

eReefs

One of the seven Natural Wonders of the World, the Great Barrier Reef is a significant part of Australia's natural heritage and economy.

A number of threats including water quality, climate change, shipping, fishing and coastal development have the potential to detract from the Reef's natural, cultural and economic value.

Preventing a loss of value requires improved decision support, and communication tools for all who interact with, manage and depend on the Reef.

eReefs, which commenced in January 2012, is a collaborative project that will contribute to the protection and preservation of the iconic Great Barrier Reef. It forms the first step in building comprehensive coastal information systems for Australia.

Using the latest technologies to collate data, and new and integrated modelling, eReefs will produce powerful visualisation, communication and reporting tools. It will provide for the Reef information akin to that provided by the Bureau of Meteorology for weather. This information will benefit government agencies, Reef managers, policy makers, researchers, industry and local communities.

Activities

Over the next five years, the eReefs project will deliver:

- expanded and improved monitoring data through the application of the latest in measurement technologies and data delivery tools (e.g. mobile and internet tools)
- a suite of new and integrated models across paddock, catchment, estuary, Reef lagoon and ocean
- a framework to explore the impact of multiple factors such as temperature, nutrients, turbidity and pH, and to communicate this to those who will be affected by it
- an interactive visual picture of the Reef and its component parts, accessible to all
- citizen science initiatives to engage the broader community on the health of the Reef. Targeted communication products to allow the public to interact with the Reef — contributing monitoring information and learning about the Reef.

Example uses

eReefs will have practical application in a number of situations.

Monitoring management interventions on Reef catchments

The State and Australian Governments have set targets for a range of water quality indicators and are investing in influencing land use practices, as well as monitoring these targets.

As monitoring data is fed into eReefs and combined with its predictive modelling and visualisation capabilities, the project will demonstrate the effects of changes in land use practices on the Reef. This will enable Reef managers to track progress towards existing targets, and provide a firm evidence base for deciding on management investments.

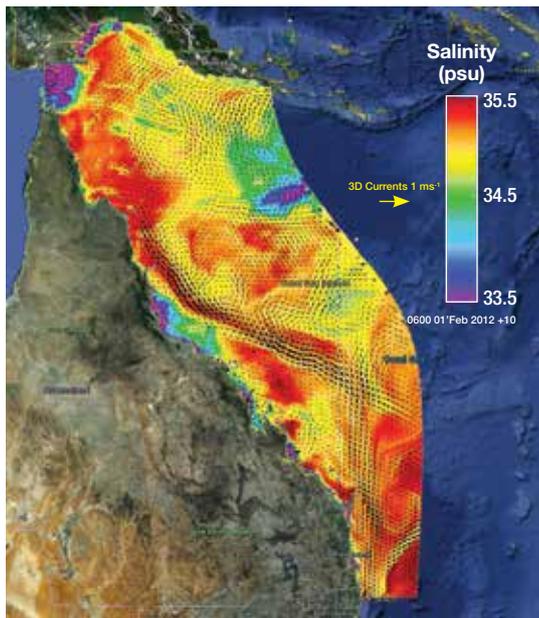


Figure 1. Snapshot from the near real-time hydrodynamic model of the Great Barrier Reef showing sea-surface salinity and surface currents. Image provided by CSIRO.



Tracking rainfall and flooding impacts

A significant rainfall event in Reef catchments can cause flooding which subsequently flows onto the Reef.

eReefs will enable the flood plume on the Reef to be visualised on a real-time or near real-time basis. The impacts of such plumes, the attributes of which will include sediments, nutrients and toxicants on the Reef will be tracked.

Assessing cumulative threats

Over periods of time, particular areas of the Reef are stressed by events and processes such as climate change, floods, cyclones and land run-off.

eReefs will provide a platform to accurately assess and predict the cumulative impacts of stressful events. Not only will eReefs be used to evaluate potential management interventions and actions to target specific areas; it will be used to understand the interrelation of these threats and their impacts. It will identify gaps in current science and monitoring initiatives.

Engaging the community

Visitors to the Reef will be able to contribute photographs and observations taken via their smart phone (complete with GPS information) that will be combined with research data.

They will also be able, using smart phone applications, to identify and learn more about fish, coral and other species they may see.

eReefs partnerships

The eReefs project is a public-private collaboration between Australia's leading operational and scientific research agencies, government, corporate Australia and Reef managers.

eReefs is a collaboration between:

- Great Barrier Reef Foundation
- Bureau of Meteorology (implementing agency)
- CSIRO
- Australian Institute of Marine Science
- Queensland Government.

With funding support from:

- BHP Billiton Mitsubishi Alliance and BHP Billiton
- Australian Government Caring for our Country initiative
- Queensland Government
- Science and Industry Endowment Fund.

A user reference group, under the Chairmanship of the Great Barrier Reef Marine Park Authority guides the type of information products and services being delivered by the project.

Advancing environmental intelligence

The eReefs project signals the start of a new generation of environmental intelligence products and services offered under the framework of the National Plan for Environmental Information. This initiative was established in 2010 by the Australian Government to address the environmental information needs for the nation.

The National Plan for Environmental Information is intended to improve the quality and accessibility of environmental information for decision-making. It is jointly implemented by the Bureau of Meteorology and Australian Department of Sustainability, Environment, Water, Population and Communities.

For more information

For further information about the eReefs project, visit www.bom.gov.au/environment or contact environment@bom.gov.au

eReefs is a collaboration between:



GREAT BARRIER REEF
foundation



Australian Government
Bureau of Meteorology



Australian Government



AUSTRALIAN INSTITUTE
OF MARINE SCIENCE



Queensland
Government

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CARING
FOR
OUR
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SCIENCE AND
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