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CSIRO: Australian Science, Australia's Future

Dr Bronwyn Harch
*Deputy Director - Sustainable
Agriculture Flagship*

National Research
FLAGSHIPS



CSIRO today: a snapshot

Australia's national science agency

One of the largest & most diverse in the world

6500+ staff over 55 locations

Ranked in top 1% in 14 research fields

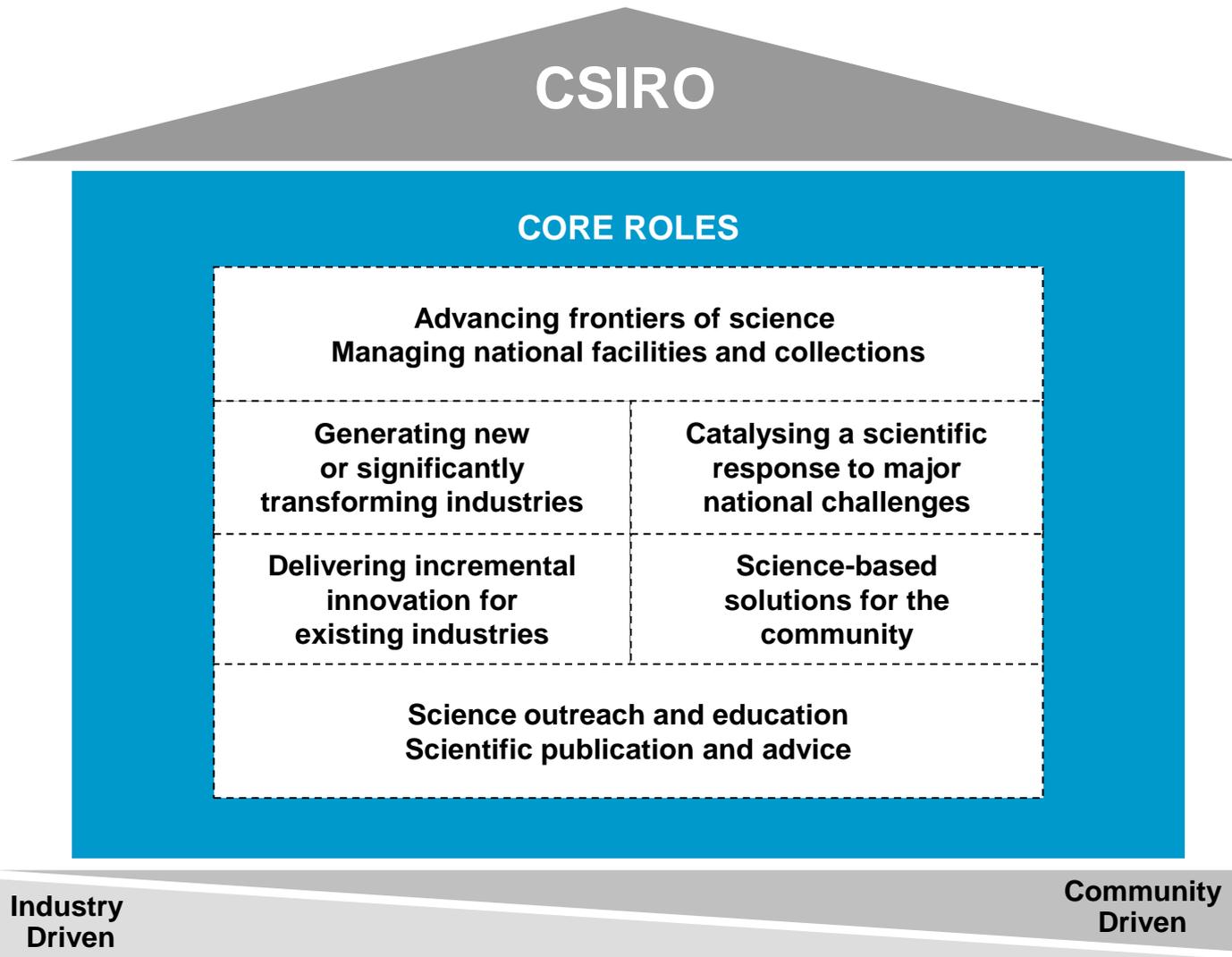
20+ spin-off companies in six years

160+ active licences of CSIRO innovation

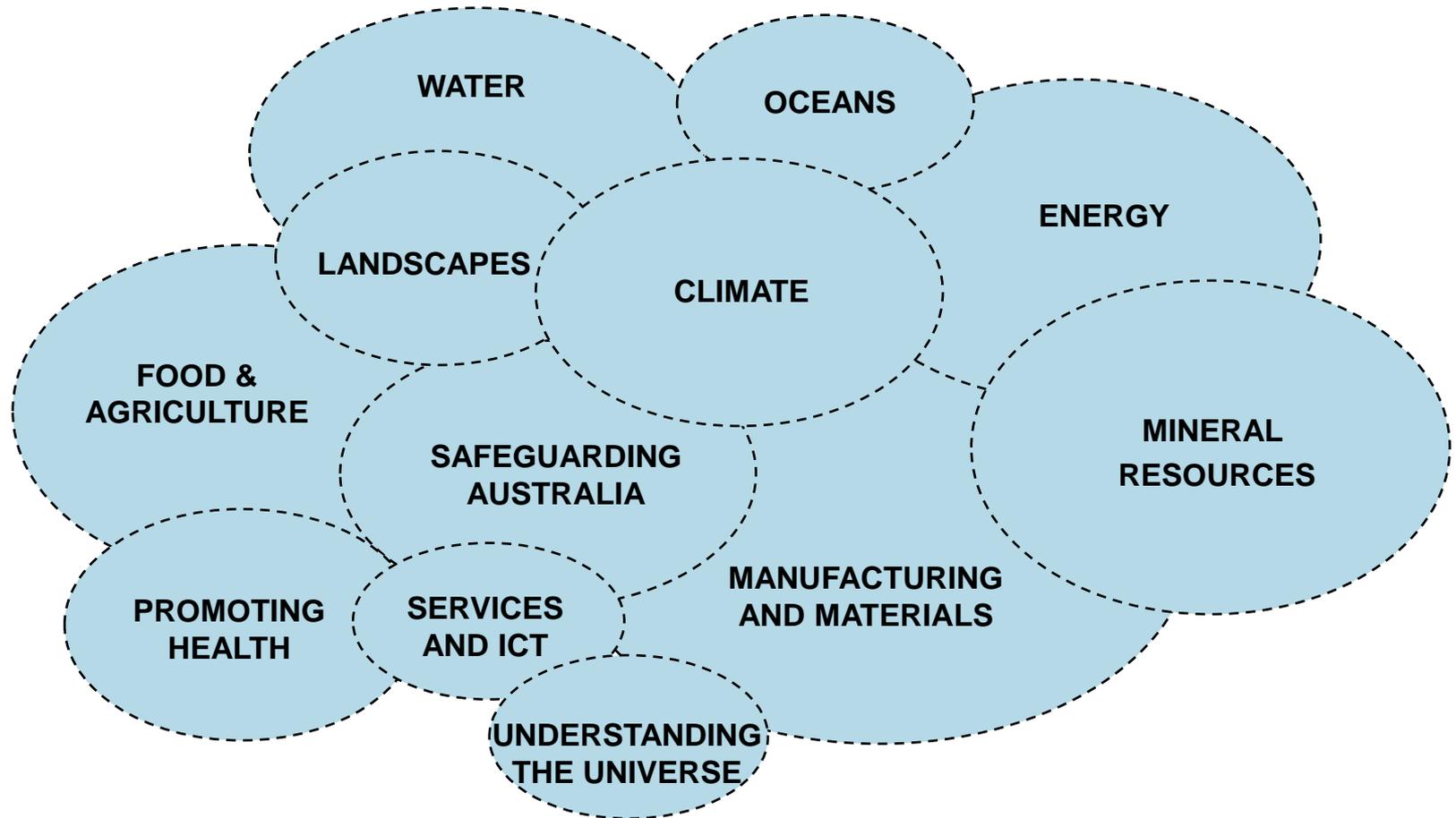
Building national prosperity and wellbeing



Our core roles



Delivering our science: key outcome domains



National Research Flagships



**Climate
Adaptation**



**Light
Metals**



**Sustainable
Agriculture**



**Energy
Transformed**



**Minerals
Down Under**



**Water for
a Healthy
Country**



**Food
Futures**



**Preventative
Health**



**Wealth
from Oceans**



**Future
Manufacturing**

National Research Flagships



Sustainable Agriculture

To secure Australian agricultural and forest industries by increasing productivity by 50% and reducing net carbon emissions per unit of food and fibre by at least 50% between now and 2030



Water for a Healthy Country

To provide water managers with options that meet water needs to 2030, creating \$1 billion per annum of net economic benefit, while maintaining or improving the condition of aquatic ecosystems



Wealth from Oceans

To position Australia by 2020 as an international benchmark in the delivery of economic, social and environmental wealth based on leadership in understanding ocean systems and processes



Climate Adaptation

Equip Australia with practical and effective adaptation options to climate change and variability and in doing so create \$3 billion per annum in net benefits by 2030



Introduction by Australia (Reef)

Sustainable Agriculture, Water for a Healthy Country & Wealth from Oceans Flagships

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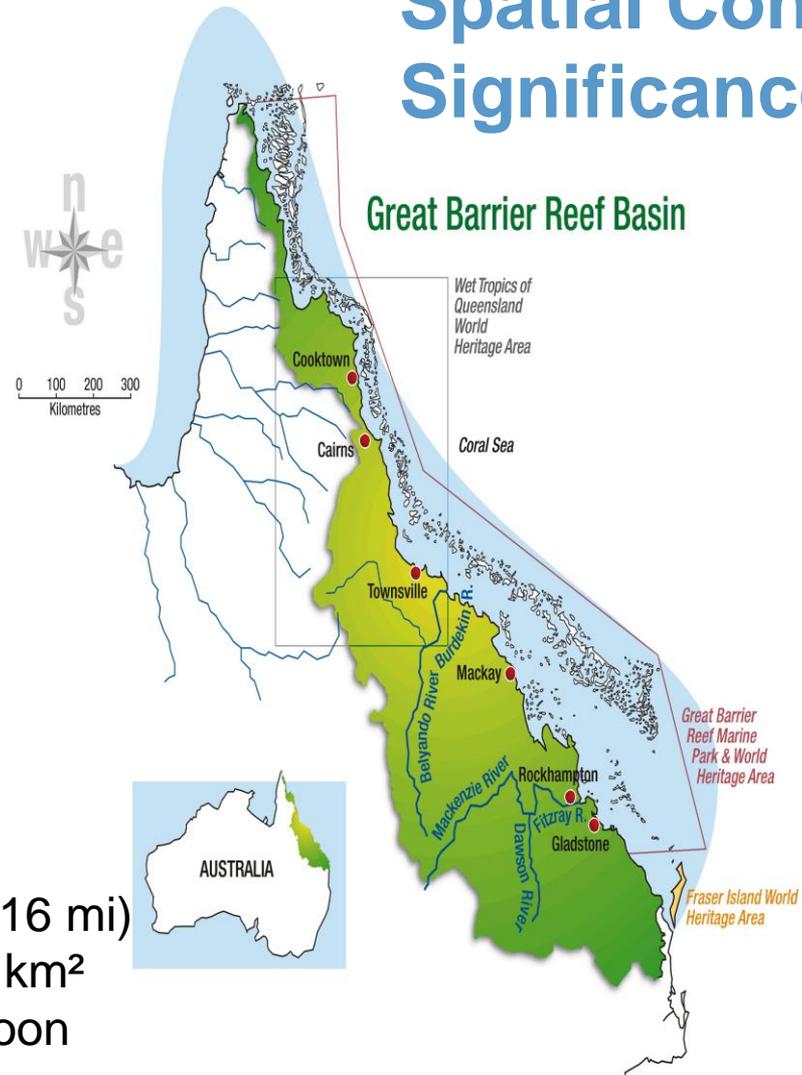
Outline

1. An icon - Australia's Great Barrier Reef
2. "The Outlook"
3. What the research focus has been
4. Future research focus
5. Relationships



An icon - Australia's Great Barrier Reef (1)

Spatial Context & Significance



- world's largest coral reef system
- 3,000 individual reefs
- 900 islands
- stretches for 2,600 kilometres (1,616 mi)
- covers an area of approx 344,400 km²
- 28 catchments drain into GBR lagoon

An icon - Australia's Great Barrier Reef (2)

- Incribed on World Heritage List since 1981
 - recognition of outstanding universal natural values
- UNESCO World Heritage Convention
 - *“ensure the identification, protection, conservation, presentation & transmission to future generations of the Great Barrier Reef (GBR)”...*
- *AUD\$6.9b per year (gross) to Australian economy*
 - tourism, other recreational, commercial fishing
 - employment - 66,000 FTE
 - relies on maintenance & enhancement of natural value
- **Integrated management of catchment & coastal system**
 - restore & protect area & natural, social & economic values it provides
 - Great Barrier Reef Marine Park Authority (GBRMPA)
 - monitoring & management (federal, state & regional govt)
 - multidisciplinary research efforts (CSIRO, AIMS, unis)



“The Outlook” for the Great Barrier Reef



- *The Great Barrier Reef Outlook Report 2009*

- tabled in Australian Parliament
- must be prepared every five years

- **Key findings**

- recognised as one of the world's best managed reefs
- likely to survive better under the pressure of accumulating risks than most reef ecosystems
- current long-term outlook for the GBR is poor

- **Priority issues reducing the resilience of the GBR**

- climate change
- continued declining water quality from catchment runoff
- loss of coastal habitats from coastal development
- small number of impacts from fishing, illegal fishing & poaching

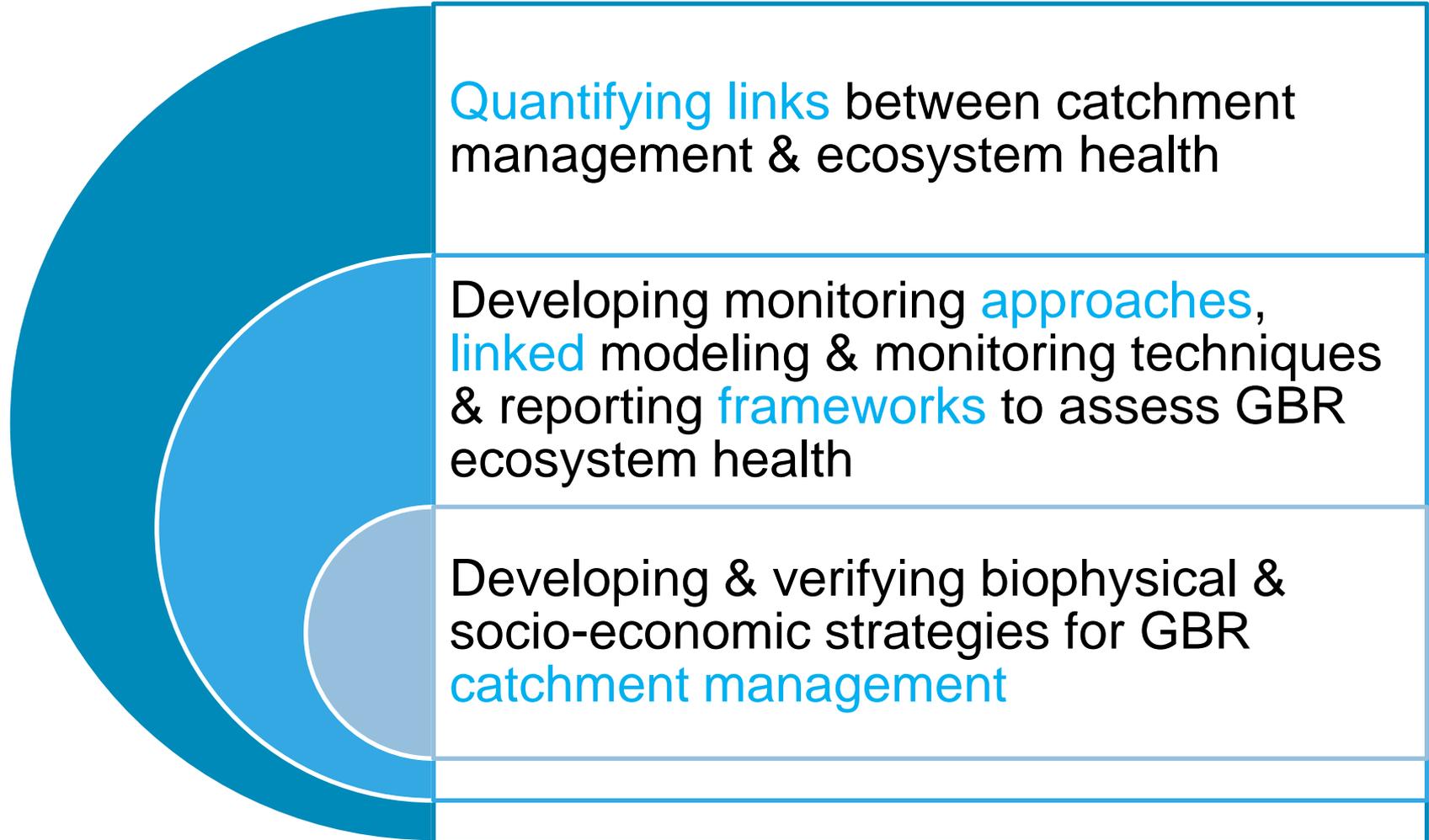


What the research focus has been...

- Impact centred on protection of reef ecosystems & sustainability of agricultural land uses
- Research focus
 1. main pollutant sources – sediment & nutrient loads
 2. land management strategies to improve water quality
 - grazing & sugarcane management practices
 - selecting & prioritising land management practices
 3. plan & implement successful water quality improvement
 - selecting mechanisms for implementation
 - dealing with uncertainty
 4. factors influencing effective governance arrangements
 5. how can we best monitor, report & adapt to changes
 - water quality & reef health
 - landscape health; paddock “leakiness”
 - integrating knowledge to support adaptive management



Future research focus



Relationships

Government

Federal

- GBRMPA
- DEWHA
- DAFF
- Defence
- BRS

Queensland

- DERM
- DEEDI
- DPC

Regional

- Local councils
- NRM groups

Universities

Regional

National

International

Research Agencies

Regional

- MTSRF
- RRRC

National

- AAS
- ATSE
- AIMS
- CSIRO
- etc

International

- NASA
- ESA
- ISRO
- etc

Industry

Regional

- AMPTO
- Qld seafood Industry
- Sunfish
- QSIA
- Other SMEs

National

- MLA
- Rural RDCs
- Canegrowers
- Growcom

Consortiums & Societies

Regional

- Community groups
- GBR Foundation

National

- NGOs

Global

- GEO
- ISPRS
- etc



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Thank you

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