eReefs Regional Models Workshop

Introduction























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













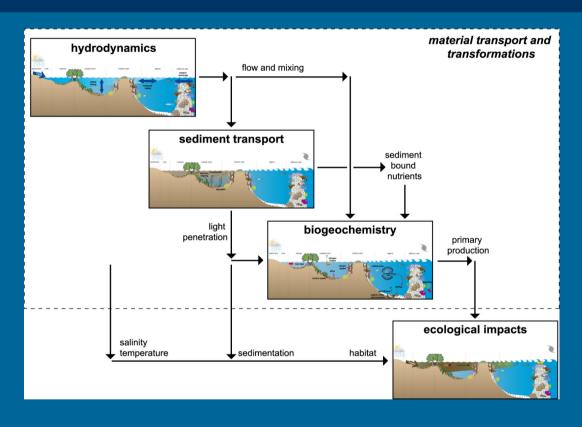








Day ONE - Stepping through the components of the research/models



+ RECOM

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























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















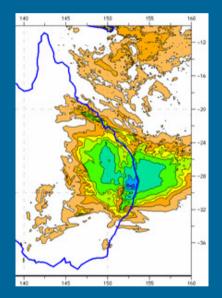






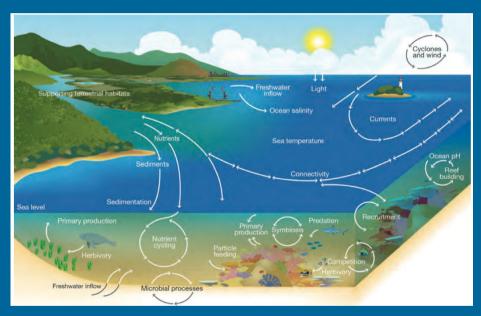
Why eReefs?

Multiple sources of stress

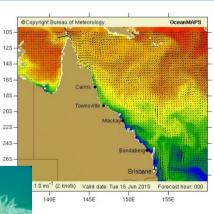


Water quality stress





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







eReefs is a collaboration between





















2050 Reef Sustainability Plan

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



Measurable Targets

OUTSTANDING UNIVERSAL VALUE

- exceptional natural beauty and aesthetic importance
- significant geomorphic or physiographic features
- significant ecological and biological processes
- · conservation of biological diversity

VISION

To ensure the Great Barrier Reef continues to improve on its outstanding universal value every decade between now and 2050 to be a natural wonder for each successive generation to come.

2050 OUTCOMES

Ecosystem health

The status and ecological functions of ecosystems within the Great Barrier Reef World Heritage Area are in at least good condition with a stable to improving trend.

Biodiversity

The Reef maintains its diversity of species and ecological habitats and these improve over each successive decade to 2050.

Heritage

Indigenous and non-Indigenous heritage values are identified, protected, conserved and managed such that the heritage values maintain their significance for current and future generations.

Water quality

Reef water quality sustains the Reef's outstanding universal value, builds resilience and improves ecosystem health over each successive decade.

Economic benefits

Economic activities within the Great Barrier Reef World Heritage Area and its catchments sustain the Reef's outstanding universal value.

Community benefits

An informed community that plays a role in protecting the Reef for the benefits a healthy Reef provides for current and future generations.

Governance

The outstanding universal value of the Reef is maintained and enhanced each successive decade through effective governance arrangements and coordinated management activities.

Current management foundation

Partners

eReefs is a collaboration between:

GREAT BARRIER REEF foundation











Supported by funding from:



Australian Government



SCIENCE AND INDUSTRY ENDOWMENT FUND





eReefs is an integrated platform

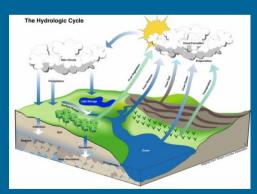
USERS

Satellite sensing

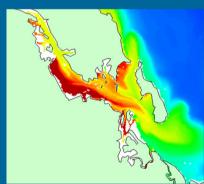
Section (State)

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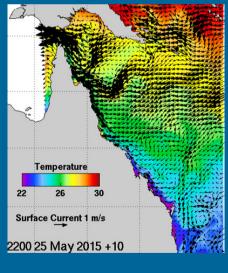
Catchment model



Fine scale coastal model



GBR marine model



eReefs is a collaboration between























scenarios

land practice change climate change

reporting

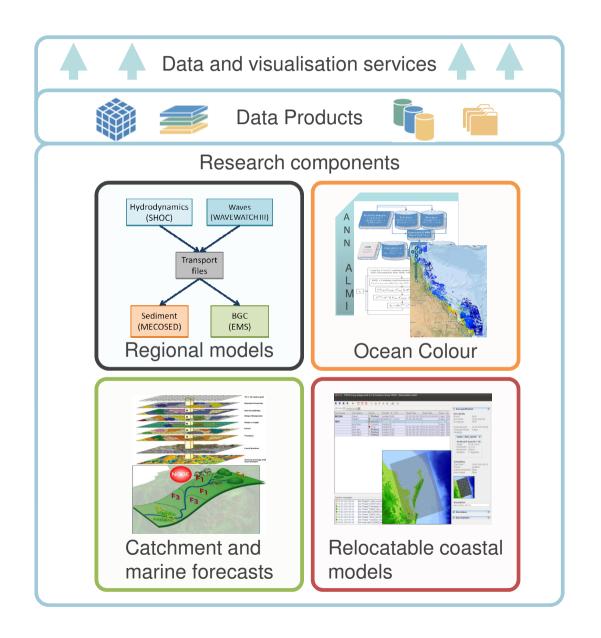
Reef Report Card State of Environment (use case examples)

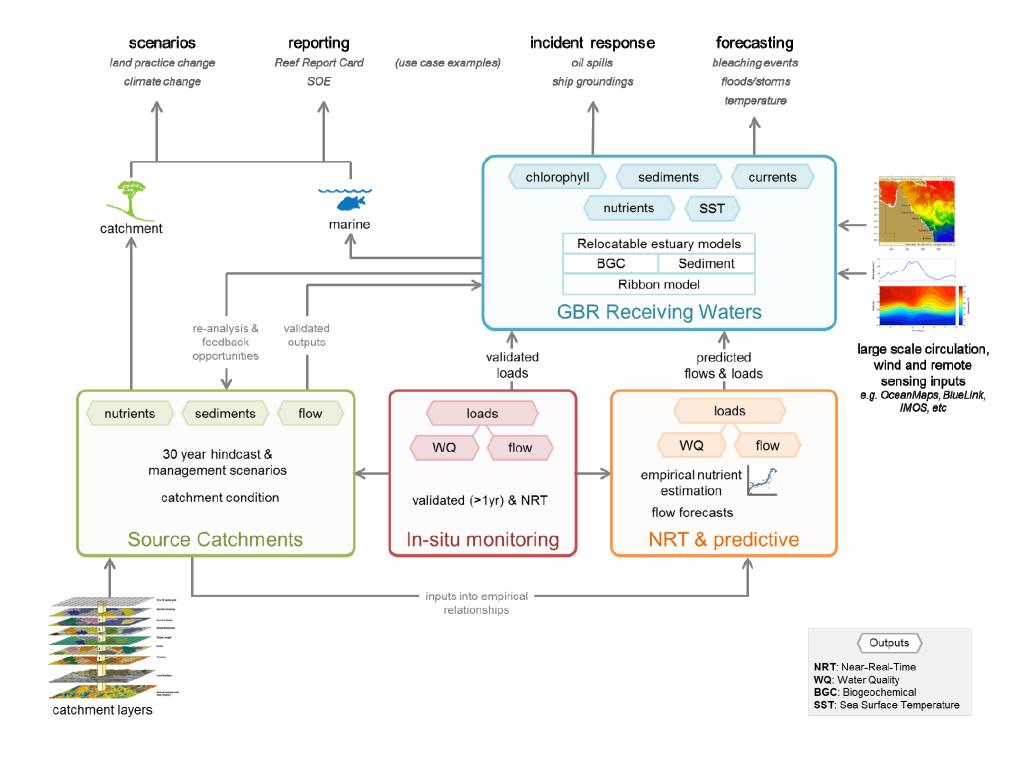
maritime operations

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





















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























eReefs Research Portal

http://research.csiro.au/ereefs

eReefs is a collaboration between





















