



Waterway health reporting in the Great Barrier Reef

A Tiered Approach



Australian Government



Queensland Government



Great Barrier Reef Outlook



Climate change



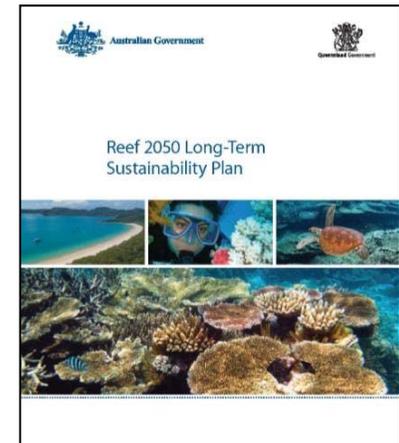
Water quality



Coastal development



Direct use



Australian Government



Queensland Government

Reef 2050 Long-Term Sustainability Plan (Reef 2050 Plan)

Water quality*

Ecosystem health

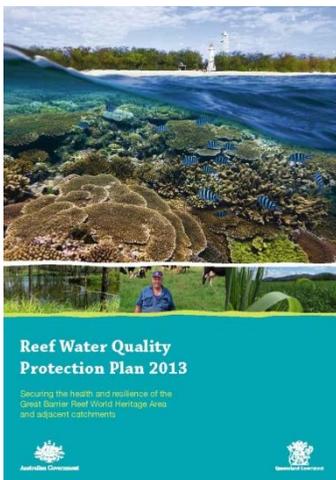
Biodiversity

Economic benefit

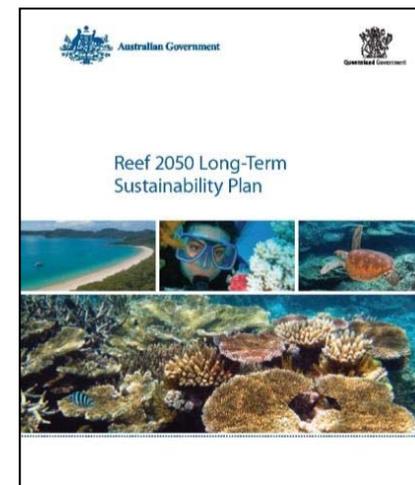
Community benefits

Heritage

Reef Water Quality Protection Plan



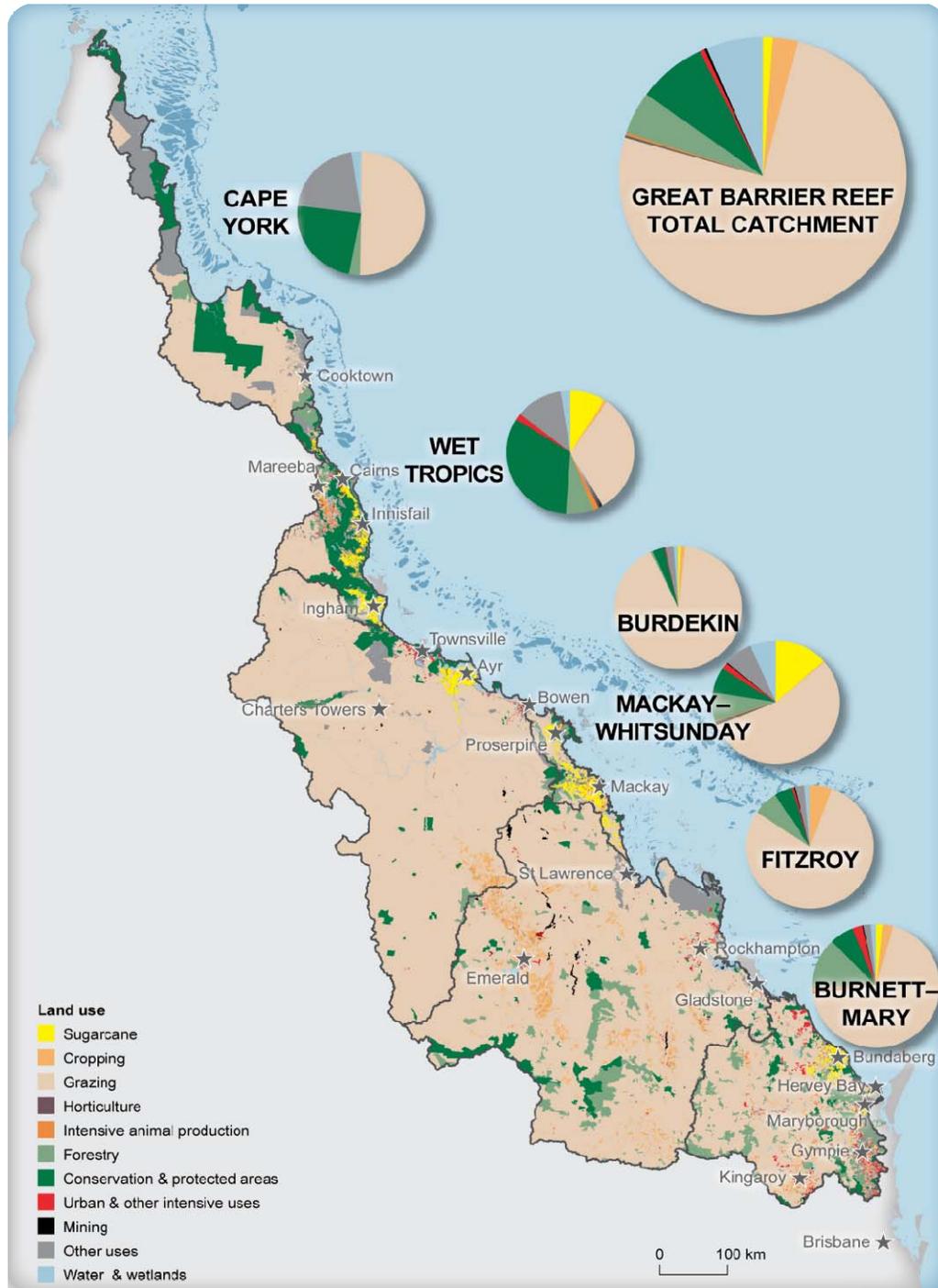
- Reef 2050 Plan **water quality component** = Updated Reef Water Quality Protection Plan.
- Better integrate with water quality actions in the Reef 2050 Plan.
- Enable new initiatives including Queensland Government responses to the GBR Water Science Taskforce recommendations to be included.
- **Revise targets** incorporating eReefs modelling.



Australian Government



Queensland Government



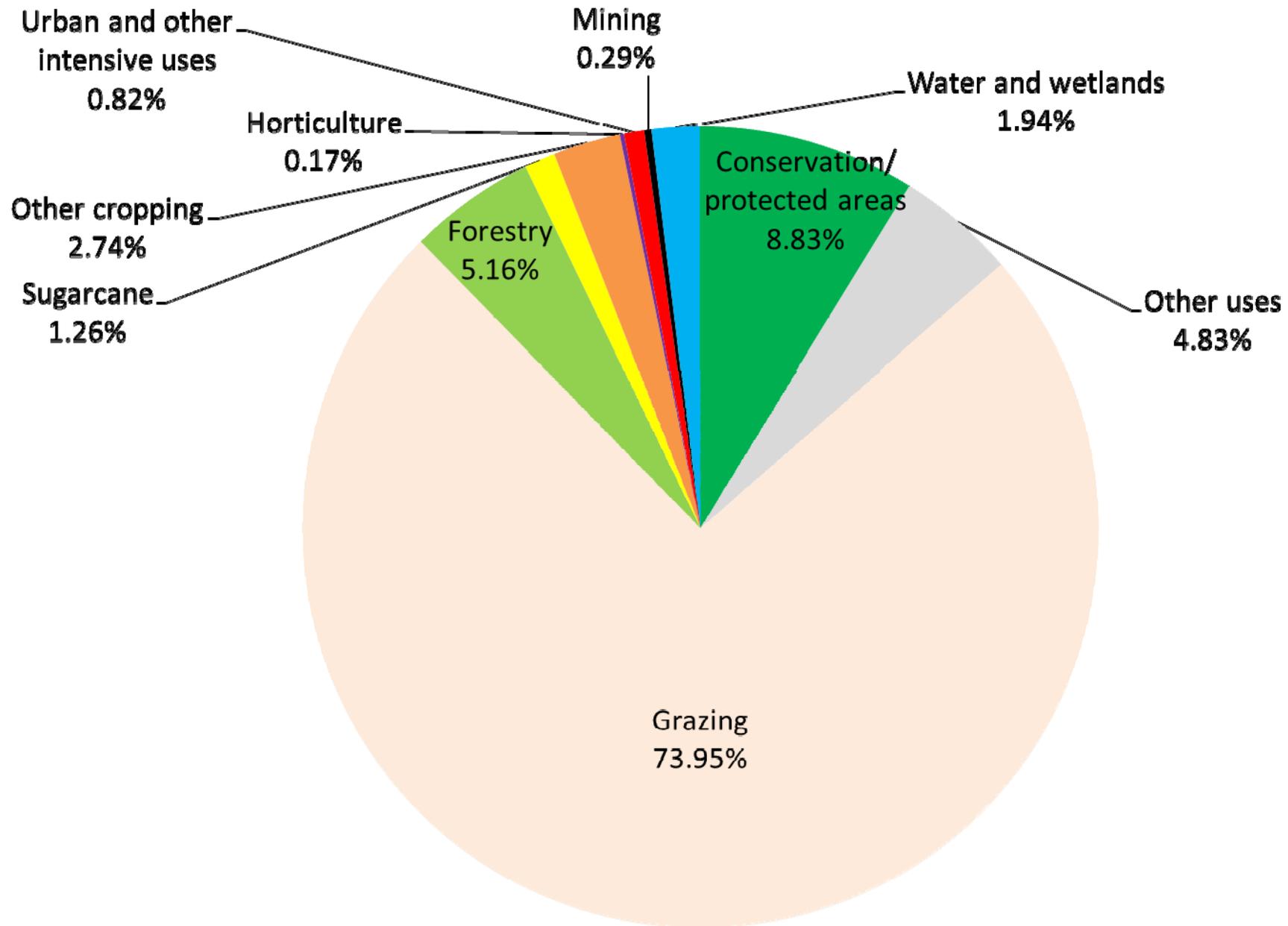
Challenges

Spatial scale:

- Big catchment = $\frac{1}{2}$ million km²
- 35 major catchments
- Marine area = 350,000 km²
- Highly variable climate
- Flood events

GBR Catchments cover
424,000 sq km

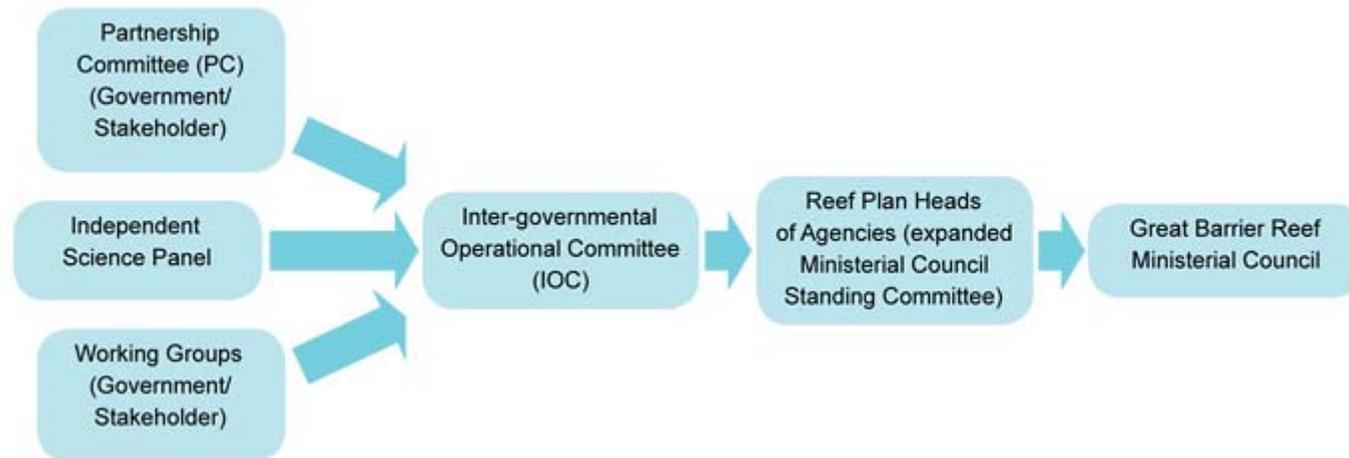
Great Barrier Reef catchment land use

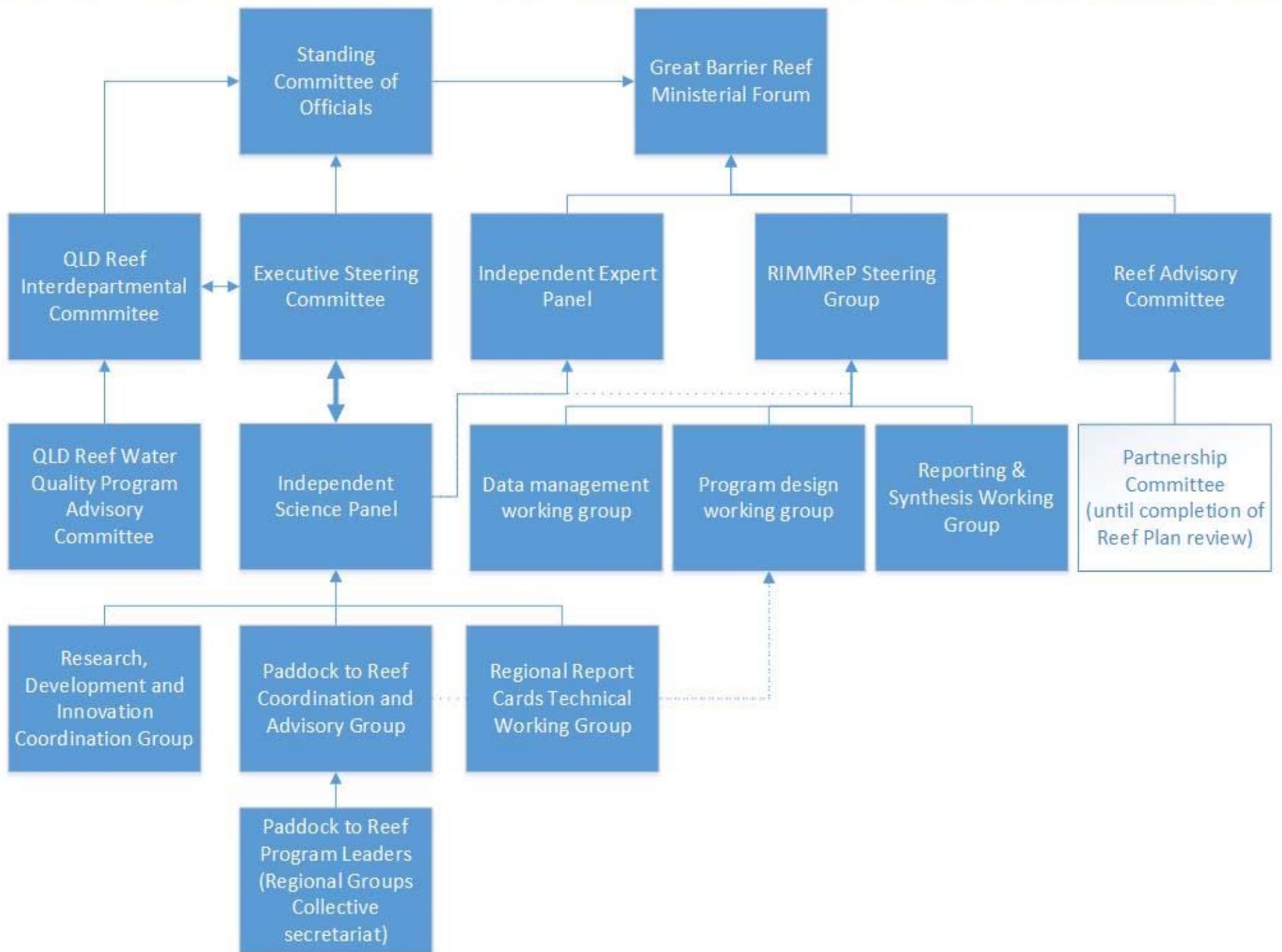




Partnerships

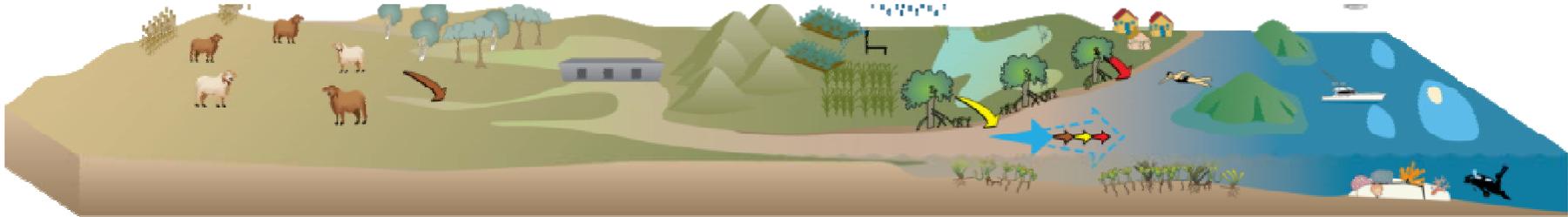
The key decision-making body is the Great Barrier Reef Ministerial Council. A number of committees help ensure a coordinated and cohesive approach to implementation, and appropriate commitment of resources to actions.







- **Objective** – To measure progress towards the Reef Plan goal and targets.



- A **collaborative partnership** involving the Australian and Queensland Governments, regional groups, researchers and industry.
- The **integration of monitoring and modelling** from the paddock to reef scales.
- Strong **management–science interaction**.



Paddock



water quality and economic modelling

Catchment

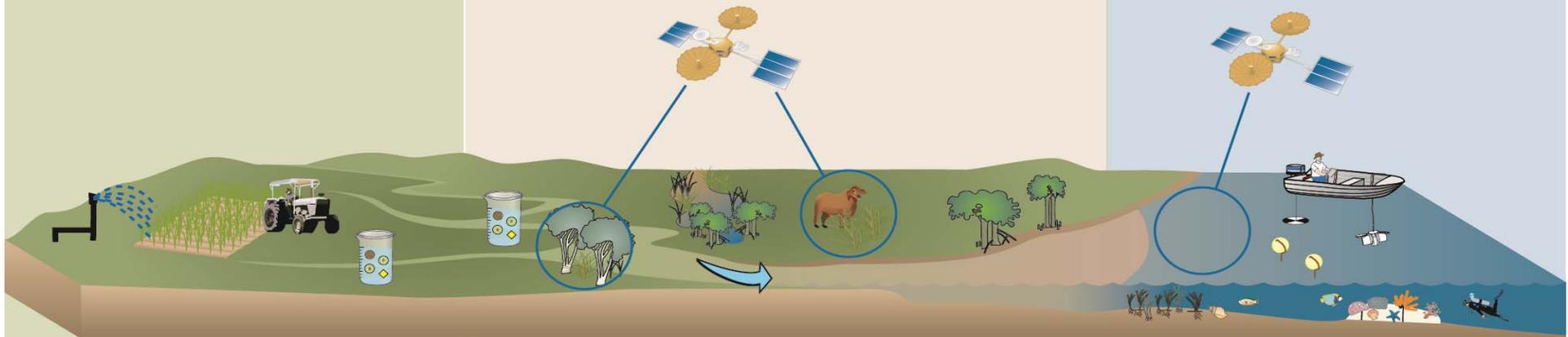


water quality modelling

Marine



water quality modelling



Plot scale rainfall simulation trials



Adoption of improved management practices



Water quality monitoring of key pollutants under improved management practices



Water quality monitoring of key pollutants at sub-catchment and end-of-catchment sites



Wetland mapping



Water quality (flow) monitoring



Remote sensing of groundcover and riparian areas



Remote sensing of pollutant flood plumes



Seagrass abundance and health monitoring



Grab sampling of water quality during flood events



Water quality loggers and passive samplers



Coral reef health monitoring

Paddock to Reef Program - overview

Paddock →

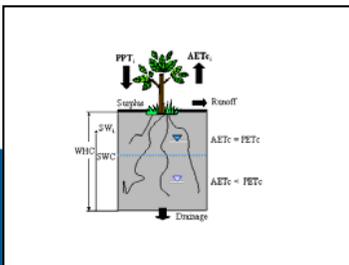
Measuring practices



On-farm monitoring

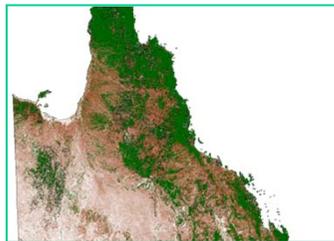


Paddock modelling



Catchment →

Catchment Indicators



Water quality monitoring

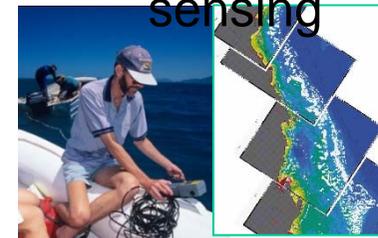


Catchment modelling



Marine

Sampling and remote sensing



Coral monitoring

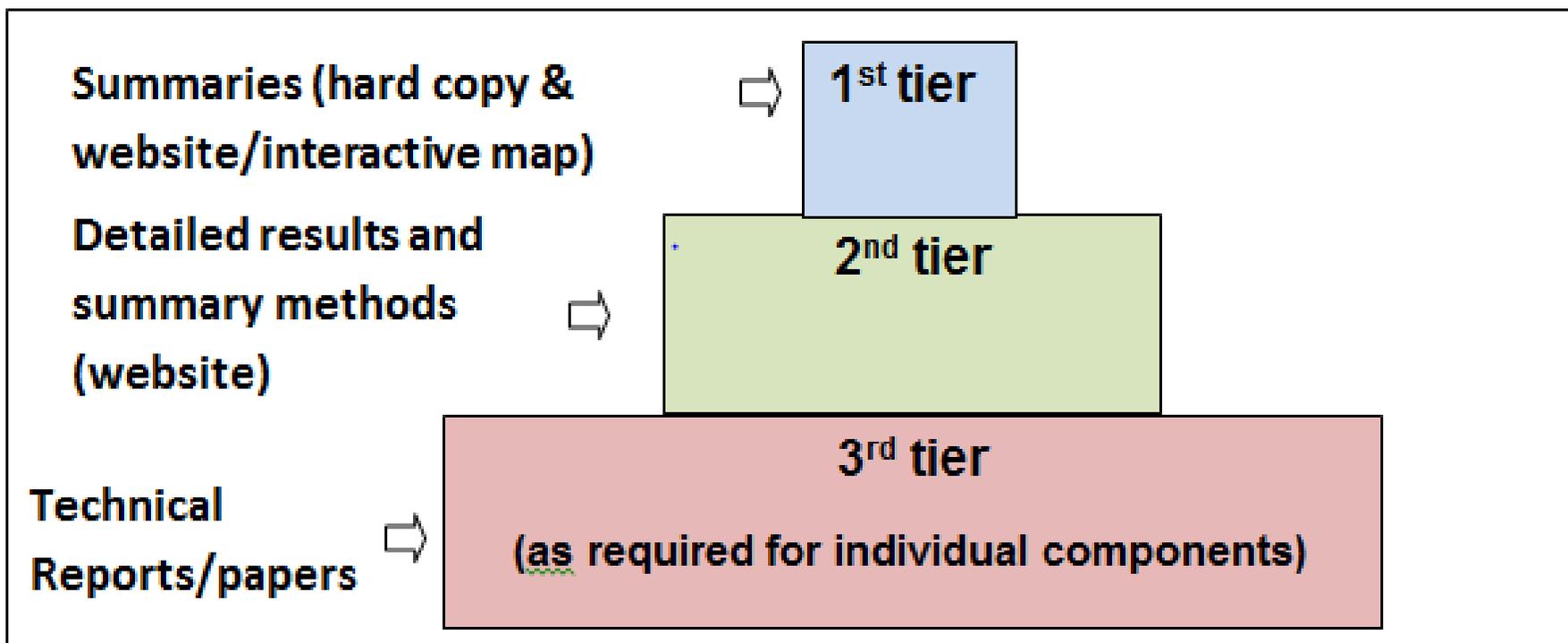


Seagrass monitoring





Reporting framework





Regional Report Card Partnerships

A collaborative approach between industry,
community, government and research
organisations to report on the health of local
waterways and help inform management actions



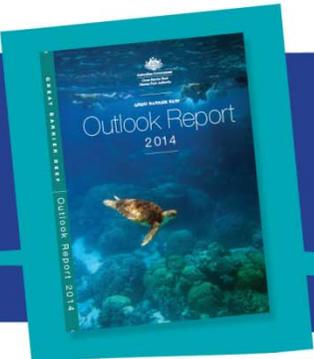
Australian Government



Queensland Government



Great Barrier Reef Outlook Report



Reef-wide:
produced
5-yearly, next
due in 2019



Reef Water Quality Protection Plan Great Barrier Reef Report Card



**Reef-wide
(inshore):**
produced
annually

Wet Tropics

Burdekin

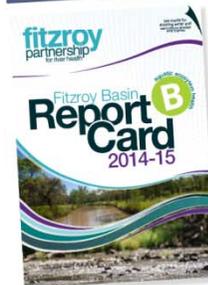
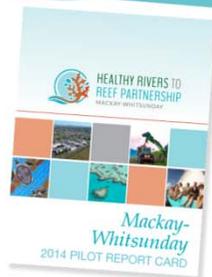
Mackay
Whitsunday

Fitzroy

Gladstone

LATE 2016

LATE 2017



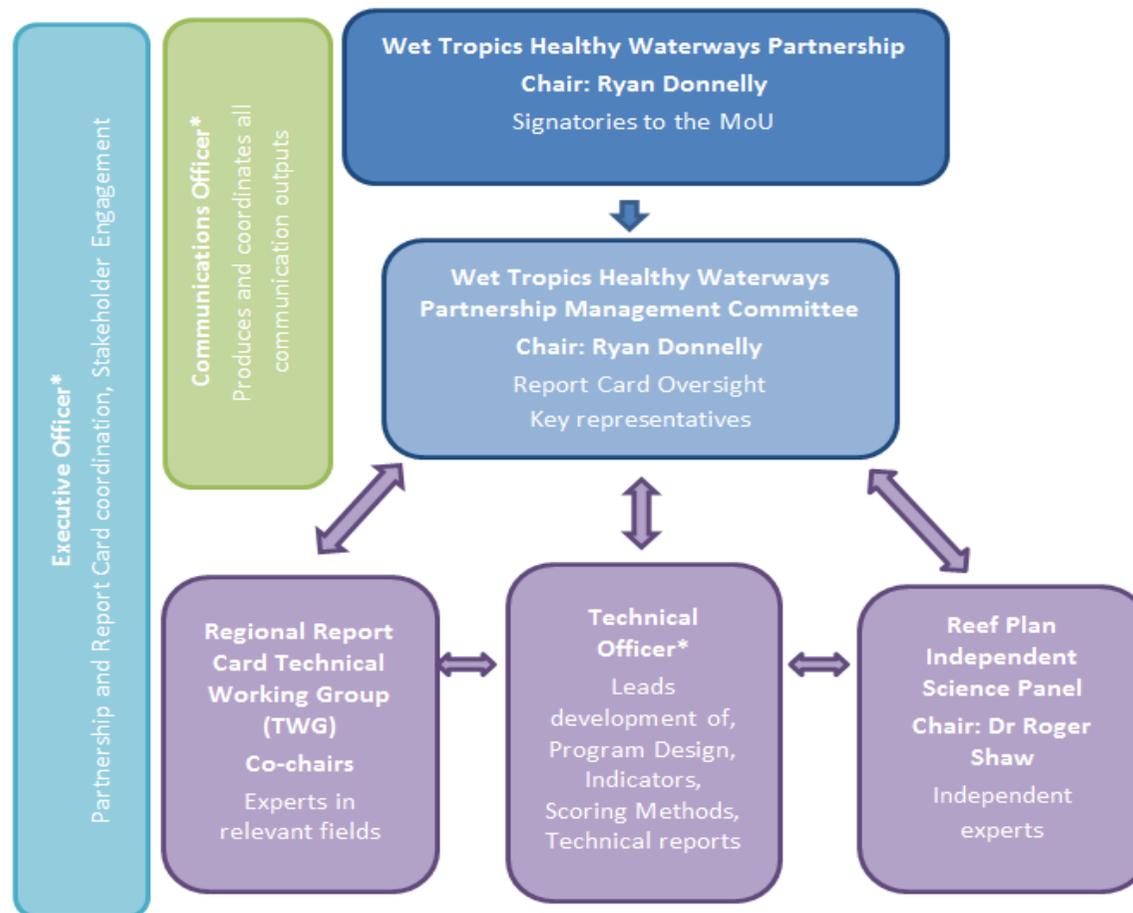
**Regional
finer scale
information:**

produced
annually



Partnership Governance

- Partnership Chair
- Host Organisation
- Management Committee
- Independent Science review
- Partnership staff:
 - technical
 - communications
 - secretariat/EO





Regional Report Conceptual Framework

- Conceptual model – pressures, drivers, values
- Reporting zones – marine, estuary, freshwater
- Program design – indicators, scoring methods, data sources, confidence measures
- Methodology – environmental, social, economic, cultural, stewardship
- Results – Report Card; website





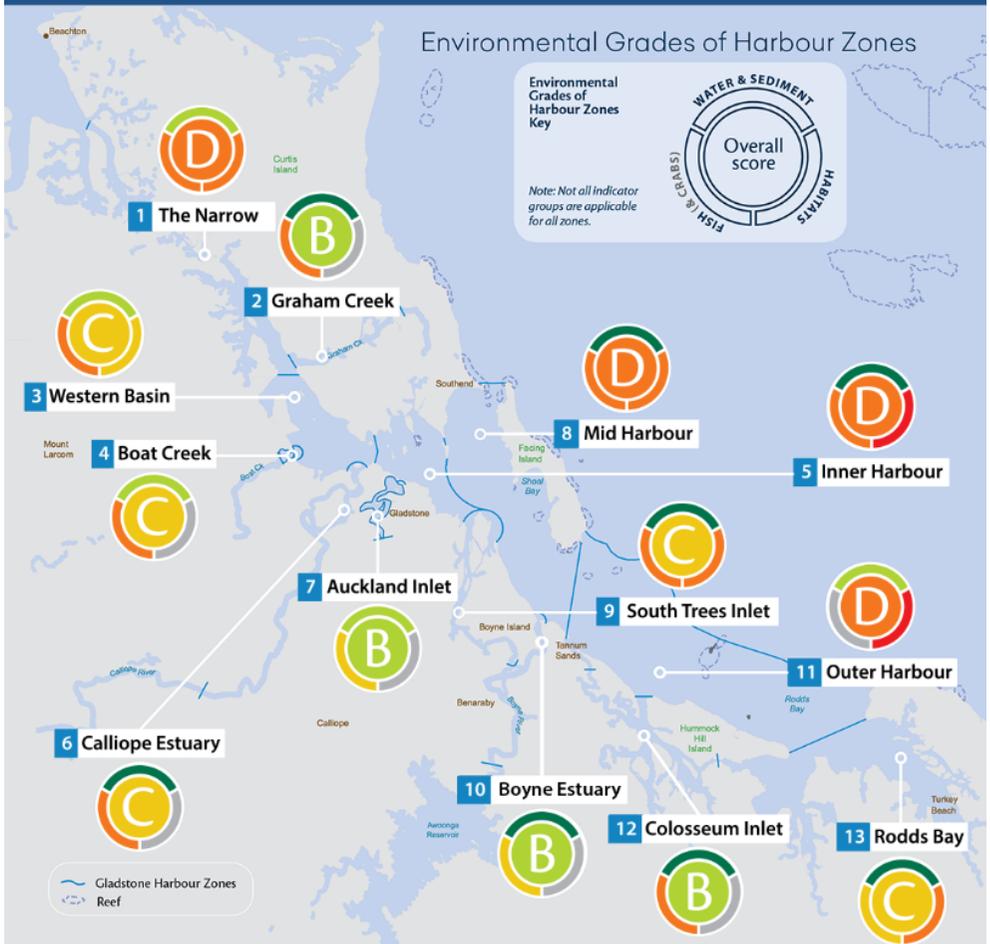
Example – Gladstone 2016 Report Card Results



Click on any Grade above to see more details



Environmental Grades of Harbour Zones



Australian Government



Queensland Government



Reporting Across Different Scales

- Reporting on indicators using different data sets
- Reporting broader scale data in both Reef-wide and regional report cards
- Availability of data – time lag in reporting
 - Reef Report Card data availability
 - Data sets used in regional report cards more than 12 months old
 - Reader's context
 - Community expectations





Scoring Systems – do we compare apples with apples?

- Different scoring methodologies between programs
- Should we be comparing across scales and across regions?

0	50	100	Report Cards		
Very Poor	Poor	Moderate	Good	Very Good	Reef Report Card, Mackay Whitsunday, Wet Tropics and Fitzroy Basin (Marine Condition)
20	40	60	80		
Very Poor	Poor	Satisfactory	Good	Very Good	Gladstone Harbour (Environmental Condition)
25	50	65	85		
Vey Poor	Poor	Satisfactory	G/VG		Mackay Whitsunday & Wet Tropics (Freshwater and Estuary zones)
33	67	99.9*			
Poor	Fair	Good			Fitzroy Basin (Freshwater and Estuary Zones)
33	67				
← Fail					→ Excellent
Very Poor	Poor	Good	Very Good		GBR Outlook Report**





Other Challenges

- Addressing the ‘So what?’ – what value does this reporting provide?
- The need for clear and consistent messaging across different reporting and planning processes
- Representativeness of data – spatial and temporal limitations
- Rules around rolling up of scores can lead to confusing results
- Is there a role for using citizen science data?
- Reporting on management practice effectiveness
- Filling data gaps – role of the RIMMReP





Successes

- Collectively... our reporting tells a more complete picture of waterway health
- All report cards informed by rigorous science
- Range of quality communication products
- Engaged partners with a shared vision for waterway health
- Results inform priority regional actions
- Continual improvement, learning from each other and working collaboratively

