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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**

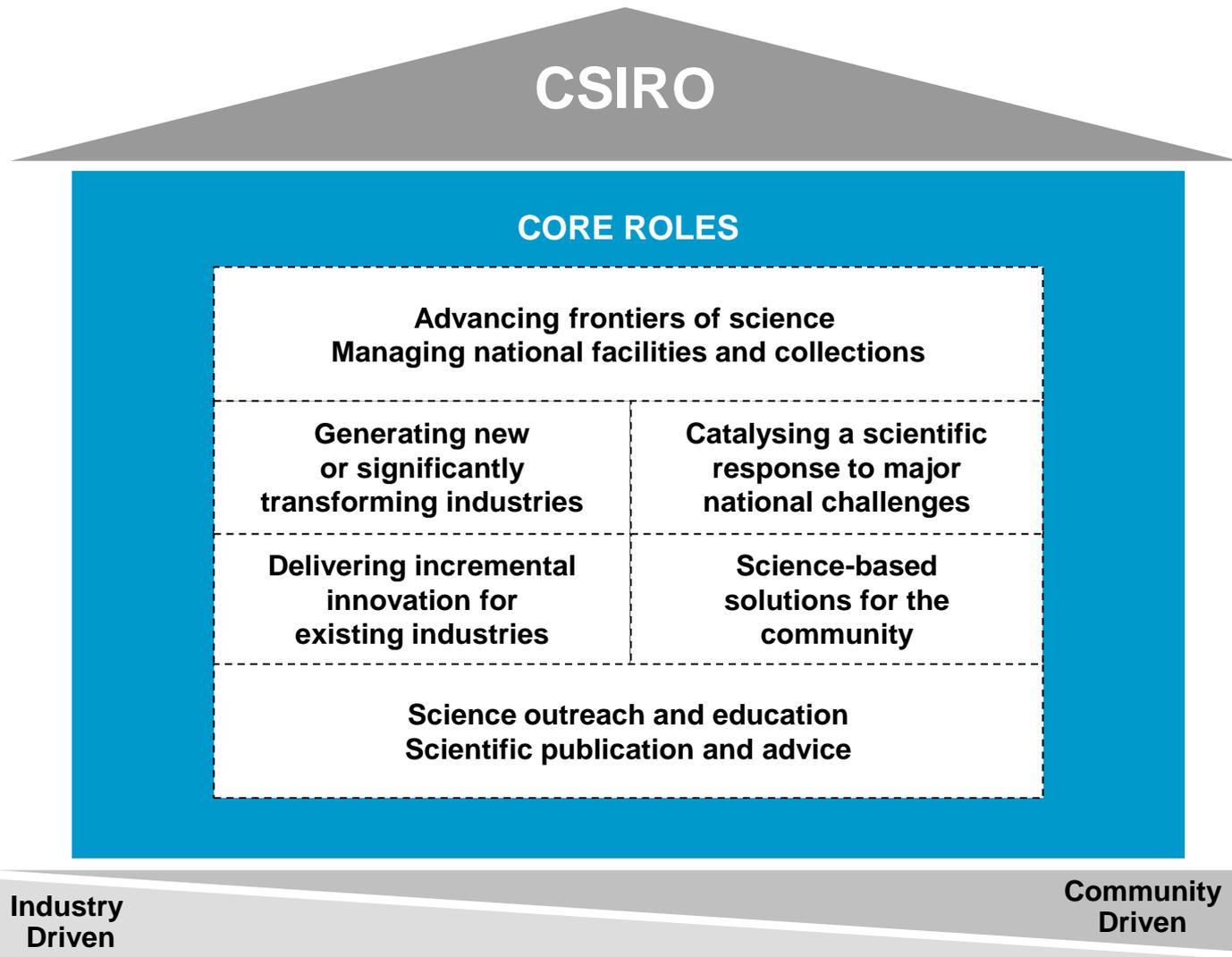
**20+ spin-off companies in six years**

**160+ active licences of CSIRO innovation**

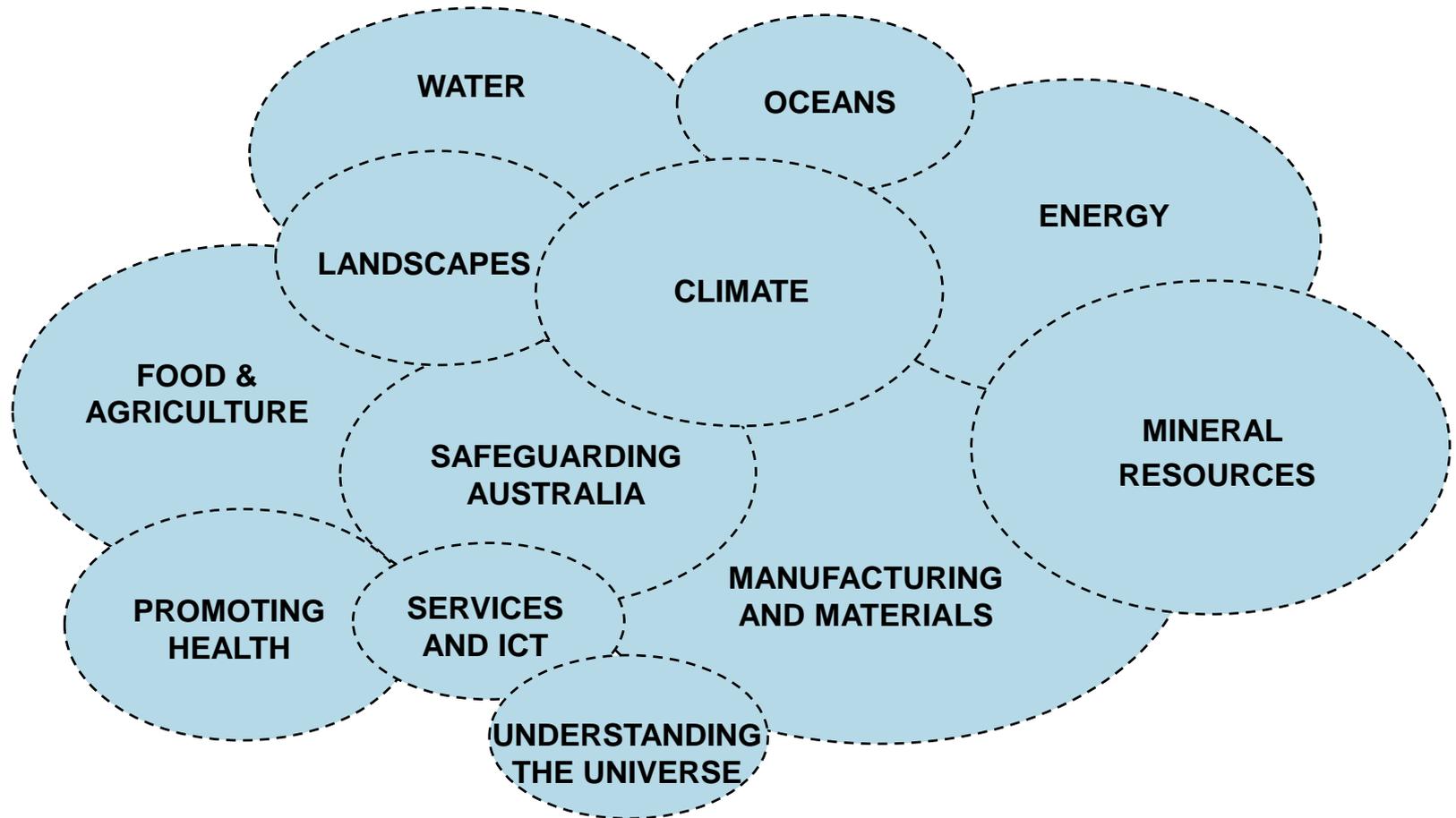
**Building national prosperity and wellbeing**



# 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



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# Introduction by Australia (Reef)

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

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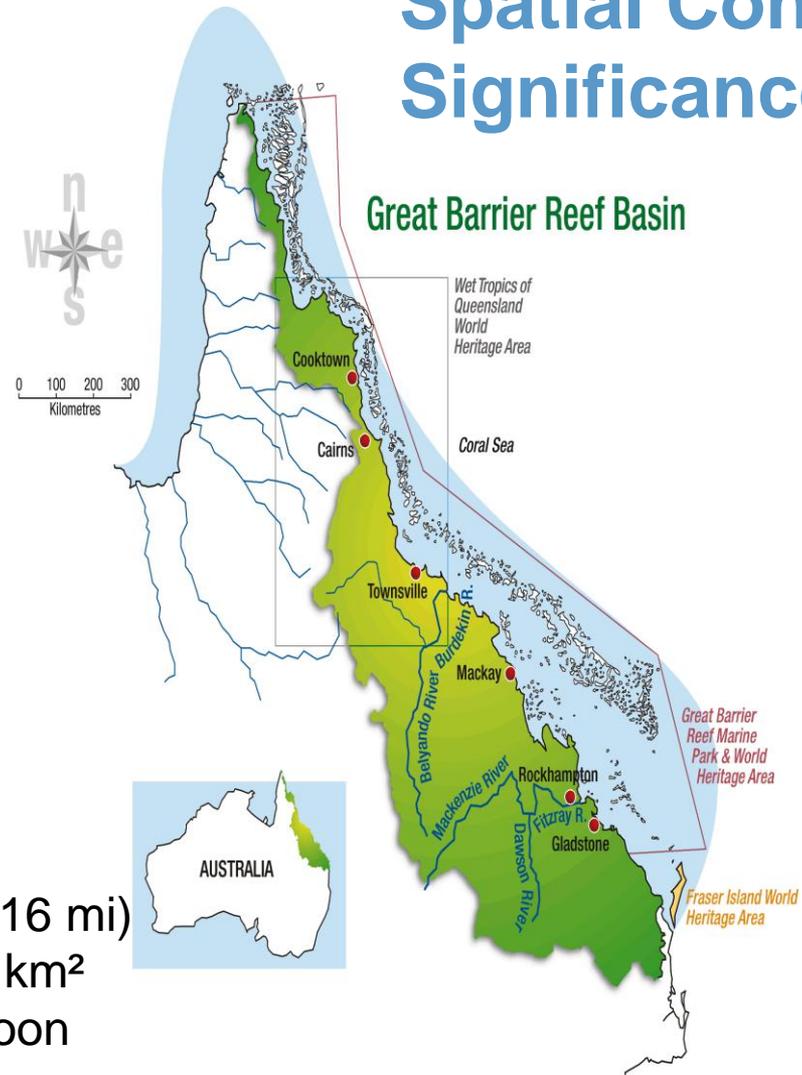
# Outline

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 km<sup>2</sup>
- 28 catchments drain into GBR lagoon

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

- **Inscribed 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

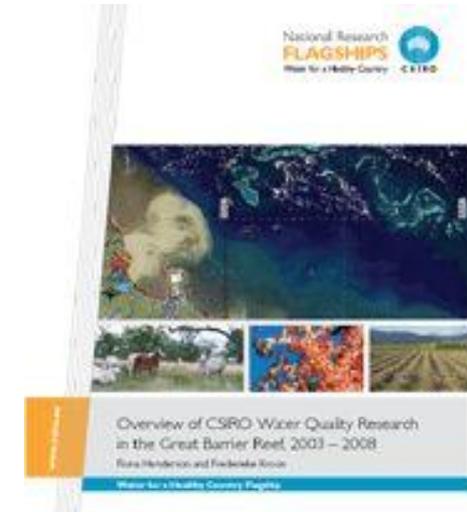
- **Priority issues reducing the resilience of the GBR**

- 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

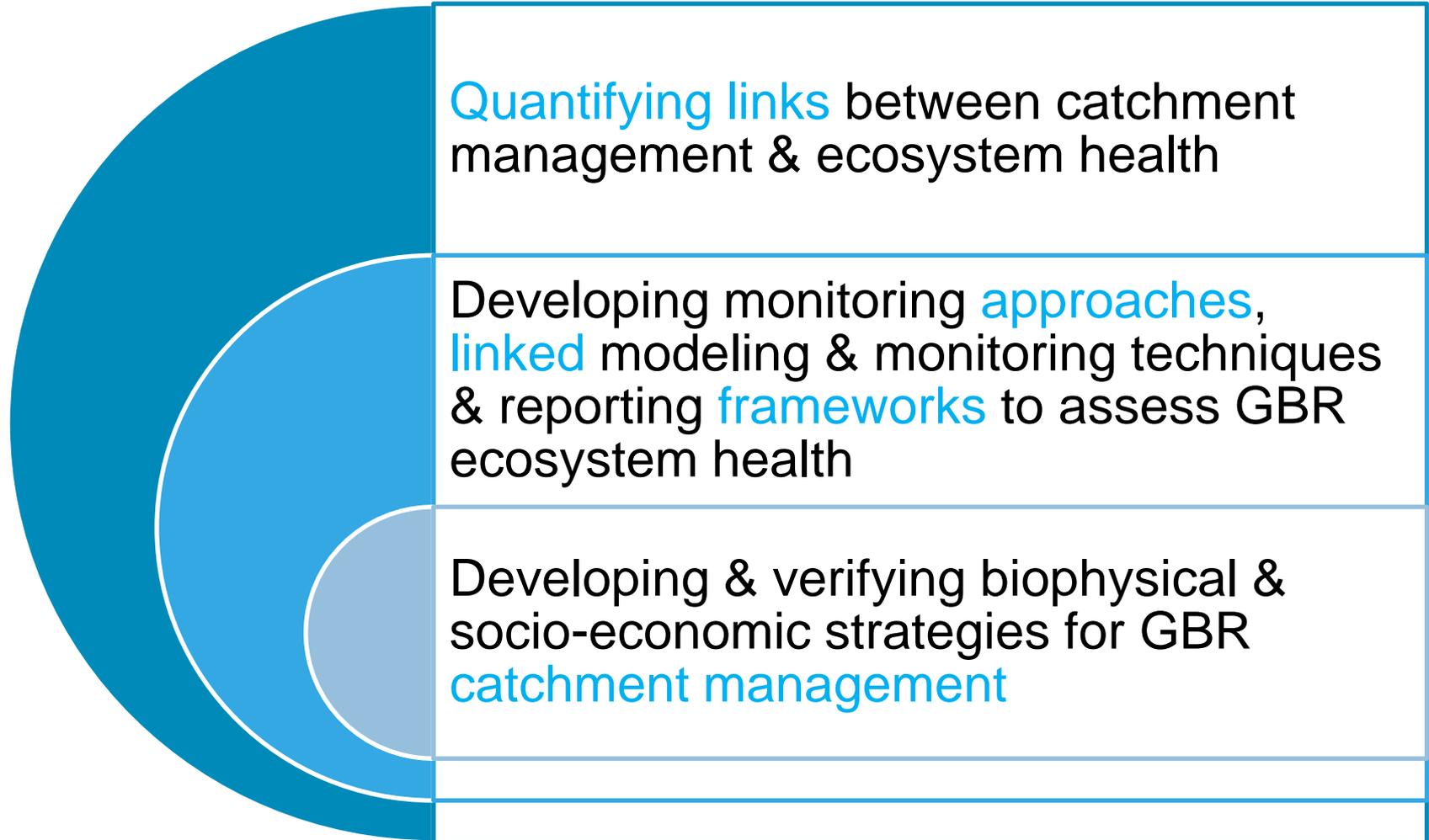


# What the research focus has been...

- 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

## Contact Us

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