

Australian Government

Department of the Environment, Water, Heritage and the Arts

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Program 5(i): Climate Change: Great Barrier Reef

Project 2.5i.4:	Tools to support resilience-based management in the face of climate change
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Project 2.5i.4 CSIRO Milestone Requirement

In a participatory workshop, create a conceptual model identifying key relationships between reef condition and tourism income under future coral bleaching scenarios.

The CSIRO component of Project 2.5i.4 for Year 3 (2008/2009) was completed by the CSIRO in November 2008. A workshop was held to develop a conceptual model describing the relationships between changes in reef condition and reef tourism viability.

This one-day workshop was held in Townsville, and included sixteen participants with expertise in a range of disciplines. Participants were affiliated with organisations including the CSIRO, James Cook University (JCU), Great Barrier Reef Marine Park Authority (GBRMPA), AIMS, Central Queensland University (CQU), Reef and Rainforest Research Centre (RTRC) and the Queensland Tourism Industry Council (QTIC). The priority of the workshop was to develop a conceptual model of likely temporal, spatial, and economic effects upon reef tourism of climate-driven changes in reef condition.

The workshop was opened with short presentations from the core project team and affiliated members. Martijn van Grieken (CSIRO) and Scott Wooldridge (AIMS) described the spatial economic land practice management model and the coral bleaching model, respectively. These models will inform the reef-tourism Bayesian belief network (BBN) under development by the CSIRO. Background on current research into the economics of regional reef-based tourism was presented by remaining core team members and affiliates (Bob Miles and Ingrid van Putten, CQU).

The remainder of the workshop was devoted to intense discussions surrounding the nature of tourism demand, destination competitiveness, and their relationship to reef health and tourism industry viability. These discussions were distilled by participants into a single conceptual framework that captures the key elements of the relationship between coral bleaching and tourism viability in the region.

In light of the findings generated in the workshop, an extensive review of the current state of knowledge, as evidenced in the peer-reviewed literature, was undertaken in the key disciplines of economics, tourism and coral reef ecology. The conceptual model was evaluated against the findings and amended accordingly. Changes primarily reflect recent advances in current thinking in economics and tourism, the addition of detail where time constraints prevented detailed representations by participants, as well as adjustments required to accommodate the BBN modelling platform. These changes are being finalised and will soon be individually evaluated by workshop participants. The (un)availability of data for quantifying the BBN will also be identified in these meetings.

Once evaluated by experts and refined to reflect data constraints, the conceptual framework will be converted into a prototype BBN that is capable of quantitatively investigating key reef-tourism relationships (MTSRF Year 4). Once quantified, the BBN will be evaluated against its objective, which is to provide an indication of the degree to which land practice and climate change, via reef condition, will impact the reef industry.

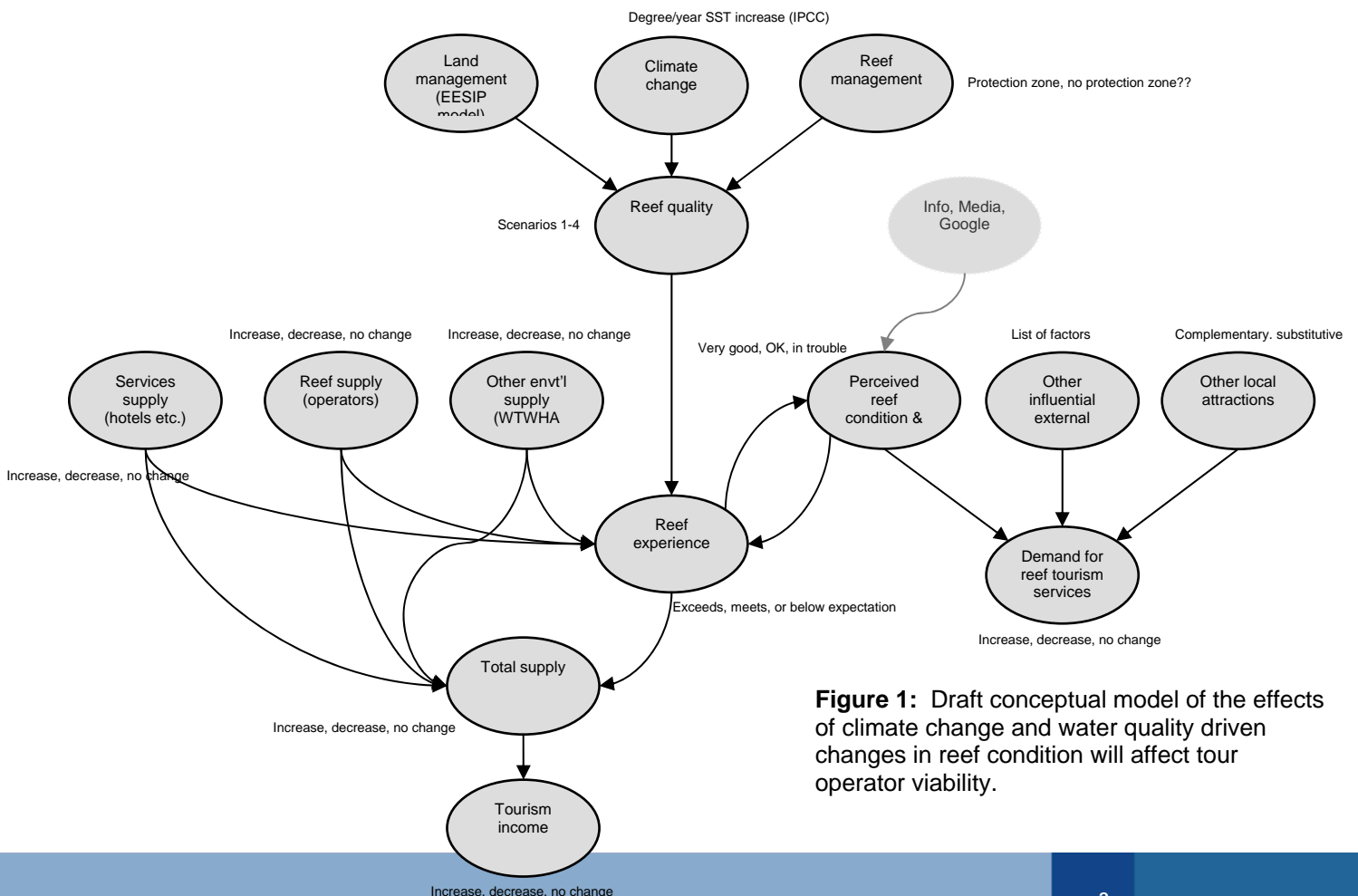


Figure 1: Draft conceptual model of the effects of climate change and water quality driven changes in reef condition will affect tour operator viability.