

eReefs Regional Models Workshop

Introduction



eReefs is a collaboration between



Great Barrier
Reef Foundation



Australian Government
Bureau of Meteorology



Australian Government



AUSTRALIAN INSTITUTE
OF MARINE SCIENCE



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BMA
BHP Billiton Mitsubishi Alliance

Workshop Objectives

- Bringing together eReefs scientists, users and experts to mark the completion of a significant milestone
- Overview of regional models by eReefs scientists:
 - Research and methods
 - Deliverables and outcomes
 - Applications and skill assessment
- Receive input from participants on priority applications and potential model improvements
- Introduction to non-expert users

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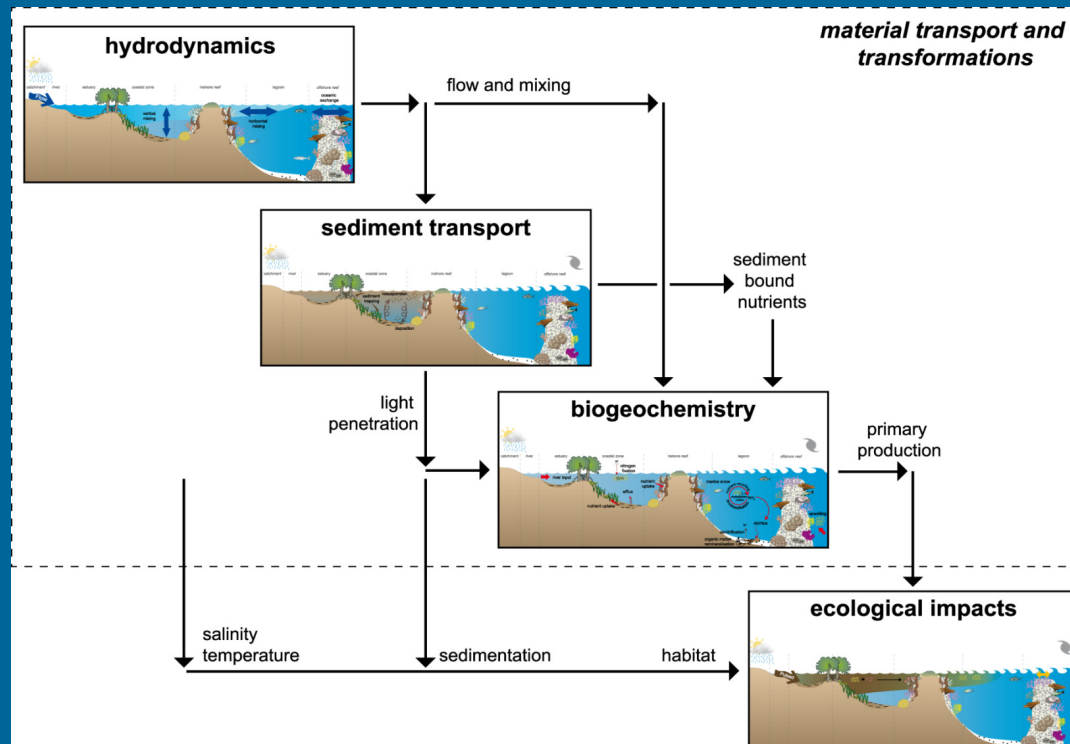


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Day ONE – Stepping through the components of the research/models



+ RECOM

Input from participants on potential improvements in terms of modelling inputs and framework

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Day TWO – Focus on applications and skill assessment

- Published applications and literature on or using the eReefs regional models
- Model skill assessment based on:
 - Performance against observations
 - Agreement with known GBR processes
 - Alignment with previous scientific studies
- Input from participants on priority applications and fitness for purpose

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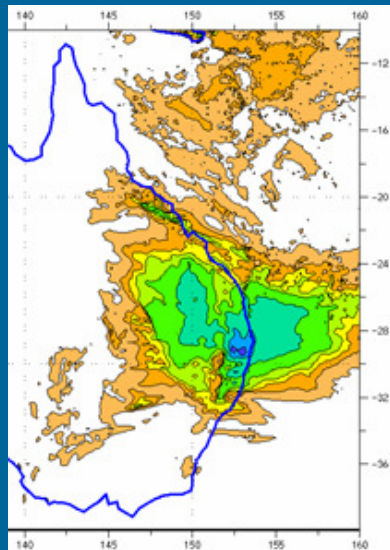


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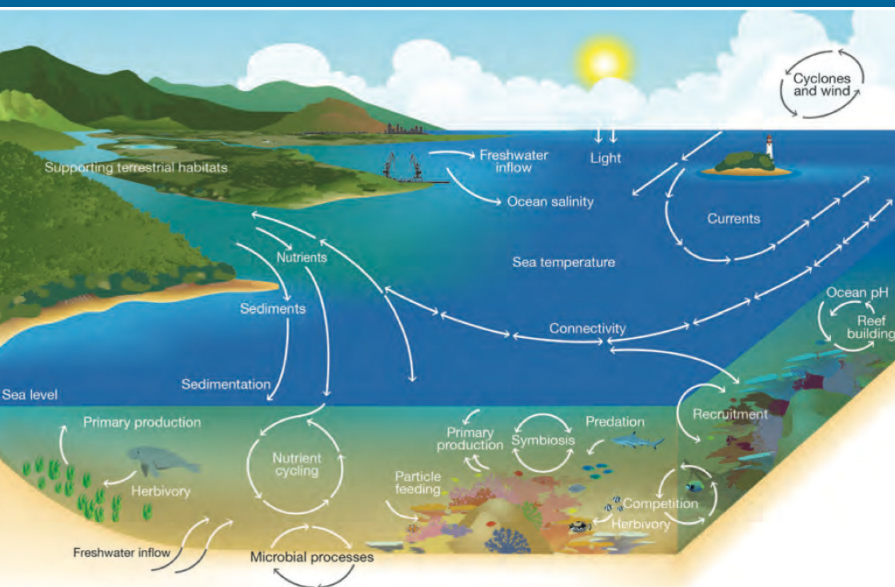


Why eReefs?

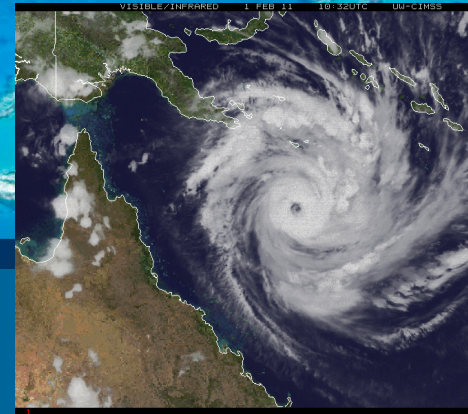
Multiple sources of stress



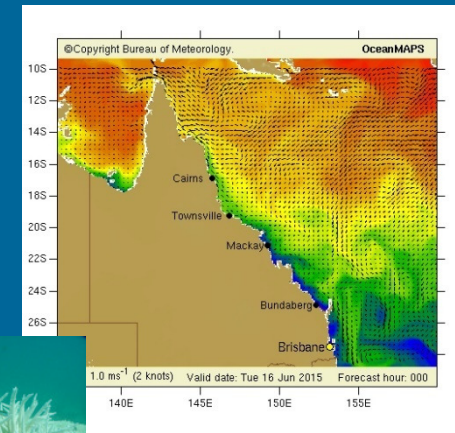
Water quality stress



COTS

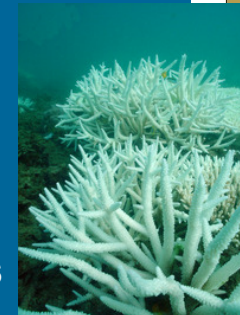


Mechanical stress



Thermal stress

pH stress



eReefs Vision

- Covering the whole GBR as one system
- Models linking catchments to ocean
- Past, present and future conditions on the GBR
- Interactive access to data and reports



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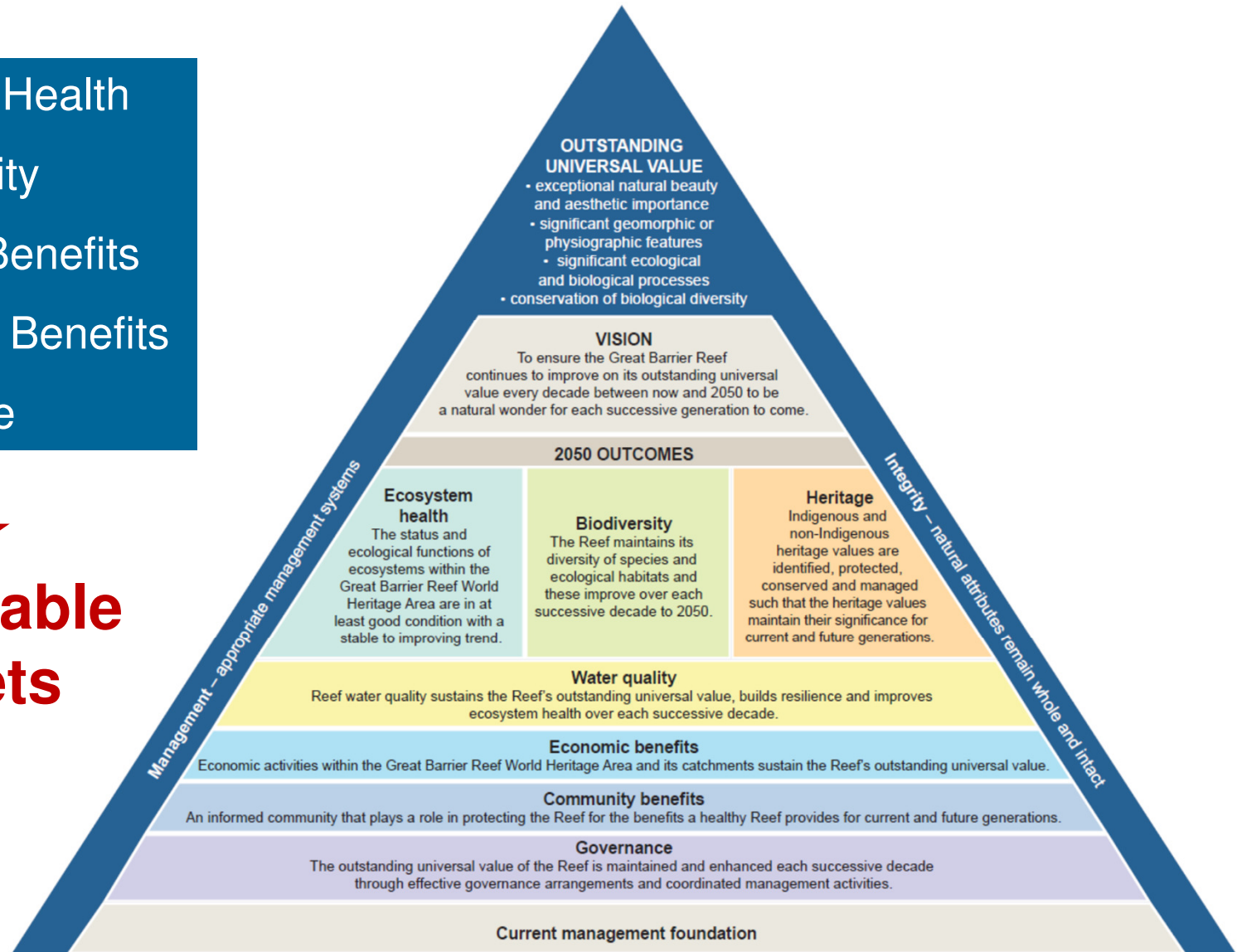


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2050 Reef Sustainability Plan

- Ecosystem Health
- Water Quality
- Economic Benefits
- Community Benefits
- Governance

↓
**Measurable
Targets**



Partners

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foundation



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eReefs is an integrated platform

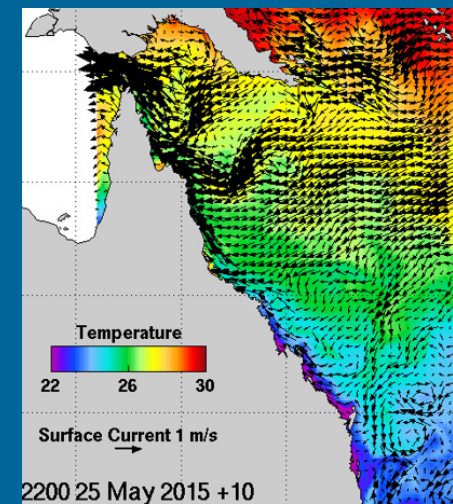
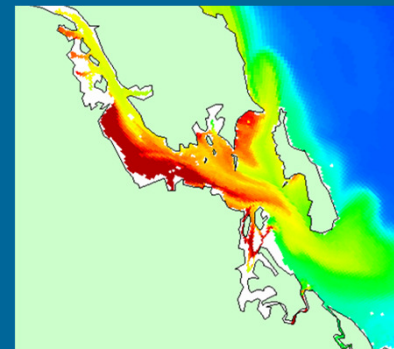
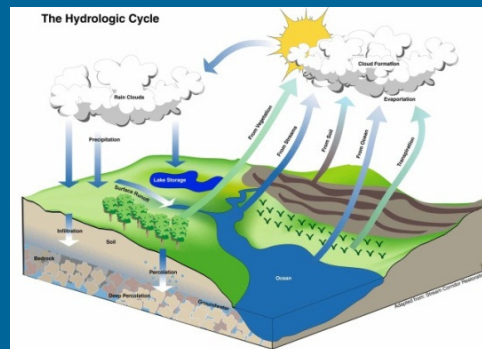
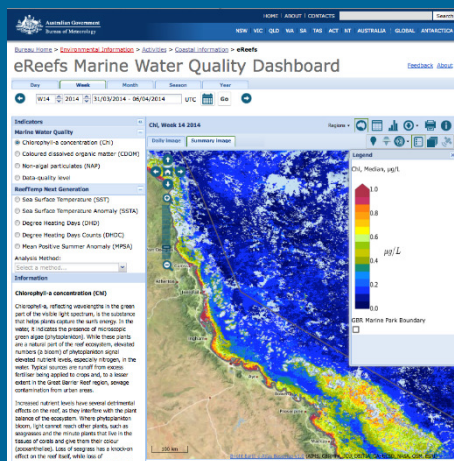
USERS

Satellite
sensing

Catchment
model

Fine scale
coastal
model

GBR
marine
model



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scenarios

land practice change
climate change

reporting

Reef Report Card
State of Environment

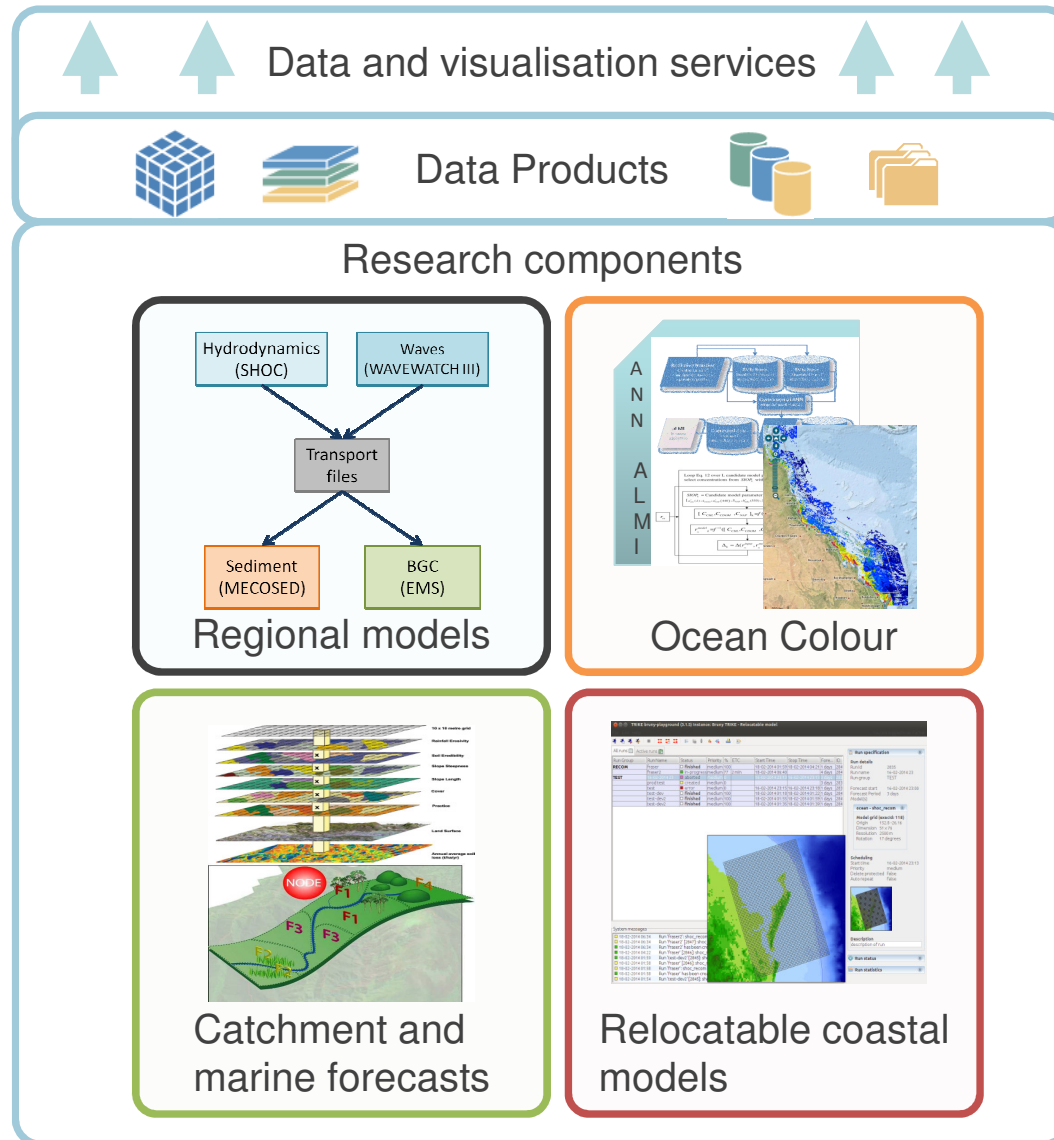
(use case examples)

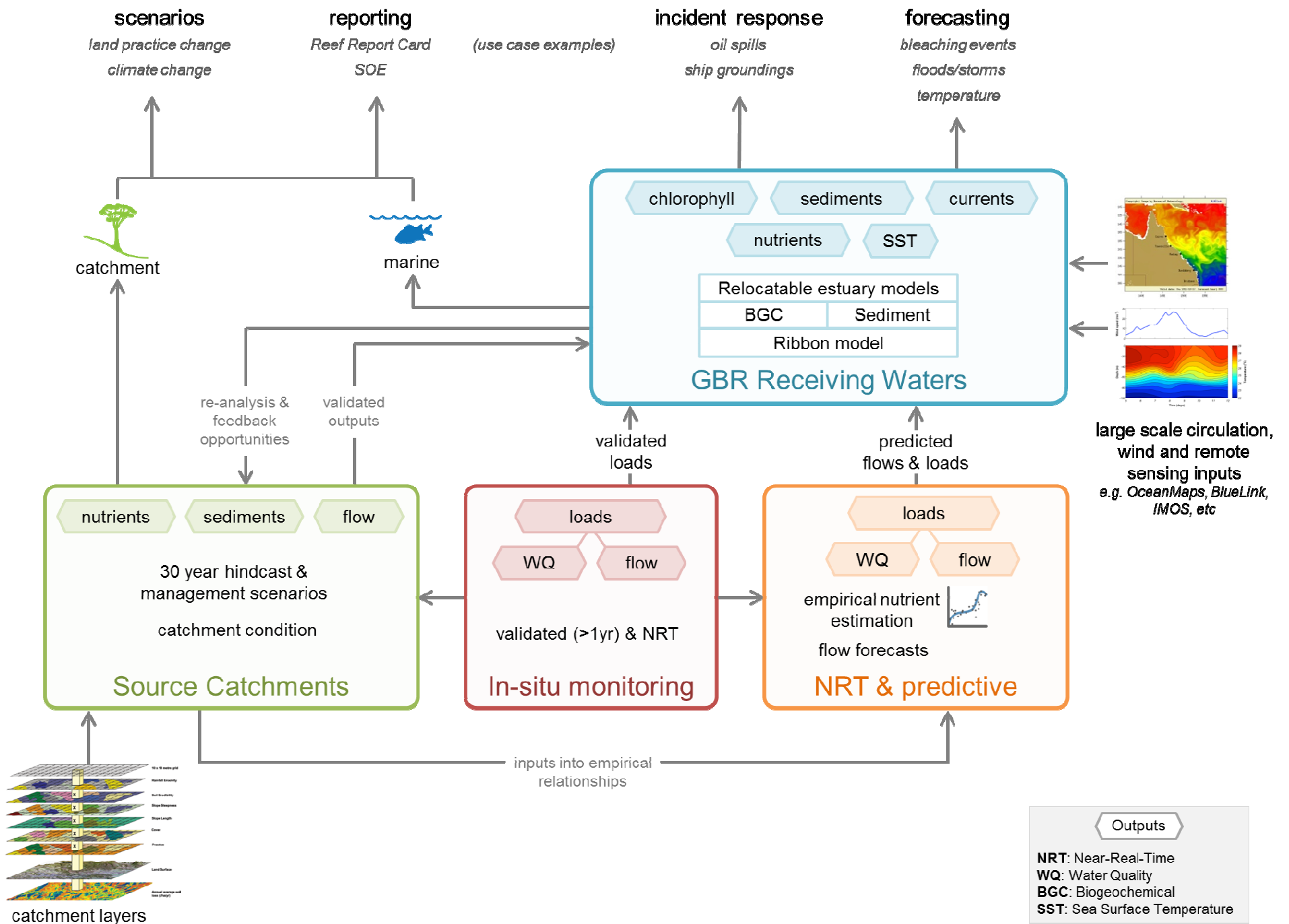
maritime operations

incident response
operational management

forecasting

bleaching
events
floods/storms
temperature





Phases 1 and 2 (2012 – 2015)

Delivery of Regional Models

- ✓ Validated GBR 4km and 1km resolution hydrodynamic models
- ✓ Validated biogeochemistry and sediment transport models
- ✓ Integration and routine operation on CSIRO infrastructure

Delivery of Relocatable Model (RECOM)

- ✓ Three case studies in Fitzroy, Heron Island and Mackay-Whitsundays
- ✓ Operational online platform

Water Quality monitoring through remote sensing

- ✓ BOM Marine Water Quality Dashboard
- ✓ Transition to new satellite

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Phases 2 and 3 (2016 – 2017)

- BOM Catchment water quantity and water quality forecasting models
- GBR hydrodynamic forecasting and sediment transport models
- Improvement in data integration with improvements to SSIMR functionalities
- Reporting and Visualisation tools
- Operationalisation of research components

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eReefs Research Portal

<http://research.csiro.au/ereefs>

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