



Australian Government

**Great Barrier Reef
Marine Park Authority**

Expert Ecological Advisory Workshop III

Developing a framework for documenting socio-economic and cultural values for the Great Barrier Reef

Hosted by the Great Barrier Reef Marine Park Authority (GBRMPA)
29 September 2011

Expert Ecological Advisory Workshop III

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SUMMARY

The *Great Barrier Reef Outlook Report 2009* identified coastal development, water quality and climate change as the biggest threats to the health and resilience of the Great Barrier Reef. While the values provided by coastal ecosystems to the health of the Great Barrier Reef have been recognised for many years, prior to June 2010 a comprehensive and quantified assessment of the values of coastal ecosystems had not yet been undertaken by the Great Barrier Reef Marine Park Authority (GBRMPA).

In June 2010, the Expert Ecological Advisory Workshop One (Workshop I) focused on assessing and quantifying the ecological services provided to the Great Barrier Reef by ecosystems in their natural pre-developed state. During Workshop I, it was recognised that all basins within the Great Barrier Reef catchment are modified in some way at varying degrees. As a result the need to assess the ecological functions provided by modified systems was identified.

On 10 and 11 August 2011, GBRMPA and the former Department of Environment and Resource Management (DERM) hosted a Expert Ecological Advisory Workshop Two (Workshop II) to assess the ecological functions provided by modified ecosystems. Five basins were selected as case studies including the Herbert, Ross, Proserpine, Styx and Calliope basins. Along with assessing the ecological services provided by the modified ecosystems, an evaluation of the likely impact of climate change at a regional scale was carried out. During Workshop II it was acknowledged there was a reliance on coastal ecosystems within the Great Barrier Reef catchment (the catchment) by various social and cultural stakeholders. It was identified that there was a need to further investigate the ecosystems services provided by the Great Barrier Reef catchment coastal ecosystems.

Building on the fundamental information and understandings of ecological function, it was apparent there was a need for scoping how to incorporate the socio-economic and cultural functions to evaluate the ecosystem services provided by coastal ecosystems.

A select group of socio-economic scientists was invited to participate in a scoping workshop.

This report summarises the information that was compiled over the duration of Workshop III.

SECTION 1 – WORKSHOP INTRODUCTION

The *Great Barrier Reef Outlook Report 2009* (Outlook Report) identified coastal development, water quality and climate change as the biggest threats to the health and resilience of the Great Barrier Reef. In response, the *Informing the Outlook for Great Barrier Reef coastal ecosystems* report has been developed by the Great Barrier Reef Marine Park Authority (GBRMPA). This report aims to facilitate a greater understanding of the role and values of coastal ecosystems in protecting and managing the health of the Great Barrier Reef World Heritage Area.

In order to further understand the roles and values of the coastal ecosystems that are critical to the health and resilience of the Great Barrier Reef the following knowledge gaps needed to be addressed:

- How do the natural and modified coastal ecosystems function?
- What ecological services do both natural and modified ecosystems provide to the Great Barrier Reef?
- What threats exist now and in the long term for these ecosystems?
- What will the consequence of these threats be on long-term health and resilience of the Great Barrier Reef?

On 23 and 24 June 2010 an Expert Ecological Advisory Workshop One (Workshop I) was held with key researchers and managers working in the Great Barrier catchment and inshore marine areas. This workshop was the first opportunity for experts from a range of scientific disciplines to come together to discuss the ecological importance of coastal ecosystems from their respective specialist knowledge base. A number of recommendations were put forward and discussed and, as a result, a second workshop was proposed to look specifically at modified ecosystems and the functions and processes coastal ecosystems provide to the Great Barrier Reef.

On 10 and 11 August 2011, the Expert Ecological Advisory Workshop two (Workshop II) was held. A number of participants from Workshop I attended, along with researchers and managers with local working knowledge of basins adjacent to the Great Barrier Reef and inshore marine areas. Workshop II provided the opportunity to develop and pilot a framework for participants to apply their knowledge to a specific basin case study and to consider the ecological services that modified ecosystems provide to the Great Barrier Reef. The Coastal Ecosystems Assessment Framework was developed with the information obtained from Workshop I and II. A recommendation from Workshop II was that additional work was required to assess the social, cultural and economic values of natural and modified coastal ecosystems.

On 29 September 2012, an Expert Ecological Advisory Workshop (Workshop III) was held. Participants included specialist social scientists from CSIRO and GBRMPA. All participants were in attendance at Workshop II and had a good understanding of the principals of the Coastal Ecosystems Assessment Framework as it applied to coastal ecosystems and their ecological functions. Workshop III aimed to scope a framework which incorporates the ecosystem services into the coastal ecosystem case studies. A body of work was compiled prior to Workshop III by GBRMPA's Science and Coordination Group – this was reviewed during Workshop III. This work expanded on the social and cultural aspects of the Calliope Basin – one of the study areas from Workshop II.

1.1 Workshop III objectives

Objective One

Address a number of questions including:

- What will the potential future changes to connectivity/processes be, in relation to tradeoffs in ecosystem service/ecological functions?
- What processes and linkages are critical to preserve? How do we maximise resilience to change?
- Which beneficiaries of related services are most important? Who are the winners and losers? How can we identify win/win opportunities?
- What management tools are available? What policy responses are feasible to manage? (in context to the above)
- What information will be needed? What are the data gaps/research gaps? How do we improve knowledge and awareness of ecosystem services/functions?

Objective Two

Scope a framework for capturing ecosystem services for the Great Barrier Reef catchment.

Objective Three

Review ecosystem services (social, economic, cultural) data collection for the Calliope Basin.

1.2 Design of workshop

The workshop was designed as an open scoping session to facilitate input from participants who were identified as experts in social science.

The first workshop session was an open discussion based around the questions posed in Objective One. This session focused on what literature and research was available. The first session formed the basis for exploring potential framework techniques.

The second part of the workshop centred on brainstorming potential methods for capturing ecosystem services for the catchment and using existing concepts to deliver a framework. This session was facilitated by James Butler from CSIRO.

The third part of the workshop reviewed and discussed a detailed analysis of the socio-economic aspects of the Calliope basin compiled by GBRMPA's Science and Coordination Group.

1.3 Workshop participants

- Hugh Yorkston – Great Barrier Reef Marine Park Authority
- Donna Audas – Great Barrier Reef Marine Park Authority
- James Butler – CSIRO
- Dan Metcalf – CSIRO
- Margeret Gooch – Great Barrier Reef Marine Park Authority
- Paul Groves – Great Barrier Reef Marine Park Authority
- Melissa Evans – Great Barrier Reef Marine Park Authority

SECTION 2 – WORKSHOP RESULTS

Objective One

General discussion around the proposed questions

Objective Two

Using the concepts within the Millennium Assessment¹ and James Butler's expert knowledge, table 1 was created as an example of the information which could be collected and formalised into a framework. The example shown in the below is for the Proserpine Basin.

Table 1: Proserpine basin ecosystems services using concepts derived from the Millennium Assessment

Habitat	Area ha	Supporting services	Beneficiary	Regulating service	Beneficiary	Provisioning Service	Beneficiary	Cultural Service	Beneficiary
Artificial Wetland (Dam)	4000	Habitat refuge for native birds and adds connectivity to the Great Barrier Reef	Local and global community/ Great Barrier Reef	*Flood mitigation *Sediment and nutrient capture	*Local Proserpine community *Local community/ farming/ global	*Drinking water *Irrigation Water	*Proserpine & Airlie community *Sugar farms *Horticulture farms	*Rec fishing (Stocked basin) *Indigenous use *Water Skiing *Camping *Bird Watching	*Resident fishermen *Indigenous community * Airlie Beach residents *Local & Tourists

Habitat	Area ha	Supporting services	Beneficiary	Regulating service	Beneficiary	Provisioning Service	Beneficiary	Cultural Service	Beneficiary
Wetland Production	8600	*Habitat refuge for native birds and reptiles/ amphibians Pasture for cattle	*Local to global/ GBR *farmers and consumers	*Sediment & nutrient capture *storms floodwater and recharges groundwater	Local community/ global/ Great Barrier Reef *Local Proserpine groundwater	*Cattle production *Shale Oil *Groundwater Supply	*Graziers, processing, consumers * Graziers	*Bird watching - Gorganga Referable Wetland (QLD) directory of important wetlands *Indigenous harvesting	*Local and tourist birdwatchers *Conservation value (community objected to shale oil, mining)
Estuarine	12,500	*Habitat for crabs, prawns, crocs, birds, commercial fish *primary productivity	*Great Barrier Reef global/ community/ fisheries/ tourism	*Cycles nutrients sediments *Storm protection *Flood mitigation *Carbon sequestration *PH regulation	*Great Barrier Reef *Local Community	*Fisheries	*Recreational fishing *Commercial fishing *indigenous *Tourist Fishing	*Indigenous harvesting *Boating *Tourism (crocs) *Bird Watching *Beach houses	*Traditional Owners *Local residents *Tourists, tour operators *Local residents

Objective Three

The concept derived from the Millennium Assessment was used in addition to an extensive desk top research study on the Calliope Basin by GBRMPA's Science Coordination Group.

SECTION 3 – WORKSHOP CONCLUSIONS AND NEXT STEPS

3.1 Outputs

The key outputs of the workshop were:

- Development of a scoping framework to capture the supporting, regulating, provisioning and cultural services provided by values and assets based on identified coastal ecosystems within Great Barrier Reef basins.

3.2 Next Steps

The next step for the information collected in this workshop involves the ongoing partnership between CSIRO and GBRMPA's Social Science group to develop a socio-economic component for continued coastal ecosystems work. This is an important component in delivering detailed and thorough basin assessments for the catchment.

References

1. The Millennium Ecosystem Assessment 2006, *A Toolkit for Understanding and Action – Protecting Natures Services. Protecting Ourselves*, Island Press, Washington D.C.