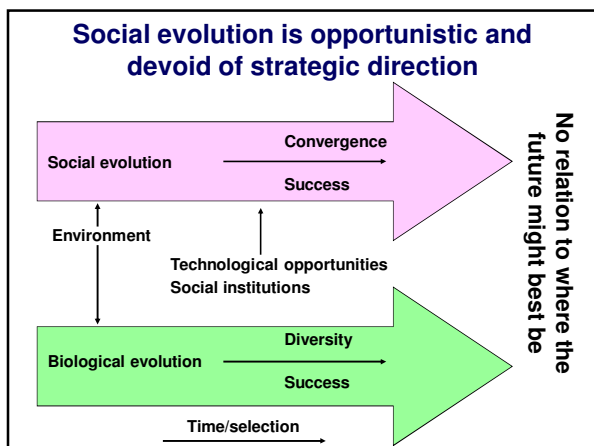
Assumption about rationality

Common assumptions	Alternative assumptions
• People are essentially rational	• What is rational in one context may be irrational in another
• Rationality is conscious (we choose)	• Most rationalities are “stored” in the unconscious
• Denial is a kind of irrationality	• Every rationality is guided by emotion
• Irrationality and denial can be overcome by more information	

De Kirby et al. (2007): *In what can you do to fight global warming and spark a movement*, Island press, Washington DC
Fien et al. (2008): personal communication

Diversity of coping mechanisms

- **Active denial**
 - “Climate change is not happening”; “it’s a millenarian cult”
- **Passive denial**
 - “I don’t wish to think about it, it is all too complicated”
- **Blame**
 - “Australia is an insignificant emitter”; “nothing we do can make any difference”; “It is all the Prime Minister’s fault”; “It is all China’s fault”
- **Vested interests**
 - Defense of existing values
 - “Something must be done but not at the expense of jobs, trade competitiveness, personal welfare or lifestyle”, etc.
- **Narrow perspectives**
 - Enthusiastic support for poorly evaluated options
 - “it can all be done with renewable energy” (Barratt, Pearman and Waller (2010))



	Dominant view of society	Alternative view of society
Goals	Productivity	Nourishment, shelter
	Profit	Fulfilment
	Power	Sustainability, maintenance
Objective	More (no limit)	Enough (limit)
Means	Growth	Balance
	Competition	Cooperation
	Centralisation	Decentralisation
Non-renewable resources	Wasted, exhausted	Limited, prioritised users
Renewable resources	Degraded	Require balance management
The Human Condition	Stressed	Joyful
	Detached	Integrated
	Degenerating	Evolving

Hill (2006 p8): What Are Rational Goals For Development?

Climate change adaptation strategies

- Nature of the CC issue
- What science tells us
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- Human dimensions
- **Management approaches**

Market based solutions?

- Pricing is arguably a move in the right direction by internalising the externalities but
 - There are large disagreements about the extent of externalities
- Markets are far from perfect
 - Behavioral economics, identity economics
 - Leadership

“Along with others, I have tried to pry economists away from narrow assumptions about self interest. Behavior is driven by a much richer set of values and preferences”

Gary Becker, Nobel Prize acceptance lecture, 1992

Behavioural economics: “...people are susceptible to irrelevant influences ...emotions, short-sightedness” Ariely (2009): Predictably Irrational

Identity Economics: “Peoples identity defines who they are...(and this) influences their decisions..” Akerlof and Kranton (2010): Identity economics

Characteristics of management

- Accepting uncertainty & adherence to risk management
- Holism in assessment of options
- Flexibility of planning
- Strategic-ness of planning
- No regrets
- Evidence-based
- Equitability

Barratt, Pearman and Waller (2010)



Messages about sustainability

The climate change issue results from:

- Our expectations
 - Culture, history, education, market economy, advertising
- Technological innovations
- Our choices
- Natural resource inheritance

Messages about sustainability

Solutions to the CC issue depend on:

- Acceptance that we will not know all that we would like to know before action is necessary
 - We have to manage the risk
- Challenge the largely unconscious drivers of our behaviour, institutions and society
 - Commercialism
 - Advertising
 - Non-strategic social evolution

CC is “diabolical” (Ross Garnaut) because

- *Uncertain*, its format and extent
- *Insidious* rather than (as yet) confrontational
- *Long-term* rather than immediate
- *International* as well as national
- Potentially *dangerous* in the absence of effective management

Further complicated by the way we are:

- Our personal behaviour:
 - Aspirations, concepts of success & happiness
- Evolution of society:
 - Influence on conformity & community values
 - May have led us to where we do not wish to be-unsustainable

Solutions may depend on changes that threaten our aspirations, belief systems and attitudes